Georgetown to Kitchener Rail Expansion
Environmental Study Report
GO Transit

Prepared by

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Executive Summary

This Executive Summary highlights the study findings contained in the Environmental Study Report (ESR) with particular emphasis on the preferred alternative design concept and the main issues identified during the study process.

E.1 Why Undertake this Study?

GO Transit currently operates the Georgetown peak period train service between Union Station and the Town of Georgetown. In a 2007 preliminary feasibility study which was conducted for GO Transit, a need was identified for an extension of commuter rail service beyond Georgetown to Guelph and the Kitchener/Waterloo area by utilizing a low usage Canadian National (CN) rail corridor.

Over the next twenty years, the expected growth in population and employment in the Gerogetown to Kitchener corridor is forecast to generate a significant transportation demand, which will require additional transportation facilities. At the present time, the primary transportation mode is auto oriented utilizing highway facilities linking the corridor to the Greater Toronto Area (GTA) via the Highway 401 freeway corridor and Highways 6, 7 and 8. To a lesser extent, VIA Rail and inter-regional bus providers accommodate inter-regional travel by public transit.

E.2 What is the Preferred Solution?

In accordance with good environmental practice, an evaluation framework was developed to analyze various alternative solutions including:

- "Do Nothing" Alternative: This is a mandatory alternative for consideration under the GO Transit Class EA, as it serves as a reference point for comparing other alternatives. The "Do Nothing" alternative would mean no improvements or changes would be undertaken to address the problem. This existing mainline track would continue to be used by freight and passenger (VIA) rail traffic.

- Transportation Demand Management: This alternative would involve the implementation of strategies or policies to encourage commuters to use alternatives to traveling alone (ie. education through marketing). Some of these strategies could include High Occupancy Vehicle (HOV) and Reserved Bus Lanes (RBL), area traffic/transit signal priority, parking management, congestion pricing, ridesharing, land use density increases and telecommuting.

- New or Expanded Commuter Rail Service: This alternative would involve the expansion of rail service from the Georgetown GO Station to the Kitchener area. This alternative would include construction of new commuter rail stations, corridor rail line improvements, and layover site in the western extremity of the study corridor to provide required train service to the Kitchener/Waterloo area. Current GO commuter rail service would be expanded within the study area, providing opportunities for increased ridership to/from the Greater Toronto Area (GTA) and within the expanded corridor. GO expansion would make use of the currently underutilized rail corridor.

- New or Expanded Bus Service: This alternative would involve the expansion of bus service on existing major arterial roadways and highways. The expanded service would be primarily an express service to enable the most efficient travel time for inter-regional commuter traffic. In order to improve the frequency and reliability of bus services, transit signal priority, rush-hour reserved bus lanes or dedicated bus-only roadways / transit-ways may be considered. Additional infrastructure would be required to support the increased number of buses such as new bus terminals and maintenance and storage facilities.

- Expand Road Capacity: This alternative would involve one of two measures. As a first approach, the implementation of traffic management improvements could enable more efficient use of the existing roadway networks. Improvements could include enhanced traffic signalization controls and HOV lanes. However, the most effective means of increasing road capacity is by widening existing roadways and highways in order to serve increasing inter and intra-regional commuter traffic.

Based upon the analysis and evaluation of alternative solutions, New or Expanded Commuter Rail Service was recommended as the preferred solution. This preference was presented and accepted by the public at Public Information Centres in Kitchener, Guelph and Georgetown.

E.3 Corridor Demand for Commuter Rail Travel

GO rail passenger volumes in the study corridor between Georgetown and Kitchener are forecasted to be in the range of 2,300 to 5,000 daily trips in the short term (2011) and approximately 9,000 to 16,000 daily trips in the long term (2031). Of note is the relative high passenger demand on commuter rail between Guelph and Kitchener. Overall, these numbers are reflective in attracting approximately 65 percent of the potential ridership via park and ride, while the remaining 35 percent are expected to arrive at the GO stations via local transit, walk-in or cycle.

E.4 What Alternative Design Concepts were considered?

Following the identification of the preferred alternative solution, alternative design concepts for station sites, a train layover facility and track improvements were undertaken. The alternative station and layover sites were assembled in an evaluation matrix, which included natural environment, social/cultural environment, economic considerations and technical factors. This matrix was used to select the preferred alternative design for stations and a train layover site.

The following nine alternative station sites were considered for evaluation:

- Construct a new station in the Acton area either at the Hide House (1) or near Dublin Line (2);
- Construct a new station in Guelph area either near Watson Road (3), downtown Guelph VIA Rail Station (4), or the former Lafarge pit property (5); and,
- Construct a new station in Kitchener/Waterloo Region either near Greenhouse Road (6) or Fountain Street (7) in Breslau, downtown Kitchener VIA Rail Station (8) or Ira Needles Boulevard (9) on the west end of Kitchener.

In addition to these alternatives, improvements to the existing Georgetown GO Station were also proposed.

Of the alternative station sites evaluated, and in addition to the proposed improvements to the existing Georgetown GO Station, the following were identified as the preferred alternative sites for Day 1 GO train service:

- Hide House site in Acton;
- Downtown VIA Rail Station in Guelph;
- Greenhouse Road site in Breslau (Woolwich Township); and,
- Downtown VIA Rail Station in Kitchener.

The following six alternative layover sites were considered for evaluation:

- Greenhouse Road (1) and Fountain Street (2) in Breslau;
- Ira Needles Boulevard (3) on the west end of Kitchener; and,
- Petersburg (4), Sandhills Road (5) and Nafizger Road (6) in Wilmot Township.

Of the train layover sites evaluated, the Nafziger Road site was identified as the preferred alternative.

With respect to track improvements, discussions were held with CN Rail, Goderich Exeter Rail (GEXR) and VIA Rail in order to upgrade the rail corridor to accommodate expanded GO Rail service in this corridor, and to ensure no degradation in existing and future rail traffic operations and reflect a high level of rail safety. Overall, the main line track improvements, which are recommended herein are anticipated to be accommodated within the existing rail corridor right-of-way (ROW).

E.5 Summary of the Recommended Design Concept

The following summarizes the recommended design concepts for GO train service, stations, train layover facility and track improvements.

E.5.1 Proposed GO Train Service

It is estimated that Day 1 (start-up) service could begin in the corridor as soon as 2011. Day 1 service will consist of four eastbound trains in the morning peak period and four westbound trains in the evening peak period. By 2031, it is anticipated that the ridership demand in the corridor will support 7 day / week, bi-directional service with 20 minute train headway in the morning and evening peak periods and hourly service in the off peak periods.

E.5.2 Proposed Stations

Georgetown GO Station: The Day 1 scenario will involve station, track and fencing modifications, new island platform and a new platform tunnel to include stairs and elevators. Future improvements will consist of the removal of existing storage tracks and the construction of a kiss and ride area together with an additional 222 parking spaces.

Acton – Hide House: The Day 1 scenario will involve the construction of a south platform and station building, parking area for 200 cars, bus bays and a kiss and ride area. Future improvements at this station will involve the construction of a north mainline track and north side platform together with stairs, elevators and tunnels. Due to track curvature, the future north side platform would require that either the Queen Street at-grade crossing be closed to all road traffic or GO Transit solve the site line issue by some other means.

Guelph – Downtown VIA: The Day 1 scenario involves refurbishing the existing north platform and alterations to the existing VIA Station to accommodate a GO ticketing area, the easterly extension of the existing north platform and the construction of a south side platform, and a potential reorganization of the VIA parking area along the north side of the mainline track to accommodate GO kiss and ride patrons. In future, this station would be further upgraded to provide stairs, elevators and tunnels to facilitate platform access. In addition, the City of Guelph plans to convert the Neeve Street parking lot into a multi-storey parking garage, which would accommodate the initial park and ride demand for the Guelph GO station. As well, the City of Guelph is planning to incorporate a transit terminal into the existing VIA Station site.

Breslau – Greenhouse Road: This site is designed to accommodate the Waterloo Region's park and ride demand. The Day 1 scenario will include a station building, north side platform, bus bays, kiss and ride and parking for 700 vehicles. Future plans for this site accommodate a south side platform, construction of stairs, elevators and tunnels, and an expansion of the parking area to accommodate a total of 1,050 spaces.

Kitchener – Downtown VIA: This station is primarily designed to accommodate a major transit interface, walk-in and cycle traffic along with a kiss and ride option. The Day 1 scenario involves refurbishing of the existing VIA Station building to provide a GO ticketing area, the easterly extension of the south side platform and reorganizing the VIA parking area. The Day 1 scenario would involve the closure of the Ahrens Street at-grade crossing to accommodate stopped GO trains at this station. Future station plans would accommodate a new combined VIA/GO station integrated with the Waterloo Region's plan to construct a Light Rail Transit (LRT) facility on King Street. The concept plan is to develop an integrated transit hub at this location. As well, the transit hub concept plan will likely permit the reopening of Ahrens Street.

E.5.3 Train Layover Facility

The selected train layover site is located in a greenfield site near Nafziger Road in Wilmot Township. The Day 1 concept, which accommodates a layover site for four trains, consists of a 3 m high landscaped berm and a 2 m high fence along the north perimeter of the site, four storage tracks and a lead in track, a crew centre, fueling facility, substation / wayside power, yard service road and site services. The future plans will allow for an additional four trains to be stored over night to accommodate a full service plan. Therefore, the future improvements will consist of a second lead in track, four additional train storage tracks and potentially two Progressive Maintenance (PM) bays for train maintenance. Additionally, sufficient land will be set aside for a future terminal station with accommodation for 200 parking spaces, kiss and ride and bus bays.

E.5.4 Day 1 Mainline Track Improvements

The existing rail corridor traffic currently operates within a single main track network. In order to resolve train meet conflicts on the single main line track with the introduction of GO rail service, the existing rail siding located at Rockcut Mile 41.7 (Guelph Subdivision) must be upgraded. In the City of Guelph, the existing siding from Mile 48.55 to Mile 50.55 will be upgraded coupled with a new siding on the Fergus Spur to replace GEXR's siding XW12 at Mile 50. At Shantz Station, the construction of a double track section on the north side from Mile 54.8 to Mile 57.8 is proposed. As well, the existing hot box and dragging equipment detector in the vicinity of Mile 53/54 may have to be relocated.

As this corridor is currently in "dark territory" (i.e. un-signalized), to address rail safety issues, the entire rail corridor from Silver Junction to London will be upgraded to a Centralized Traffic Control (CTC) system. The design and installation of the CTC system within the Georgetown to Kitchener rail corridor will be coordinated with VIA, CN and GEXR.

In addition to the installation of CTC, Section 8.1.4 outlines the rail and tie improvements required in order to upgrade the track structure to enable maximum speeds of 80 MPH. Further, Section 8.1.5 outlines the surfacing and additional ballast required in certain sections.

Generally, the existing rail alignment is in good condition; however, opportunities exist to allow for an increase in running speed through the following areas:

- Silver – Mile 30.0 - Currently the junction with CN at Silver is currently speed restricted to 10 mph due to misalignment in the junction switch. Improvements at this location could increase the running speed to 30 mph;
- Acton – Mile 35.6 – The main track curve through Acton is currently three degrees and presently restricts running speed to 45 mph. Improvements at this location could potentially increase the running speed to 50 mph;
- Guelph – Mile 48.55 – Proposed double mainline tracks will minimize conflicts between freight and passenger traffic; and,
- Kitchener – Mile 62.70 – Proposed double mainline tracks will minimize conflicts between freight and passenger traffic.

With respect to all public grade crossings within this corridor, the at-grade crossing protection will be uniformly upgraded with signals and gates where necessary in conjunction with the installation of CTC.

E.5.5 Future Mainline Track Improvements

To accommodate GO Transit's full, bi-directional service, 7 days / week, the following rail improvements are recommended:

- Install a third south mainline between Mount Pleasant to Georgetown Station, approximately Mile 18.57 to Mile 24.10 of the Halton Subdivision (S/D). These improvements will be subject to the expansion of the Credit River bridge and further design works by CN; and,
- Install second north mainline track between Mile 30.00 Guelph S/D (or Mile 24.10 Halton S/D) to Mile 73.00 Guelph S/D (i.e. Baden Layover).

E.6 Corridor Improvement Cost Estimates

The cost estimate to implement rail improvements, stations and the train layover facility in order to accommodate the Day 1 GO rail extension of service between Georgetown to Kitchener is $124.9 million (plus $28.5 million VIA Rail contribution). For full service upgrades, the cost is an additional $396.1 million. The future cost of $40.8 million for the train layover includes the additional of Progressive Maintenance (PM) bays. The following table summarizes the Day 1 and full service costs for the rail improvements, stations and layover facility.

	Opening Day		Future**
	GO Transit	VIA Rail	
Rail Improvements	$61,700,000	$28,500,000	$318,100,000
Stations	$43,300,000		$36,700,000
Train Layover	$19,900,000		$40,800,000
Total	$124,900,000	$28,500,000	$396,100,000

{Note: the costs shown in the above and in Appendix E are preliminary reflecting the level of detail completed as part of the ESR. **Cost sharing between GO, CN, GEXR, VIA and local municipalities for Future scenario, yet to be determined.}

E.7 The Importance of Consultation as Part of this Study

This Environmental Assessment Study was undertaken in accordance with GO Transit's Class EA document, dated December 2003 (as amended August 2005). One of the key features of successful planning and approval under the *Environmental Assessment Act* involves early consultation with affected parties. This study was organized so that affected parties were:

- Involved throughout the study at appropriate times;
- Provided access to information;
- Provided sufficient time to respond to questions and data requests; and,
- Encouraged to participate.

A stakeholder contact list containing various federal and provincial government agencies/ministries, municipalities, utility companies, and other interest groups was developed and maintained throughout the course of the study. Initial contact letters were distributed by mail to the stakeholders informing them of the study commencement, invitation letters to the Public Information Centres (PICs) were sent out, and a final contact letter was sent out informing them of the study completion and submission of the ESR.

The following methods of notification were used to contact the general public and to encourage interested individuals to participate:

- Newspaper advertisements were placed in the Georgetown Independent and Free Press, Brampton Guardian, Guelph Mercury, Guelph Tribune, Waterloo Region Record and New Hamburg Independent.
- A mailing list of adjacent property owners and interested individuals was established and updated throughout the course of the study. The purpose of this list was to ensure that these individuals were kept informed of upcoming events and the progress of the study.

The public was formally involved in the decision making process through two open house Public Information Centres (PICs) in Kitchener, Guelph and Georgetown. The first set of PICs were held in late September/early October 2008. The second set of PICs were held in February 2009. A third PIC was held in Baden in March, 2009 in order to present a proposed train layover facility to the area residents. In response to issues raised at PIC #3, the study team redesigned the Nafziger Road train layover site and issued a Public Information Bulletin to local stakeholders who either received Notice of PIC #3; signed in at PIC #3 or provided specific comments following PIC #3. As well, the Public Information Bulletin was sent to all property owners within 1 km radius of the site.

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Glossary

ANSI	Area of Natural and Scientific Interest
CA	Conservation Authority
CEAA	Canadian Environmental Assessment Act
CN	Canadian National
CTC	Centralized Traffic Control
CVC	Credit Valley Conservation
CWR	Continuous Welded Rail
DFO	Department of Fisheries and Oceans
EA	Environmental Assessment
ESA	Environmentally Sensitive Area
ESR	Environmental Study Report
GEXR	Goderich Exeter Rail
GRCA	Grand River Conservation Authority
MOE	Ministry of the Environment
MTO	Ministry of Transportation
NEC	Niagara Escarpment Commission
NEP	Niagara Escarpment Plan
NEPA	Niagara Escarpment Plan Area
OCS	Occupancy Control System
ORC	Ontario Realty Corporation
PIC	Public Information Centre
PPS	Provincial Policy Statement
PSW	Provincially Significant Wetland
ROW	Right-of-Way
S/D	Subdivision
TTS	Transportation Tomorrow Survey
TTW	Trip to Work

1.0 Introduction

1.1 Background and Previous Studies

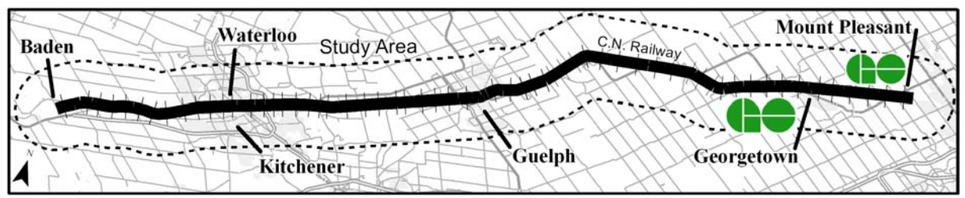
The Georgetown GO rail service currently operates four morning peak trains from Georgetown Station (current western terminus) to Union Station in Toronto and four evening peak trains in the return direction. In 2007, a preliminary feasibility study was conducted by AGM Program Managers for GO Transit to evaluate the feasibility of extending GO train service from Georgetown to Kitchener. This study involved an estimation of the potential ridership that could be attracted as a result of the extension, the development of a GO train service schedule based on coordination with existing rail operations on the line and estimation of operating revenues/required capital costs to implement the extension. This study concluded that the extension of the GO train service to Kitchener is technically feasible.

1.2 Project Description

In May 2008, GO Transit initiated a Class Environmental Assessment (EA) for the Georgetown to Kitchener Rail Expansion (refer to Section 1.4). The study includes a review of the need and justification for the extension, alternatives solutions for stations and a train storage (layover) area, rail corridor improvements, alternative preliminary designs and an evaluation of the impacts on all aspects of the environment.

The study limits, shown on the map below, extend from the Mount Pleasant GO Station (Mile 18) in West Brampton on the Canadian National (CN) Halton Subdivision (S/D) to Mile 73 on the CN Guelph S/D near the community of Baden in the Township of Wilmot. The proposed project will involve expansion of GO Train service to the Kitchener (with planned stops in Acton, Guelph, Breslau and Kitchener), track improvements along sections of the rail corridor, a layover facility and park and ride facilities, where appropriate.

Study Area



The expansion will be implemented using a phased approach. Initial start-up service is planned to commence in 2011 and will offer AM and PM peak period trains only. The long term goal for "full service" on this extended corridor is for a service frequency of 20 minutes or less for peak period GO Trains and hourly off peak train service including weekend service. Full service is planned to commence by 2031. Between 2011 and 2031, GO Transit will plan to adjust the level of service in accordance with the demand for ridership and available financial resources.

1.3 Project Team

The project team is composed of staff from GO Transit, the lead consultant, R.J. Burnside & Associates Limited (Burnside) and several sub-consultants who have assisted on particular aspects of the project. Table 1.1 provides a summary of the project team members from GO Transit and Burnside and their roles for the project. Table 1.2 provides a list of the sub-consultants involved with this project and their defined responsibilities.

Table 1.1 Summary of GO Project Team and Consultant Team

Project Team Member	Organization	Role / Responsibility
Greg Ashbee	GO Transit	Project Manager
Andreas Grammenz	GO Transit	EA Project Leader
Leonard Rach	Burnside	Project Manager (PM)
Doug Keenie	Burnside	Project Director/Deputy PM
Terry Keenie	Burnside	Rail Corridor Specialist
Helen Jenkins	Burnside	Senior Structural/Bridge Engineer
Fiona Christiansen	Burnside	Senior EA Specialist
Jim Georgas	Burnside	Deputy Rail Manager / Rail Designer
Jennifer Burnham	Burnside	EA Coordinator
Chris Pfohl	Burnside	Aquatic Resource Specialist
Tricia Radburn	Burnside	Terrestrial Ecologist

Table 1.2 Summary of Sub-Consultants

Sub-Consultant	Responsibility
Paradigm Transportation	Transit Ridership and Demand Forecasting
Archaeological Services Inc. (ASI)	Stage 1 Archaeological Assessment and Built Heritage and Cultural Landscapes Assessment
Aercoustics Engineering Ltd.	Noise and Vibration Assessment
Ortech Environmental	Air Quality Assessment
Terraprobe	Geotechnical Assessment

1.4 Environmental Assessment Process

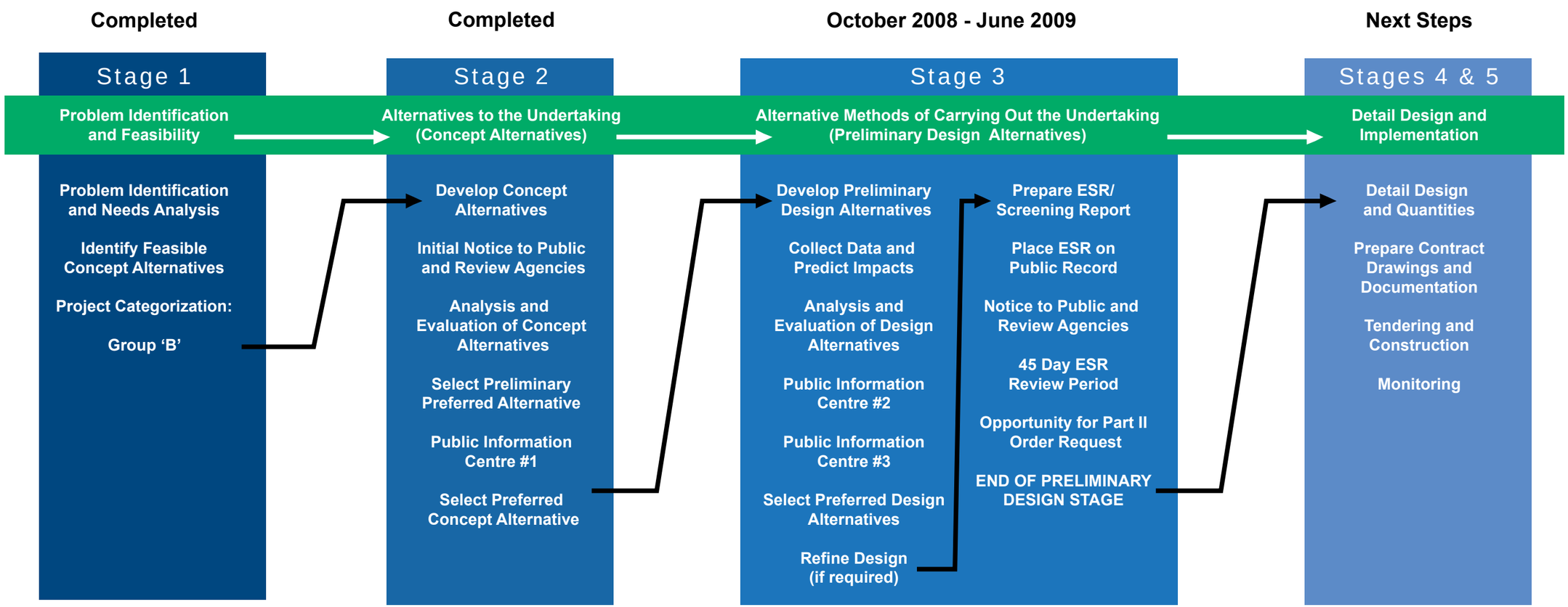
This study is being undertaken in accordance with GO Transit's Class EA document, dated December 2003 (as amended August 2005). The GO Transit Class EA document outlines an approved process for project planning and implementation in accordance with the requirements of the *Ontario Environmental Assessment Act*. As the work proposed for this project involves a GO Transit "Rail Route Extension", it is categorized as a Group "B" undertaking. This project is only being taken to the preliminary design

level and not the detailed design level at this stage; therefore Stages 1, 2 and 3 of the GO Transit Class EA process were followed. The completion of this Environmental Study Report (ESR) marks the end of Stage 3.

This ESR outlines the decision-making process, which has been followed to satisfy the requirements of the GO Transit Class EA document including public and agency consultation, evaluation of alternatives, assessment of the net effects on the environment, and identification of measures to mitigate any adverse effects.

A summary of the GO Transit Class EA process is provided on the flow chart below.

GO Transit Class Environmental Assessment Planning and Design Process



1.5 Study Schedule

This study was initiated in May 2008. The anticipated completion of the EA process is June 2009. Depending on the approval of the EA and support from the Province, who would ultimately decide on the appropriate timeline for expansion, GO train service to Kitchener could be initiated as early as 2011. Assuming that the project moves forward without delay, the preliminary schedule for design and construction would be as follows:

Detailed Design and Tender	2009
Construction	2010
Phase 1 - Initial Service Starts	Fall 2011
Phase 2 - Full Service	2031

All dates are dependent upon approvals, funding and authorizations.

2.0 Problem/Opportunity Statement and Project Purpose

2.1 Problem and Opportunity Statement

GO Transit currently operates four morning peak trains and four evening return trains from their Georgetown Station to Union Station in Toronto. Currently, this rail corridor is experiencing ridership demands which exceed available capacity and result in overcrowding. At the same time, there is currently a significant demand for affordable and efficient public transit service to alleviate commuter road traffic beyond the Georgetown area that is generated from the Guelph/Kitchener area. This is evidenced by the ever growing congestion levels on such corridors as Highway 7 and Highway 401. Compounding this problem is the increasing costs associated with auto trips and the uncertainties of predicable travel time resulting from road congestion/collisions, along with associated impacts on air pollution.

The expected growth in employment and population in the Georgetown to Kitchener corridor is forecast to generate a transportation demand, which will require additional transportation facilities. The Places to Grow, 2006 document projected the population and employment growth for the greater Golden Horseshoe area in increments between 2001 and 2031. Table 2.1 portrays the population and employment projections for this corridor. Of note, in the combined Halton, Wellington County and Waterloo Region areas, the population will increase by 22 percent by 2011 and 76 percent by 2031. Over the same period, employment growth will rise by 29 percent by 2011 and by 74 percent by 2031.

Table 2.1 Distribution of Population and Employment 2001-2031 (figures in 000s)

	Population				Employment			
	2001	**2011**	**2021**	**2031**	**2001**	**2011**	**2021**	**2031**
City of Toronto	2590	2760	2930	3080	1440	1540	1600	1640
Region of Peel	1030	1320	1490	1640	530	730	820	870
Region of Halton	390	520	650	780	190	280	340	390
County of Wellington*	85	91	269	321	36	41	137	158
City of Guelph*	110	132			63	76		
Region of Waterloo	456	526	623	729	236	282	324	366

Source: Places to Grow Growth Plan for the Greater Golden Horseshoe, 2006
Note: Numbers rounded to the nearest 10,000 for City of Toronto, Region of Peel and Region of Halton and nearest 1,000 for other municipalities.
* Separate forecasts for these municipalities for 2021 and 2031 will be determined.

An opportunity exists to accommodate these travel demands through commuter rail by utilizing the existing CN/GEXR rail line between Georgetown and Kitchener. The expansion of the GO Transit service can be accomplished in this corridor through track improvements to increase train capacity and rail safety; the siting of potential GO Transit stations in Halton Hills, Guelph and Kitchener areas; and the siting of a train storage area (layover facility) in Wilmot Township west of Kitchener.

Increasing the proportion of travelers using rail or public transit will effect a reduction in road congestion, air pollution and energy consumption. Identifying property requirements for GO Transit expansion at an early stage will protect lands adjacent to the corridor from future development.

2.2 Need for the Project

Paradigm Transportation Solutions Ltd. (Paradigm) was retained by Burnside to assist with the assessment of travel patterns in the study corridor and to prepare estimates of transit ridership that could be expected with future rail services. A copy of Paradigm's report documenting the investigations and findings carried out in the development of ridership estimates for the study is provided in Appendix A.

The following conclusions were made by Paradigm in their report:

- The Guelph / Region of Waterloo area is a major urban area with a growing population, strong economy and strong links with the GTA. The current combined population is approximately 600,000 people with considerable population and employment growth anticipated over the next 10 to 20 years. The primary urban areas are the cities of Guelph, Kitchener, Waterloo and Cambridge (G-K/W/C).
- The four cities have four major post-secondary educational institutions and have well established local transit services.
- The CN Rail line currently accommodates the GO Rail commuter service as far as Georgetown and continues west through the urban centres of Guelph and Kitchener. The Georgetown GO rail corridor extends from Georgetown, through Brampton, Mississauga and into the City of Toronto to Union Station. For travel demand analyses purposes, the primary study corridor is considered to include the Region of Waterloo, Guelph and south Wellington County, Halton Region, Peel Region and the City of Toronto.
- The primary transportation corridor connecting the study area to existing GO Transit services is the Highway 401 freeway corridor. Other highway connections to GO services include Highway 7 to Georgetown and Highways 6 and 8 to Hamilton and Burlington.
- The existing travel demand characteristics in the study corridor area established were based on the Trip to Work (TTW) demand (i.e. Home-Based-Work or HBW) and the trip to school for post secondary students demand (Home Based School or HBSch) from 2006 Transportation Tomorrow Survey (TTS) travel data.
- The TTW noted that the most significant travel activity occurs between Waterloo Region and Guelph, with approximately 32,000 trips daily in each direction. This corridor has approximately 12,000 to 13,000 trips in the peak direction during the weekday peak period with the peak being eastbound in the AM peak period and westbound in the PM peak period. However, the non-peak direction travel is also significant.
- The travel demand generated by the Waterloo Region and Guelph urban areas in the study corridor tends to decrease as it approaches the central area of Toronto. Nevertheless, there is still strong inter-regional travel demand generated by the Waterloo Region and Guelph area destined to the Halton and Peel Regions.
- Rail expansion to the Kitchener Area including additional layover capacity will provide more trains through the corridor to Union Station.
- In the 2002/2003 academic year, the student double cohort plan created a significant increase in enrollment in post secondary institutions with four post-secondary institutions in the area, traffic demand was also increased. The Kitchener-Waterloo and Guelph-Wellington areas also showed an increase in traffic, which would also suggest a strong employment and population relationship in these areas.
- The 2006 TTS data indicates that private automobiles are currently the dominant mode of travel in the study corridor. Use of commuter rail service from nearest GO Stations such as Georgetown, Milton or Aldershot by G-K/W/C commuters amounts to less than 1 percent of the total trips in the corridor. This is related to the lack of high speed transit facility within this corridor, which can effectively compete with private automobiles.
- The travel demand in the study corridor is forecast to increase by approximately 30 percent in the next 25 years. The corridor demand between Peel Region and Kitchener Waterloo Region and Guelph-Wellington is expected to increase significantly.
- Based on the future corridor trip demand in the study area and the existing GO Rail mode share rate in other similar corridors, the GO Rail passenger volumes in the study corridor are forecast to be about 2,300-5,000 daily trips in the short term (2011) and about 9,000-16,000 daily trips in the long term (2031). The low ridership estimates reflect an established peak period rail service operating in both directions while the high estimates reflect all day rail service operating on both directions.
- The low ridership estimates are consistent with the other estimates of ridership estimated in a report on this same rail corridor prepared by Dillon Consulting (February 2006). The high estimates may be somewhat optimistic, but it should also be recognized that the Guelph-Kitchener/Waterloo/Cambridge is a unique economic growth area that appears to have significant potential for considerable inter-regional transit ridership.
- Based on the forecast GO Rail ridership and the existing GO Rail passenger volume forecasts at other similar GO stations, the potential GO Rail trip origins and trip destinations by direction (i.e., Ons and Offs) to/from potential stations in Guelph-Wellington and Waterloo Region have been estimated. It is estimated that about 65 percent of the passenger demand would be automobile oriented demand and is most likely to use the fringe stations with parking facilities while the remaining 35 percent of the passenger demand would likely use downtown stations using local transit, walking or cycling access modes with some minor amount of Kiss and Ride access activity.
- While high and low estimates of ridership forecasts were developed for the corridor, for planning purposes, a median value of passenger demand estimates were used in assessing the requirements for GO Rail stations in the Kitchener, Guelph and Halton Hills areas. The estimated passenger demands for 2011 and 2031 in the am peak period, pm peak period and all day period are illustrated in Tables 2.2 and 2.3. Of note is the relative high passenger demand for commuter rail trips between Guelph and Kitchener. The estimated demand for parking at the potential GO Rail stations is presented in Table 2.4. These numbers are based on the assumption that about 65 percent of the passenger demand would be automobile oriented while the remaining 35 percent of the passenger demand would use local transit, walk-in or cycle. This may be compared to the 68 percent of the passenger trips in the existing established GO Rail corridors who currently park and ride.

Table 2.2 2011 Potential Ridership Demand for Future GO Rail Stations[1]

Potential Station Locations	Eastbound		Westbound	
	ON	OFF	ON	OFF
AM Peak Period				
Kitchener Station	950			700
Guelph Station	310	430	310	200
Acton Station	180	0	30	0
PM Peak Period				
Kitchener Station	660			940
Guelph Station	210	230	420	290
Acton Station	30	30	30	190
24 Hour Period				
Kitchener Station	1,820			1,860
Guelph Station	580	820	830	570
Acton Station	250	40	70	250

Table 2.3 2031 Potential Ridership Demand for Future GO Rail Stations

Potential Station Locations	Eastbound		Westbound	
	ON	OFF	ON	OFF
AM Peak Period				
Kitchener Station	3,110			1,980
Guelph Station	1,030	1,400	890	580
Acton Station	260	0	30	0
PM Peak Period				
Kitchener Station	2,110			3,200
Guelph Station	730	830	1,440	990
Acton Station	40	40	40	280
24 Hour Period				
Kitchener Station	5,370			6,160
Guelph Station	1,730	2,800	2,770	1,860
Acton Station	360	50	90	350

The figures shown in Table 2.2 and 2.3 represent potential ridership demand if rail service is provided. It is anticipated that the opening day GO service will consist of four inbound am peak trains from Kitchener with four pm peak trains returning in the evening peak period. Over time, GO Transit intends to monitor the ridership demands in this corridor and implement appropriate service level changes to meet expected growth in rail travel.

Table 2.4 Estimated Parking Demand at Potential GO Rail Stations

Potential Station Locations	Parking Demand	
	2011	2031
Kitchener	670	2200
Guelph	210	670
Acton	140	200

The potential ridership and parking demand figures shown above represent **new** riders who are not currently served by GO buses or GO trains from Georgetown to Union Station.

2.3 Purpose of the Project

The purpose of this undertaking is to examine the need and resources required to expand GO Train service to the Halton Hills, Guelph and Kitchener market areas on the existing CN/GEXR rail corridor to accommodate future projected ridership demands.

[1] The figures shown in Tables 2.2, 2.3 and 2.4 are from the Paradigm Report, which is provided in Appendix A.

3.0 Existing Infrastructure

3.1 General Description of the Corridor

Overall, the study corridor from Mount Pleasant GO Station, on the Halton S/D to Baden, on the Guelph S/D, is approximately 40 miles (79 km) in length. The Halton S/D from Mount Pleasant GO Station, Mile 18.3, to Silver Junction, Mile 24.1 consists of a double mainline track with a single track over the Credit River Bridge, Mile 22.5 The Guelph S/D consists of a single mainline track. The Halton and Guelph Subdivisions are owned by CN. The Goderich-Exeter Railway (GEXR) leases the Guelph S/D and is responsible for the operation and maintenance of the Guelph S/D. GEXR also have running rights over the Halton S/D into CN Macmillan Yard.

Moving west within the study corridor, the mainline runs through the communities of West Brampton, Georgetown, Acton, Rockwood, Guelph, Breslau, Kitchener, Petersburg and Baden.

The width of the Railway right-of-way (ROW) along the corridor is about 100 feet (30.48 m) with most of the grading/drainage for the track structure contained within the ROW. The track grades over the Guelph S/D are considered light to moderate with a ruling grade of about 1 percent between Georgetown and Acton.

3.2 Transportation Infrastructure

The following sections describe the infrastructure currently in place within the study corridor which denotes the dominant modes of transportation between the Kitchener area and the GTA.

3.2.1 Rail Infrastructure

The CN Halton S/D from Mount Pleasant through Georgetown to Silver Junction is a double track corridor with a single track over the Credit River Bridge located at the east end of Georgetown. Current levels of traffic experience frequent delays due to the "bottleneck" created by the single track at the Credit River Bridge. Train movements over the Halton S/D are controlled by CN's control centre located at MacMillan Yard in Toronto, utilizing a Centralized Traffic Control (CTC) System.

Rail traffic over this section of the Halton S/D consists of approximately 40 freight trains, six VIA trains (three trains in each direction) between Toronto and London, with stops at Brampton, Georgetown, Guelph, Kitchener, Stratford and St. Mary's. Also, GO Transit operates a limited week-day service consisting of eight trains (four trains in the morning and evening peak periods) between Union Station, Toronto and Georgetown.

The Guelph S/D from Silver Junction through Kitchener to London is also owned by CN. Under a long term lease agreement with CN, a subsidiary company of Rail America Inc., is responsible for the operation and maintenance of the corridor.

GEXR 's main terminal is in Stratford and handles all freight traffic for CN on the Guelph S/D. GEXR operates two manifest freight trains daily (#432 in each direction) between MacMillan Yard and Stratford. GEXR also operates three road switchers between Guelph and Stratford. Switcher 516 based in Stratford, handles freight between Stratford and the Alpine Fertilizer Plant at Baden. Switcher 580 handles switching at Kitchener, Shantz Station Terminals in Breslau and at Guelph including South Fergus Spur. Switcher 584 handles local switching at Kitchener including the Waterloo Spur. Switches 580 and 584 are based in Kitchener.

The Guelph S/D is essentially a single track corridor of about 43 miles in length from Silver Junction to the proposed layover at Baden. This section of the corridor has 52 at-grade road crossings consisting of 45 public crossings and seven private crossings. Only about 15 percent of the track is located on curves with the remaining on tangent track. Train movements are governed by an Occupancy Control System (OCS), otherwise known as "dark territory." GEXR's control centre, located in North Bay, controls all train movements over the Guelph S/D. Rail traffic over the Guelph S/D is generally considered light with only six VIA trains (three westbound and three eastbound) and the above mentioned GEXR freight trains.

Copies of the current VIA Rail Train Schedule and GEXR Train Service Plan are provided in Appendix B.

The existing track configuration is depicted schematically on Figures SC1 to SC6.

3.2.2 Road Infrastructure

The GO Transit Georgetown North Corridor and its proposed extension to the City of Kitchener runs diagonally from southeast to northwest from Union Station through the downtown areas of Brampton, Georgetown, Guelph and Kitchener. The major highway servicing the transportation demand in this southeast to northwest corridor is Highway 401 in combination with Highway 427 and the Gardiner Expressway. To a lesser extent the Highway 7 corridor serves an important transportation function by connecting the Georgetown / Acton / Guelph / Kitchener communities. At the present time, recurring congestion during peak travel periods combined with increased and unpredictable travel times as a result of collisions, weather, maintenance and road construction activities results in driver frustration and the desire for fast and efficient alternative travel modes.

Within the rail corridor study area between Mount Pleasant through Georgetown to Silver Junction on the CN Halton S/D and from Silver Junction to Baden on the CN Guelph S/D, the rail corridor is crossed by 49 roads and seven private crossings (not including farm crossings) as listed in Table 3.1.

Table 3.1 Summary of Rail Corridor Crossings

Mileage	Road Name	Road Authority
19.17	Mississauga Rd.	Peel Region
20.14	Heritage Rd.	Town of Halton Hills
21.15	Winston Churchill Blvd.	Halton Region

Mileage	Road Name	Road Authority
22.13	10th Line	Town of Halton Hills
30.83	Trafalgar Rd.	Halton Region
33.54	4th Line Rd.	Town Halton Hills
34.25	3rd Line Rd.	Town Halton Hills
34.85	Private Crossing	Private
35.48	Eastern Ave.	Town Halton Hills
35.69	Mill St./Highway 7	Town Halton Hills
36.20	Main St.	Town Halton Hills
37.20	Dublin Rd.	Town Halton Hills
38.21	Townline Rd.	Guelph Eramosa
39.22	7th Line Rd.	Guelph Eramosa
40.56	Harris Street	County of Wellington
41.30	Main Street	County of Wellington
42.19	4th Line Rd.	Guelph Eramosa
43.02	3rd Line Rd.	Guelph Eramosa
43.97	Cty Road 29	County of Wellington
45.80	Private Crossing	City of Guelph
46.22	Watson Road	City of Guelph
46.93	City View Drive	City of Guelph
46.09	Dublin Street	City of Guelph
49.20	Glasgow Street	City of Guelph
49.33	Yorkshire Street	City of Guelph
49.54	Edinburgh Road	City of Guelph
49.79	Alma Street	City of Guelph
52.95	Wellington Road 32	County of Wellington
53.47	Private Crossing	Private
54.06	Speedvale Ave.	Guelph Eramosa
54.37	Townline Rd.	Guelph Eramosa
57.00	Wurster Place	Township of Woolwich
57.19	Private Crossing	Private
58.39	Woolwich Street	Township of Woolwich
59.67		City of Kitchener
59.81	Lackner Blvd 4	City of Kitchener
60.01	Private Crossing	Private
62.08	Lancaster Street	Region of Waterloo
62.26	St. Leger Street	City of Kitchener
62.60	Ahrens Street	City of Kitchener
62.72	Weber Street	Region of Waterloo
62.82	Duke Street	City of Kitchener
62.93	Waterloo Street	City of Kitchener
63.03	King Street	Region of Waterloo
63.40	Park Street	Region of Waterloo
63.52	Strange Street	City of Kitchener
66.66	Glasgow Street	City of Kitchener
67.05	Private Crossing	Private
67.48	Private Crossing	Private
69.24	Agatha Road	Region of Waterloo
71.53	Sandhill Road	Wilmot Township
72.03	Brubacher Street	Wilmot Township
72.39	Snyder Road	Region of Waterloo
72.39	Foundary Road	Region of Waterloo
72.50	Mill Street	Wilmot Township
73.67	Nafziger Road	Region of Waterloo

Note: Farm crossings are not included in this table.

3.2.3 Transit Infrastructure

Overall, the Georgetown to Kitchener corridor has limited community to community inter-regional transit service available as a transportation modal option. Similarly, the integration between local and inter-regional transit providers is somewhat limited.

3.2.3.1 Existing Local Transit/Rail Infrastructure

Georgetown GO Station

At the present time, the station complex provides for 615 spaces for park and ride commuters and a dedicated kiss and ride area for “drop-offs”. There is no local transit system in Georgetown. Halton Hills Activan provides local transportation for individuals with physical disabilities throughout the community; however, at its present configuration, the Georgetown GO Station is not accessible to the Activan service. Currently, the Town of Halton Hills is undertaking a Secondary Plan Study, which is intended to focus on the intensification of the area surrounding the Georgetown GO Station. This station also services VIA patrons, however, there are no ticket sales agents.

Guelph VIA Rail Station

The existing VIA Rail Station is located within the downtown area of Guelph in the southeast quadrant of Carden Street and Wyndam Street. Parking for approximately 45 vehicles is currently reserved on the station property for VIA patrons. At present, local transit service in Guelph is categorized as a radial route system with a main transfer point in downtown Guelph at St. George’s Square. Currently, the City of Guelph is pursuing the establishment of an inter-

regional transportation terminal hub at the VIA Rail Station. This would involve relocating the Downtown main bus transfer station from St. George's Square to the VIA Station site on Carden Street.

Kitchener VIA Rail Station

The existing VIA Rail Station is located within the downtown area of Kitchener north of Victoria Street and east of Weber Street. Currently, there is limited parking on site reserved for approximately 70 VIA patrons. Grand River Transit services the immediate area with local bus service on Weber Street West and King Street West. At the present time, the Region of Waterloo are planning to construct a spine Light Rail Transit (LRT) line on King Street which would directly interface with the VIA Rail Station, and also support an inter-regional rail terminal with local bus service.

3.2.3.2 Existing Inter-Regional Transit Service

Existing GO Bus Service

Within this corridor, GO Transit currently provides bus service from the Guelph area on several routes. The University of Guelph GO Bus serves the University of Guelph and then connects with Aberfoyle GO, Square One and Cooksville GO. The Georgetown GO Bus provides service between Guelph and the Georgetown GO Station. The Highway 407 West GO Bus, provides service between Guelph and Hamilton, McMaster University, Oakville, Meadowvale, Streetsville, Square One, Bramalea and York University.

Other Bus Carriers

Greyhound provides 15 buses daily to Toronto via Highway 401 and return from Kitchener. Similarly, Greyhound provides 18 buses on weekdays and 12 buses on weekends to Toronto from Guelph. Greyhound also provides buses linking Guelph to Kitchener and other destinations west as well as a link between Guelph and Fergus/Elora on Highway 6 continuing north to Owen Sound. Coach Canada provides a service from Kitchener that goes to Hamilton and then transfers to GO into Toronto via the Lakeshore GO route. Coach Canada also provides bus service from Guelph to Kitchener. Aboutown has one bus that travels between Guelph and Cambridge.

4.0 Existing Environment

4.1 Planning Context

The study corridor involves several jurisdictions, including the Region of Peel, City of Brampton, Halton Region, Town of Halton Hills, County of Wellington, Township of Guelph/Eramosa, City of Guelph, Township of Woolwich, Region of Waterloo, City of Kitchener, and the Township of Wilmot. The study corridor in relation to these municipal jurisdictions is shown on Figure 4.1.

4.1.1 Provincial Planning Policies

4.1.1.1 Provincial Policy Statement

The Provincial Policy Statement (PPS, 2005) provides general policies on land use patterns, transportation priorities, resources, and public health and safety that guide development across Ontario. Section 1.6.5 and 1.6.6 of the PPS provide policies for Transportation Systems and Corridors. Section 1.6.5.2 states that "Efficient use shall be made of existing and planned [transportation] infrastructure."

The PPS focuses on the need for community-based planning that increases the opportunity for use of public transit, including GO Transit, by building compact and walkable communities. The policies are applicable throughout Ontario. Consistency with the goals, objectives and general policy direction of the PPS is necessary and appropriate for this project.

4.1.1.2 Growth Plan for the Greater Golden Horseshoe

The Growth Plan for the Greater Golden Horseshoe (Growth Plan, 2006) supports the development of a wide variety of transportation modes, including public transit and rail systems. The following sections are most applicable to this GO Transit project.

Section 3.2.2 c: states that transportation systems should "be sustainable, by encouraging the most financially and environmentally appropriate mode for trip-taking."

Section 3.2.2.3c: states that Ministries of the Crown, public agencies and municipalities will "consider increased opportunities for moving people and goods by rail, where appropriate."

Section 3.2.3.2b: indicates that priority should be placed on "increasing the capacity of existing transit systems to support intensification areas."

Schedule 5 of the Growth Plan shows the corridor between Kitchener-Waterloo, Guelph and the GTA as an area proposed for improved inter-regional transit by 2031.

4.1.1.3 Greenbelt Plan

The Greenbelt Plan (Plan, 2005) covers portions of the Study area in Halton Hills. The Plan does not specifically reference public transit or commuter rail services as its focus is on preservation of agricultural lands, which is accomplished in part by setting urban growth limits. Section 4.2 describes policies related to infrastructure and acknowledges that "existing infrastructure must be maintained and new infrastructure will be needed to continue to serve existing and permitted land uses within the Greenbelt."

Expansions, extensions, operations and maintenance of infrastructure are permitted in the Protected Countryside provided that crossings, or intrusions into, the Natural Heritage System are minimized and negative impacts to key natural heritage or key hydrologic features are minimized. In addition, impacts caused by light intrusion, noise and road salt, (among others) should be minimized.

The Plan requires that new and expanded infrastructure must be justified by demonstrating that the initiative is required and has properly screened impacts.

4.1.1.4 Niagara Escarpment Plan

The Niagara Escarpment Plan (NEP, 2005) permits new and reconstructed transportation facilities as long as they are designed and located to minimize impacts on the escarpment environment. Other guidelines in the NEP require blasting, grading and tree removal to be minimized as well as native vegetation species to be used in site rehabilitation, and finished slopes to be graded to a 2:1 slope to minimize surface erosion. Visual impacts should also be minimized to the greatest extent possible.

4.1.2 Official Plans / Municipal Endorsements

4.1.2.1 Region of Peel

The Region of Peel's Official Plan (2005) is very supportive of public transit and provides a number of objectives and goals aimed at improving the existing public transit system. Section 5.6.2.5 describes GO Transit services and states that the Region of Peel will "request the Province to improve the level of GO commuter rail and bus service through and to Peel, and in particular…b) to provide all-day two-way GO commuter rail service on the Milton and Georgetown lines as soon as possible."

4.1.2.2 City of Brampton

The City of Brampton Official Plan (2006) states the importance of public transit to the City of Brampton. Section 4.4.4 states that "the City's transit system will continue to grow and play a dominant role but its growth will also depend upon effect integration with GO Transit…Enhancement of service on the Georgetown and Milton GO rail corridors is essential."

In addition, Section 4.4.4.29 states that "the City shall encourage GO Transit to improve the existing commuter rail service between Brampton and downtown Toronto."

4.1.2.3 Halton Region

The Halton Region Official Plan (2006) identifies a number of objectives related to public transit and inter-regional transportation options. Section 172 (6) identifies a goal to "realize a public transit system in Halton that consists of… b) continuous enhancements of the GO Transit system within Halton."

4.1.2.4 Town of Halton Hills

The Town of Halton Hills Official Plan (2008) is supportive of public transit and specifically references GO Transit in Section F6.3 stating that "council shall encourage continuous improvements to the Provincial GO Transit system."

4.1.2.5 County of Wellington

The County of Wellington does not have policies directly related to public transit; however, Section 12.1 of the County's Official Plan (2008) states that "the County will co-operate with surrounding jurisdictions to develop a transportation system that recognizes the mobility of people within this area and their need for effective inter-regional transportation systems."

4.1.2.6 Township of Guelph-Eramosa

The Township of Guelph-Eramosa does not have an Official Plan and defers to the County of Wellington for planning matters related to public transit and inter-regional transportation.

4.1.2.7 City of Guelph

The City of Guelph's Official Plan (2001) is supportive of public transportation and, in particular, passenger rail service. According to Section 8.2.32 of the Official Plan, "the City recognizes the importance of the rail system in the existing and future growth of the City [and] encourages the continued provision of passenger rail service."

The City of Guelph provided written support for the Guelph Downtown GO Station site in a resolution dated December 22, 2008 adopting a Community Development and Environmental Services Committee Report for the GO Transit EA for Rail Service Extension dated December 5, 2008. The Committee Report also directs City of Guelph staff to work with the GO Transit project team to identify local bus connections and parking and improvements to the VIA Station to accommodate initial GO rail service.

4.1.2.8 Region of Waterloo

The Region of Waterloo's Official Policies Plan (2006) is supportive of public transit, indicating in Section 11.10.5 that the Region will "ensure that efficient and convenient bus and rail service is made available to residents of the Region."

Section 11.10.3 also states that "the Region will request that any consideration of future commuter rail service include an assessment of the impacts on population growth, land use, other infrastructure, public finances and the environment."

In addition Section 11.10.4 states that "new terminals should be located so as to promote access by transit, sidewalks, pedestrian trails and bicycle facilities."

4.1.2.9 Township of Woolwich

The Township of Woolwich Official Plan (2007) supports public transit and encourages the improvement of passenger rail service. Section 15.2.1 states that "the Township will encourage wherever possible the maintenance and improvement of rail service as a vital and increasingly important part of an integrated transportation system required to serve the needs of the residents of the Planning Area."

4.1.2.10 City of Kitchener/City of Waterloo

The City of Kitchener's Official Plan (2005) does not list any policies related to commuter rail transit. However, the Plan is supportive of public transportation and states in Section 8.2 that "the City of Kitchener is committed to providing and promoting public transit as an option for its residents."

The City of Kitchener provided written support for the GO Transit Rail Expansion project as noted in their Environmental Committee Report dated October 23, 2008. City staff noted benefits of a two-station approach for Kitchener with one station downtown and one station on the outlying areas (Ira Needles or Breslau). The City of Kitchener Mayor also provided written support for the proposed rail expansion in a letter dated February 24, 2009 noting the numerous benefits to the community.

The City of Waterloo also provided written support for the GO Transit Rail Expansion project including the proposed interim GO Station at the VIA Rail Station and permanent GO Station at King Street and the Breslau Park and Ride Station in a resolution dated April 6, 2009 adopting a Development Services Report dated March 26, 2009.

4.1.2.11 Township of Wilmot

According to Section 6.7.8.1 of the Township of Wilmot's Official Plan (2006), "the Township supports planning for the future extension of transit services to accommodate its growing population."

4.1.3 Land Uses Adjacent to the Rail Line

The study corridor traverses various land uses. In urban areas the land use is predominantly residential; however, there are some areas used for industrial and recreational purposes. In rural areas, the land use is predominantly agricultural or wooded; however, some areas are used for industrial purposes. The land uses along the study corridor are generally shown on Figures N-01 to N-25.

The following describes the land uses and environmental features within 120 m on either side of the existing CN/GEXR rail corridor from the eastern limit of the study area near the Mount Pleasant Station (Mile 18 Halton S/D) to the western limit at the Nafziger Road Layover Alternative site (Mile 73 Guelph S/D). A summary of the environmental features along the rail line corridor are presented in Section 4.2.6.4. Details of these environmental features are included in tabular form in Appendix C4.

Eastern Limit to Chinguacousy Road (Mile 16- Mile 17 Halton S/D)
The most easterly limit of the study area is designated as part of the "Central Area" in the City of Brampton Official Plan and is a good example of an urbanized area. It is highly urbanized with residential lands to the south of the ROW and a small industrial site surrounded by residential lands to the north. The Fletcher's Creek corridor is located just east of McLaughlin Rd. Fletcher's Creek crosses southward through the ROW and is flanked by greenspace and parklands. West of McLaughlin Road, adjacent land uses are industrial, with residential land uses to the west of as far as Chinguacousy Road.

Chinguacousy Road to Bovaird Drive (Mile 17- Mile 18 Halton S/D)
A power substation is located west of Chinguacousy Road to the north of the ROW. Lands south of the ROW are currently being developed for residential uses. Residential units are also located between Williams Parkway West and Bovaird Drive on both sides of the ROW. A large stormwater management pond is located immediately north of the ROW, just west of Williams Parkway West.

Bovaird Drive to Mississauga Road (Mile 18- Mile 19 Halton S/D)
This stretch is a good example of a semi-urban area. There is some residential land use immediately to the west of Bovaird Drive north of the ROW. Lands to the south are currently being developed for residential purposes. The remainder of land to Mississauga Road is agricultural on both sides of the ROW.

Mississauga Road to Heritage Road (Mile 19 to Mile 20 Halton S/D)
Lands on both sides of the ROW are primarily agricultural along this stretch. A small wetland and woodlot are located immediately west of Heritage Road. The ROW crosses Huttonville Creek and a tributary of the Credit River.

Heritage Road to Winston Churchill Boulevard (Mile 20 to Mile 21 Halton S/D)
Lands south of the ROW are intensively farmed between Heritage Road and Winston Churchill Boulevard. Lands to the north include a number of small wetlands and open meadow lands or pasture. Two horse tracks are located north of the ROW along this stretch.

Winston Churchill Boulevard to Credit River (Mile 21 to Mile 22 Halton S/D)
Lands in this area are also predominantly agricultural on both sides of the ROW. However, there are a number of watercourses that cross the rail line and a large forested area to the south. There is also a wide natural corridor surrounding the Credit River.

Credit River to Mountainview Road (Mile 22 to Mile 23 Halton S/D)
Lands west of the Credit River are located within the Georgetown urban area. The floodplain of the Credit River north and south of the ROW is designated for Greenspace, Open Space and Parks, according to Schedule 3A, Georgetown Land Use Plan in the Town of Halton Hills Official Plan. West of the floodplain, there are industrial lands to the south of the ROW and medium density, multiple-unit residential housing to the north.

Mountainview Road to Highway 7 (Mile 23 to Mile 24 Halton S/D)
Lands south of the ROW along this stretch are comprised entirely of low density residential uses, with the exception of the Greenlands corridor adjacent to Silver Creek which crosses the ROW just west of John Street. Residential land uses also occupy a large proportion of the lands to the north of the ROW. The Georgetown GO Station is located north and south of the track between Mountainview Road and John Street.

Highway 7 to Trafalgar Road (Mile 30 to Mile 31 Guelph S/D)
A neighbourhood park and school are located north of the ROW. Other land uses to the north are low density residential. To the south of the ROW, the Halton S/D splits from the Guelph S/D and runs southward, while the Guelph S/D continues westward. Land uses to the south are primarily low density residential with the exception of the area along the Black Creek tributary which runs directly adjacent to the ROW for a short stretch just east of Trafalgar Road.

Trafalgar Road to 6th Line (Mile 31 to Mile 32 Guelph S/D)
This stretch is a good example of a rural area, which also contains significant natural features. Lands west of Trafalgar Road are outside of the Georgetown urban area and fall within the Niagara Escarpment Plan area. Lands north and south of the ROW are comprised of agricultural uses and a large naturally wooded area along Black Creek.

6th Line to Black Creek (Mile 32 to Mile 33 Guelph S/D)
Agricultural lands are located west of 6th Line. These are followed by a small rural residential cluster and an aggregate extraction operation to the north of the ROW. A large forested area is located along the westerly branch of Black Creek south of the ROW.

Black Creek to 3rd Line (Mile 33 to Mile 34 Guelph S/D)
North of the ROW from Black Creek to 4th Line, lands are designated for mineral aggregate extraction, but are currently comprised of wet meadow, scrubland and a forested area. There is an operational aggregate industry south of the ROW to the west of 4th Line. Other land uses along this stretch include small agricultural operations and forested lands.

3rd Line to Acton Urban Area Limit (Mile 34 to Mile 35 Guelph S/D)
This stretch is another good example of a rural area, which contains significant natural features. Lands north of the ROW are primarily agricultural along this stretch with the exception of a forested and wet meadow corridor along Black Creek. Lands south of the ROW are similar with a greater proportion of natural vegetation that forms a component of the Natural Heritage System of the Greenbelt Plan.

Acton Urban Area Limit to Main Street/Highway 25 (Mile 35 to Mile 36 Guelph S/D)
According to the Town of Halton Hills Official Plan, a portion of the land south of the ROW forms part of the South Acton Special Study Area. The area includes vacant lands previously used for industrial purposes. There is an institutional site and large expanse of Greenlands adjacent to the Special Study Area to the south of the ROW. North of the ROW, lands are primarily in low density residential use with a small area of medium density residential and institutional uses. The rail line passes through the Acton downtown core which includes a variety of commercial, residential, open space and institutional uses. A school is located south of the ROW, just east of Main Street.

Main Street/Highway 25 to Dublin Line (Mile 36 to Mile 37 Guelph S/D)
There is a small residential area north of the ROW, but lands are primarily designated as employment lands. Most of these lands remain in agricultural use at this time. South of the ROW, land is a mix of residential, Greenspace and employment areas. The Greenspace surrounds headwater creeks in the Black Creek watershed.

Dublin Line to Eramosa/Erin Townline (Mile 37 to Mile 38 Guelph S/D)
This stretch is a good example of lands which comprise both agricultural and environmental uses. Lands within this stretch fall within the Protected Countryside of the Greenbelt Plan. Lands south of the ROW are entirely agricultural. To the north, land uses include agriculture, as well as estate residential and industrial within the Crewsons Corners Rural Cluster Area.

Eramosa/Erin Townline to 7th Line (Mile 38 to Mile 39 Guelph S/D)
At the Townline, the rail line crosses into the Township of Guelph-Eramosa and out of the Greenbelt Plan area. There is a small rural industrial area south of the ROW and a large naturally wooded area to the north. Other lands along this stretch are agricultural.

7th Line to 6th Line (Mile 39 to Mile 40 Guelph S/D)
Lands on both sides of the ROW are agricultural with a number of small woodlots and hedgerows. There is a large natural area to the south of the ROW, the majority of which is separated from the rail line by an agricultural field.

6th Line to Eramosa River (Mile 40 to Mile 41 Guelph S/D)
From 6th Line to Harris Street, lands are agricultural on both sides of the ROW. West of Harris Street there are large naturally vegetated areas adjacent to two branches of the Eramosa River. Both areas are designated as part of the Township's Core Greenlands. A small residential area is located between the two river branches.

Eramosa River to 4th Line (Mile 41 to Mile 42 Guelph S/D)
This stretch is a good example of a semi-urban area, with environmental influences. West of the Eramosa River, the rail line passes through the Central Business District and a residential area within the community of Rockwood. A large forested area forming part of the Township's Core Greenlands System is located south of the ROW just east of 4th Line.

4th Line to 3rd Line (Mile 42 to Mile 43 Guelph S/D)
Both sides of the ROW are comprised entirely of agricultural lands with little natural vegetation. This stretch is rural in nature and lies outside of the community of Rockwood.

3rd Line to County Road 29 (Mile 43 to Mile 44 Guelph S/D)
Lands to the north of the ROW are primarily agricultural. To the south, there is a small cluster of rural residences and a natural area along the Clythe Creek.

County Road 29 to Jones Baseline (Mile 44 to Mile 45 Guelph S/D)
This stretch of the ROW passes through agricultural lands and a small hamlet area located along Highway 7.

Jones Baseline to Watson Road (Mile 45 to Mile 46 Guelph S/D)
The rail line continues along the hamlet area to the Guelph city limits. There are forested, open meadow and wetland areas along the Clythe Creek north of the ROW.

Watson Road to Cityview Drive (Mile 46 to Mile 47 Guelph S/D)
Lands between Watson Road and Watson Parkway are used for industrial purposes. West of Watson Parkway, lands are designated as a Special Study Area according to the City of Guelph Official Plan and appear to be vacant at this time.

Cityview Drive to Stevenson Street (Mile 47 to Mile 48 Guelph S/D)
Lands along both sides of the ROW are heavily developed and include a mix of industrial, commercial and residential uses.

Stevenson Street to Norfolk Street (Mile 48 to Mile 49 Guelph S/D)
This stretch is a good example of a heavily urbanized downtown area, which offers a very visible opportunity for a multi-modal transit hub. This stretch of the rail line passes through the City of Guelph's downtown core. The VIA train station and GO bus terminal are located on MacDonnell Street, just west of the Speed River.

Norfolk Street to Silvercreek Parkway (Mile 49 to Mile 50 Guelph S/D)
Adjacent land uses are primarily residential with a commercial area between Edinburgh Road and Alma Street and an old industrial site, now vacant, east of Silvercreek Parkway.

Silvercreek Parkway to Imperial Road (Mile 50 to Mile 51 Guelph S/D)
Low and medium density housing lies adjacent to the ROW to the south. A community park with baseball diamonds, tennis courts and other recreational facilities is located to the north. A portion of the park along the ROW is wooded.

Imperial Road to Guelph City Limits (Mile 51 to Mile 52 Guelph S/D)
Lands to the south of the ROW have been designated for mixed uses and currently include industrial operations and agricultural lands. Lands to the north include medium density residential units, vacant lands and lands currently being developed for residential purposes.

Guelph City Limits to County Road 32 (Mile 52 to Mile 53 Guelph S/D)
Lands on both sides of the ROW are agricultural with a woodlot to the south.

County Road 32 to Woolwich-Guelph Townline (Mile 53 to Mile 54 Guelph S/D)
Lands along this stretch are primarily agricultural with some small rural residential lots and a large woodlot to the south of the ROW along Chilligo Creek.

Woolwich-Guelph Townline to Chilligo Creek (Mile 54 to Mile 55 Guelph S/D)
Land uses are agricultural with two natural areas along two watercourses that cross the ROW along this stretch.

Chilligo Creek to Shantz Station Road (Mile 55 to Mile 56 Guelph S/D)
Both sides of the ROW consist primarily of agricultural land uses.

Shantz Station Road to Hopewell Creek (Mile 56 to Mile 57 Guelph S/D)
This stretch demonstrates the consistency of rural and agricultural sections within the study area. This stretch continues through the rural landscape with agricultural lands and wooded areas on both sides of the ROW.

Hopewell Creek to Fountain Street North (Mile 57 to Mile 58 Guelph S/D)
The rail line runs through the community of Breslau. Lands directly adjacent to the ROW are in rural use or old, now vacated, industrial use. A large forested area lies to the north of the ROW, east of Fountain Street.

Fountain Street North to Grand River (Mile 58 to Mile 59 Guelph S/D)
Continuing through Breslau, the rail line passes through the urban and residential core areas. An open space area lies along the Grand River floodplain.

Grand River to Lackner Boulevard (Mile 59 to Mile 60 Guelph S/D)
The rail line enters the City of Kitchener west of the Grand River. Lands to the north of the ROW are designated for Business Park uses, but appear to be only partially developed at this time. To the south, is a heavily developed arterial commercial corridor along Victoria Street (Highway 7).

Lackner Boulevard to Conestoga Parkway/Highway 85 (Mile 60 to Mile 61 Guelph S/D)
To the south, the arterial commercial corridor (Victoria Road/Highway 7) continues along this stretch. Heavy industrial uses are located to the north. A rail yard is located to the north of the ROW.

Contestoga Parkway/Highway 85 to Lancaster Street (Mile 61 to Mile 62 Guelph S/D)
A second rail yard is located to the north of the ROW between Conestoga Parkway and Lancaster Street. Industrial uses are located to the south.

Lancaster Street to King Street (Mile 62 to Mile 63 Guelph S/D)
Lands north of the ROW are designated for heavy industrial uses while lands south of the ROW include mixed uses to Weber Street and warehouse uses from Weber Street to King Street. The VIA Rail Station is located south of the ROW between Ahrens Street and Weber Street West.

King Street to Westmount Road West (Mile 63 to Mile 64 Guelph S/D)
This stretch of the rail line continues through the City of Kitchener's urban core. Adjacent land uses include a variety of industrial, commercial, residential and neighbourhood parks.

Westmount Road West to Fischer-Hallman Road (Mile 64 to Mile 65 Guelph S/D)
Residential uses are the primary land use adjacent to the ROW in this area. Two neighbourhood parks are also located along the ROW.

Fischer-Hallman Road to Henry Storm Creek (Mile 65 to Mile 66 Guelph S/D)
Lands directly adjacent to the ROW function primarily as parklands and include a trial system with a pedestrian underpass below the ROW. Some residential and other mixed uses also line the ROW.

Mile 66 to Mile 67 Guelph S/D
Lands east of Glasgow Street have recently been developed for residential uses. The Ira Needles parkway traverses the ROW along this stretch. West of Glasgow Street, lands are primarily agricultural. A power generating station is located to the south of the ROW. Several small wetland pockets are located immediately adjacent to the ROW.

Mile 67 to Mile 68 Guelph S/D
A large aggregate extraction operation is located to the north of the ROW surrounded by agricultural lands to the south and east and a large wetland area to the west.

Mile 68 to County Road 12 (Mile 68 to Mile 69 Guelph S/D)
Lands are primarily agricultural along this stretch. The small, rural settlement area of Petersburg is located at County Road 12 and includes a mix of residential, commercial and park uses adjacent to the ROW.

County Road 12 to Mile 70 (Mile 68 to Mile 70 Guelph S/D)
Adjacent land uses are primarily agricultural on both sides of the ROW, with some aggregate extraction to the north.

Mile 70 to Mile 71 Guelph S/D
Land uses are primarily agricultural with the exception of a large, forested natural area to the north of the ROW.

Mile 71 to Mile 72 Guelph S/D
Agriculture is the primary land use between Mile 71 and Sandhills Road. West of Sandhills Road, the ROW passes through the community of Baden. Industrial, residential and open space lands associated with the floodplain of Baden Creek are located to the south of the ROW.

Mile 72 to Mile 73 Guelph Subdivision
The ROW continues through Baden adjacent to the urban core and other residential areas. Mile 73 is located at the western limit of Baden.

Mile 73 to Mile 74 (Baden Western Limit to Nafziger Road)
Adjacent land uses are agricultural on both sides of the ROW. The lands to the south of the ROW, near Mile 73 and Nafziger Road, are to be rezoned for industrial use by the Township of Wilmot.

4.1.4 Land Uses at Station and Layover Alternatives

Georgetown GO Station
The Georgetown GO Station is located within Georgetown's urban boundary. Lands to the north are currently in medium density residential uses, while lands to the south are low density residential. Schedule A3 of the Halton Hills Official Plan designates the land bounded by Mountainview Road, John Street, Mill Street, Guelph Street and Maple Avenue as a "GO Station Study Area." The study area designation relates to the area's redevelopment potential for uses appropriate to their proximity to the GO Station.

Acton – Old Hide House
This site is located entirely within the existing paved parking area at the Old Hide House site in Acton's urban centre and is designated by the Town of Halton Hills as a Tourist Commercial Subarea within the Urban zone. Public structures, including rail lines and associated buildings, are permitted in all Urban Areas (Section F9 of the Town of Halton Hills Official Plan).

Acton – Dublin Line
This site is comprised almost entirely of agricultural lands. This site is located within the Protected Countryside of the Greenbelt and is; therefore, subject to the policies of the Greenbelt Plan (see Section 3.2.1.3 above). Both the Region of Halton and Town of Halton Hills identify the site as a Zone 3 Wellhead Protection Area. Any development with the potential to pose a threat to groundwater resources will be reviewed by Halton Region and may require preparation of a hydrogeological assessment.

Guelph - Watson Road
Existing residential development is located at the western edge of the site. The site is designated as Industrial with an area of Core Greenlands to the north. Minor constraints may be associated with the Greenlands designation. Transportation terminals are permitted within the Industrial Zone.

Guelph – Downtown VIA
The existing VIA Station is located within the City of Guelph's Central Business District. The station is located on lands designated for commercial, office or residential uses. A narrow strip of open space is located to the north and additional commercial uses are located to the south. Lands used primarily for residential purposes are located in close proximity to the station to the east.

Guelph - Lafarge
This site has experienced some previous disturbance. According to the City of Guelph Official Plan, the site is designated for industrial uses. The eastern portion of the site also contains a Non-Core Greenlands overlay. The ecological value and function of natural heritage and hazard features within the overlay should be protected. This presents a development constraint on the eastern portion of the site. "Transportation terminals" are permitted within the Industrial Zone.

Breslau – Greenhouse Road
The Region of Waterloo designates the site as a Prime Agricultural Area and a Sensitivity 4 Wellhead Protection Area. The Township of Woolwich identifies the site as an Urban Area. Restricted Areas are located adjacent to the site to the west and south. Transit terminal or train layover uses is permitted in these designations subject to the outcome of an EA. Minor constraints are associated with the adjacent restricted areas.

Breslau – Fountain Street
Evidence of previous disturbance is apparent across this site from field visits on October 10, 2008. The Breslau Hotel was previously located on this site. This site is designated as a Prime Agricultural area and Sensitivity 4 Wellhead Protection Area according to the Region of Waterloo. The Township of Woolwich designates lands partially as a Core Area and partially as an Urban Area with an adjacent Restricted Area to the north. Public utilities and associated facilities are permitted on these lands, subject to completion of an EA. Minor constraints are associated with the adjacent Restricted Area.

Kitchener – Downtown VIA
The existing VIA Station is located within the City of Kitchener's urban area in close proximity to the downtown core. The station is located on lands designated as a Mixed Use Corridor. Lands to the north are in general industrial use while lands to the south are primarily residential.

Kitchener – King Street
This site is within the City of Kitchener's downtown district. The site and surrounding lands are designated as a warehouse district. Residential areas are in close proximity to the north and a large commercial district is located to the south.

Kitchener - Ira Needles Boulevard
Several hydro towers, associated with the power generating station to the south, are located in the central portion of the site. The Region of Waterloo designates the site as an Urban Area and a Sensitivity 4 Wellhead Protection Area. Lands in the vicinity of the site as designated for general industrial and public utilities by the City of Kitchener. None of these designations presents a significant constraint. Transportation depot and terminal facilities are listed as appropriate uses within the industrial zone.

Petersburg
The majority of the site is currently in agricultural use. The Region of Waterloo designates the site as a Sensitivity 4 Wellhead Protection Area, a Non-Prime Agricultural Area and a Mineral Aggregate Resource Area. The Township of Wilmot Official Plan lists the site as an Agricultural Resource Area. The construction or upgrade of major utility corridors and associated structures is permitted in these areas is subject to an EA process.

Baden - Sandhills Road
The majority of the site is currently in agricultural use. The Region of Waterloo designates the site as a Prime Agricultural Area. The Township of Wilmot Official Plan lists the site as an Agricultural Resource Area. The construction or upgrade of major utility corridors and associated structures is permitted in these areas is subject to an EA process.

Baden – Nafziger Road
The majority of the site is currently in agricultural use. The Region of Waterloo designates the site as a Prime Agricultural Area. The Township of Wilmot Official Plan lists the site as an Agricultural Resource Area. The construction or upgrade of major utility corridors and associated structures is permitted in these areas and is subject to an EA process. There is a large, forested area located to the south of this site which is designated as a Locally Significant Natural Area in the Township of Wilmot Official Plan. The land use for this area is to be rezoned by the Township of Wilmot from agricultural to industrial.

4.2 Natural Environment

4.2.1 Climate and Air Quality

Ortech Environmental (Ortech) were retained to complete an air quality assessment for the study area. A copy of the air quality assessment report (April 2009) is provided in Appendix C1. The following are the existing air quality conditions within the study area, summarized from Ortech's report.

Regional Ministry of the Environment (MOE) air quality data was examined to determine the existing ambient air quality in study area. If the air quality is good, the potential to cause unacceptably poor air quality is less than if the existing air quality is moderate to poor. The 2007 air pollutant data was obtained from the MOE website http://www.airqualityontario.ca/index.php for the nearest air quality stations in Mississauga (ID 46109), Oakville (ID 44017) and Kitchener (ID 26060).

Analysis of the air pollutant data for fine particulate (PM2.5) at all three air quality stations noted above indicates that the fine particulate air quality is "Very Good" according to the MOE air quality indices. Hourly median PM2.5 concentrations were approximately half of the "Very Good" criteria of 12 $\mu g/m^3$. Analysis of the air pollutant data for nitrogen dioxide (NO_2) at the

Oakville and Kitchener air quality stations indicates that the NO_2 air quality is also "Very Good", according to the MOE air quality indices. The median NO_2 concentrations were approximately 1/5 of the 50 ppb "Very Good" criteria.

4.2.2 Noise and Vibration

Aercoustics Engineering Limited (Aercoustics) were retained to complete a noise and vibration assessment for the study area (May 2009). The report documenting the methodology and findings of this assessment is provided in Appendix C2. Aercoustics used the MOE/GO Transit Draft Protocol for Noise and Vibration Assessments (1995) to determine the appropriate methodology for their study. In order to assess the noise and vibration impact of GO train service in the study corridor, Aercoustics determined the pre-project noise and vibration levels through the rail corridor and at the alternative station and layover locations. Existing pre-project daytime and nighttime sound levels were modeled using STAMSON. The predicted sound levels from the model were calibrated by actual sound measurements recorded at various points of reception within the study corridor.

The results of the existing (pre-project) sound level modeling through the study corridor are summarized in Table 4.1. The rail corridor was divided into three main sections: Mount Pleasant to Georgetown, Georgetown to Guelph and Guelph to Kitchener. Within each of these sections, noise levels within the in-town (urban) areas and country (rural) areas were assessed.

Table 4.1 Existing Sound Levels Throughout Rail Study Corridor

Rail Corridor Section / Station / Layover Location	Description	Existing Sound Level (dBA)	
		Day	Night
Mount Pleasant to Georgetown	In-town	72	54
	Country	74	57
Georgetown to Guelph	In-town	57	55
	Country	59	59
Guelph to Kitchener	In-town	58	58
	Country	60	62
Kitchener to Baden	Country	60	62

The results of the existing (pre-project) sound level modeling at the alternative station are summarized in Table 4.2 and the results of the layover sites are summarized in Table 4.3. The protocol for evaluating noise impacts at layover stations does not discriminate between daytime and nighttime sound levels; therefore, only one existing sound level was modeled for each site.

Table 4.2 Existing Sound Levels at Alternative Station Locations

Location	Distance to Closest Receptor (m)	Existing Sound Level (dBA)	
		Day	Night
Georgetown GO Station	55	61	60
Acton - Hide House	17	61	62
Acton - Dublin Line	60	55	51
Guelph - Watson Road	80	55	50
Guelph - Downtown	45	55	53
Guelph - Lafarge	75	55	53
Breslau - Greenhouse Road	510	55	50
Breslau – Fountain Street	100	55	50
Kitchener – Downtown	40	56	58
Kitchener – King Street	80	55	52
Kitchener – Ira Needles Blvd.	400	55	50

Note: 1. Where the pre-project noise is less than 55 dB L_{eq} as determined by a combination of measurements and predictions, the pre-project noise shall be taken as 55 dB L_{eq} according to the MOE/GO Transit Draft Protocol for Noise and Vibration Assessment.

Table 4.3 Existing Sound Levels at Alternative Layover Locations

Location	Distance to Closest Receptor (m)	Existing Sound Level (dBA)
Breslau – Greenhouse Rd.	665	45
Breslau – Fountain St.	220	45
Kitchener - Ira Needles Blvd.	135	45
Peterburg	130	45
Baden – Sandhills Rd.	300	45
Baden – Nafziger Rd.	500	45

Note: 1. The pre-project noise is taken as 45 dB when assessing the impact of a layover station according to the MOE/GO Transit Draft Protocol for Noise and Vibration Assessment.

Aercoustics measured vibration levels from VIA trains near the Georgetown GO Station. Vibration levels of these trains were recorded at 0.13 mm/s. Aercoustics was not able to measure vibration levels of freight train pass-by; however, notes that typically vibration levels from freight trains are 5-10 dB higher than passenger trains due to the additional locomotives and cars.

4.2.3 Physiography and Hydrogeology

A review of available maps was undertaken to characterize the general surficial and bedrock geology, as well as the hydrogeology of the area. The study area is 49 miles (79 km) long and; therefore, spans several physiographic regions and has variable hydrogeology through the mainline rail corridor. The following paragraphs describe the physiography and the hydrogeology regions through the study area from east to west.

Physiography

There are five physiographic regions within the study area including the South Slope, the Niagara Escarpment, Horseshoe Moraines, the Guelph Drumlin Field and the Waterloo Hills.

The South Slope physiographic region is approximately 940 square miles (2,435 square km) in size extending from the Niagara Escarpment to the Trent River and is the southern slope of the Oak Ridges Moraine and includes a strip south of the Peel Plain (Chapman and Putnam, 1984). The surrounding area is approximately 400 to 600 ft (122 to 183 m) above sea level with the slope increasing to 800 to 1,000 ft (244 to 305 m) in the line of contact with the Oak Ridges Moraine. In the western portion of the region, the surface is morainic including the Trafalgar Moraine, which provides subdued morainic topography. The South Slope lies across the limestones of Verulam and Lindsay Formations, the grey shales of the Georgina Bay formation and the reddish shales of the Queenston Formation. The material in the overburden is related to the underlying rock with some variation due to importation during the last glacier period. The South Slope contains a variety of soils, some of which have been excellent for agricultural use. They are developed upon tills which are sandier to the east and more clayey to the west with steeper slopes in the west (Chapman and Putnam, 1984).

The Niagara Escarpment physiographic region extends from the Niagara River to the northern tip of the Bruce Peninsula and continues north to encompass the Manitoulin Islands. The Niagara Escarpment is very distinguishable from other landforms due to its vertical size and striking rock-hewn topography. The base of the escarpment is generally 350 ft (107 m) above sea level while the top of its cliffs are near 625 ft (191 m) above sea level. Vertical cliffs along the brow of the escarpment outline the edge of the dolostone of the Lockport and Amabel Formations while the slopes below are carved in red shale (Chapman and Putnam, 1984).

The Horseshoe Moraine physiographic region is approximately 2,158 square miles (5,589 square km) in size spanning a horseshoe area in southwestern Ontario west of the Niagara Escarpment. The “toe” of the Horseshoe traverses the upland south of Georgian Bay in Grey County at an approximate elevation of 1,700 ft (518 m) above sea level. The western “heel” of the Horseshoe traverses through Huron County and curves west through Middlesex County, ending in Lambton County. The “heels” of the Horseshoe are at an approximate elevation of 800 ft (244 m) above sea level. The associated meltwater stream deposits give this region two main landforms: 1) the irregular, stony knobs and ridges, which are composed of mostly till with some sand and gravel deposits (kames); and, 2) more or less pitted sand and gravel terraces and swampy valley floors (Chapman and Putnam, 1984).

The Guelph Drumlin Field physiographic region is approximately 320 square miles (829 square km) in size and is centered upon the City of Guelph and Guelph-Eramosa Township. There are approximately 300 drumlins in this region of varying size. The drumlins are relatively spread out as compared to other drumlin fields in southern Ontario such that there is more intervening low ground in between the drumlins, which is largely occupied by fluvial materials. The till in the Guelph drumlins is loamy and calcareous and is derived mostly from dolostone of the Amabel Formation. The region is a sloping plain with an elevation between 1,000 to 1,400 ft (305 to 427 m) above sea level with an average gradient of 20 ft/mile (3.8 m/km) form north to south (Chapman and Putnam, 1984).

The Waterloo Hills physiographic region is approximately 300 square miles (777 square km) in size. The region is characterized by sandy hills and sandy till ridges with kame moraines and outwash sands occupying hollows. The general elevation of the area is approximately 1,000 to 1,400 ft (305 to 427 m) above sea level. There is a prevalence of fine sand in this region, particularly on the surface. Adjacent to the hilly region is an extensive area of alluvial terraces of the Grand River spillway system which contains similar but more uniform sandy and gravelly materials (Chapman and Putnam, 1984).

Hydrogeology

A review of the Quaternary Geology of Ontario Southern Sheet Map (Map 2556) indicates that there are several hydrogeological conditions through the study corridor. From east to west through the rail corridor, the overburden is underlain predominantly by Pleistocene soils consisting of Halton Till (Ontario – Erie lobe), Glaciofluvial outwash deposits, Glaciofluvial ice-contact deposits, Wentworth Till (Ontario – Erie lobe), Port Stanley Till (Ontario – Erie lobe) and Maryhill Till (Erie lobe). A short stretch of the rail corridor east of Rockwood traverses over Paleozoic bedrock, which is predominantly undifferentiated carbonate and clastic sedimentary rock, exposed as surface or covered by a discontinuous, thin layer of drift. In the Kitchener area, the areas underlain by Glacialfluvial ice-contact deposits and the Maryhill Till are predominantly hummocky in topography. Table 4.4 summarizes the soil conditions of these various hydrogeological conditions.

Table 4.4 Quaternary Geology of the Study Area

Quaternary Geology	Soil Conditions
Halton Till (Ontario – Erie lobe)	Predominantly a silt to silty clay matrix, high in carbonate content with a poor clast.
Glaciofluvial outwash deposits	Gravel and sand. Includes proglacial river and deltaic deposits.
Glaciofluvial ice-contact deposits	Gravel and sand with minor till. Includes esker, kame, end moraine, ice-marginal delta and subaqueous fan deposits.
Wentworth Till (Ontario – Erie lobe)	Sandy silt to silt matrix becoming finer grained to silty clay near Lake Erie. Highly calcareous with a moderate to low clast content decreasing southward.
Port Stanley Till (Ontario – Erie lobe)	Silt to sandy silt matrix becoming silt to silty clay hear Lake Erie. Strongly calcareous with moderate to low clast content decreasing southward.
Maryhill Till (Erie lobe)	Silty clay to clay matrix with a moderate to high matrix carbonate content and poor clast.

A review of the Bedrock Geology of Ontario (Map 2544) indicates that there are three geologic periods represented within the study corridor. From east to west through the corridor, these periods are the Upper Ordovician Period, the Middle and Lower Silurian Period and the Upper Silurian Period. The bedrock from the east end of the study corridor to eastern boundary of the

Niagara Escarpment is comprised predominantly of shale, limestone, dolostone and siltstone of the Queenston Formation. The bedrock between the eastern boundary of the Niagara Escarpment and western Kitchener is composed of sandstone, shale, dolostone and siltstone of the Clinton and Cataract Groups, the Amabel Formation and the Guelph Formation. The bedrock between the west Kitchener and the community of Petersburg is comprised primarily of limestone, dolostone, shale, sandstone, gypsum and salt of the Salina Formation.

4.2.4 Hydrology and Water Quality

4.2.4.1 Hydrology

The study area rail corridor spans across the two major watersheds of the Credit River, regulated by Credit Valley Conservation (CVC), and the Grand River, regulated by Grand River Conservation Authority (GRCA). These watersheds are shown on Figures E-01 through E-11.

Hydrologically within these watersheds, the major watercourses flow in a north to south direction. The major watercourses crossing the rail corridor from the east side to west side of the study area are summarized in Table 4.5. There are several smaller tributaries flowing south and southeast across the rail corridor, which eventually join up with the Credit River further downstream. Similarly, there are several smaller tributaries flowing south, southwest and southeast across the rail corridor, which eventually join up with the Grand River further downstream.

Table 4.5 Major Watercourses in Study Area

Major Watercourse	Mileage Point	Watershed
Credit River	21.50 (Halton S/D)	Credit River
Silver Creek	23.64 (Halton S/D)	Credit River
Black Creek	33.07 (Guelph S/D)	Credit River
Eramosa River	41.05 (Guelph S/D)	Grand River
Clythe Creek	45.31/46.92 (Guelph S/D)	Grand River
Speed River	48.50 (Guelph S/D)	Grand River
Grand River	58.70 (Guelph S/D)	Grand River

4.2.4.2 Water Quality

Both the Credit River and Grand River watersheds have numerous tributaries that feed creeks and streams that eventually flow into the main stem rivers. Water quality in each of the watercourses crossed along the ROW will change dependent on surrounding land uses. Typically, headwaters surrounded by agriculture with limited riparian setbacks will result in degraded water quality, but could improve downstream if efforts to maintain setbacks are applied. Headwaters that have been protected result in high quality water if they are not impacted by local groundwater pollution. Both watersheds have numerous tributaries that have been improved and some that have been degraded over time. A general synopsis of the water quality is presented below from east to west along the ROW. This information was collected from the Credit River Fisheries Management Plan (2002), the Credit Valley Subwatershed Management Plan (2004), the Silver Creek Subwatershed Management Plan (2003), and the Grand River Watershed Reports (2003 and Fall 2007).

Credit River Watershed

Huttonville Creek – upstream water quality is impaired from agriculture and reduced riparian buffers. Presence of good water quality indicator species such as redside dace (*Clinostomus elongates*) downstream of the CN ROW, water quality improves downstream from groundwater inputs and the lower reaches support spawning of coldwater species such as migratory rainbow trout (*Oncorhynchus mykiss*).

Credit River Main stem – upstream and downstream conditions are the same in the study area, water quality would be considered good based on the Credit River Fisheries Management Plan. Levels of phosphorus have been reduced over the last 20 years based on improved sewage treatment facilities, although levels of nitrates, bacteria and chlorides appear to be increasing.

Silver Creek and Black Creeks – Based on the Credit River Fisheries Management Plans, Silver and Black Creeks run through the Towns of Acton and Georgetown. Both creeks are considered coldwater based on the species observed and water temperatures. Water quality is generally good to excellent further up the system. Lower reaches of both tributaries suffer from increased pollution from sewage treatment plants.

Grand River Watershed

Eramosa River – Water quality in the Eramosa River upstream and downstream of the ROW is generally good. No major inputs from anthropogenic sources were observed upstream or downstream of the ROW. GRCA classifies the Eramosa River as a Mixed Water Tributary to the Speed River that supports aquatic life.

Speed River – This sub watershed to the Grand River includes major tributaries such as the Eramosa River to the east from Rockwood and includes tributaries such as Howitt Creek and Chilligo Creek to the west. The main stem of the Speed River in the City of Guelph would be impaired by potential groundwater contamination, storm water inputs and road runoff. The river supports a warm water fishery and water quality is good enough to support aquatic life although improvements in temperature and dissolved oxygen would be beneficial. Most tributaries along the ROW flowing into the Speed River are from coldwater sources but become degraded from agricultural land uses that impair water quality in the lower reaches.

Grand River – The largest watercourse along the ROW with numerous impoundments and inputs from anthropogenic sources is considered to be poor water quality in this reach. Inputs from nutrients (phosphorus, ammonia, and nitrates) that contribute to low dissolved oxygen impair the water quality but still supports aquatic life. Major demands for groundwater sources and increased runoff from city centers along with agricultural land uses all put stress on this watershed.

4.2.5 Aquatic Environment

4.2.5.1 Designated Species

Maps from the Department of Fisheries and Oceans (DFO) and Conservation Ontario were reviewed for Species at Risk (SAR) along the study corridor. The following species were noted:

Fish

Redside Dace (*Clinostomus elongatus*)
Listed as Endangered based on COSEWIC (April 2007), the redside dace requires suitable habitat consisting of clear slower moving streams with lots of overhanging vegetation. They primarily feed on terrestrial insects that drop into the water. Sections of Huttonville Creek (Mile 19.45 and 18.97), Silver Creek (Mile 23.64), and Black Creek (Mile 31.59 and 30.96), which are all tributaries of the Credit River, show presence of redside dace upstream and/or downstream of the crossing.

Black Redhorse Sucker (*Moxostoma duquesnei*)
Listed as Threatened based on the Committee on the Status of Endangered Wildlife in Canada COSEWIC (April 2007) the black redhorse sucker lives in moderately sized rivers that have sand, gravel, rubble, boulders, and silt and are not associated with aquatic vegetation. The black redhorse sucker requires pools for summer refuge and deeper pools for over wintering. Sections of the Grand River (Mile 58.70), north and south of the ROW show presence of the black redhorse sucker.

Silver Shiner (*Notropis photogenis*)
Listed as Special Concern Provincially and Nationally by COSEWIC, the silver shiner has been captured in the Grand River (1981) and typically found in moderately flowing sections of larger streams. The silver shiner was listed under the Natural Heritage Information Center (NHIC) on the Grand River near the confluence of Hopewell Creek (Mile 58.70).

Greenside Darter (*Etheostoma blennioides*)
Under review for listing as Special Concern by COSEWIC, the greenside darter has been introduced to the Grand River. It prefers clear swift flowing streams and rivers where it feeds on insect larvae. The greenside darter is sensitive to siltation and cloudy water resulting from urban development and agriculture. Based on the NHIC searches the greenside darter was encountered on the Speed and Eramosa Rivers in 1990/91 near Mile 48.50 along the study corridor.

Mussels
The only location where Species at Risk mussels are noted is at the Grand River crossing (Mile 58.70). Five species of mussels are listed under the DFO Species at Risk for this section of the Grand River. Listed are the kidneyshell (*Ptychobranchus fasciolaris*), round hickorynut (*Obovaria subrotunda*), round pigtoe (*Pleurobema sintoxia*), snuffbox (*Epioblasma triquetra*) and the wavy-rayed lampmussel (*Lampsilis fasciola*). All these species of mussels are listed as Endangered SARA Schedule 1 based on COSEWIC.

4.2.5.2 Aquatic Habitat

Rail Line
The aquatic environment associated with the study area is comprised of many types of watercourses and a limited number of small water bodies. Watercourses range from seasonal and intermittent drainages to large rivers. Waterbodies identified along the ROW were primarily dug ponds or wetlands with some connectivity with adjacent watercourses. No lakes were observed along the ROW. A total of 94 drainage and watercourse crossings were identified based on the limits of the study area. The study area includes western and eastern boundaries of the Grand River watershed and the western portion of the Credit River, including some eastern drainages.

Most watercourses located along the ROW are either classified (warm, cool/mixed, or coldwater) or unclassified meaning they have not been assessed to date. A total of 57 out of the 94 watercourse crossings (GRCA-33, CVC-24) are located in flood regulated areas managed under the *Conservation Authorities Act* (Ont. Reg. 150/06 and 160/06). Permanent and seasonal watercourses are often classified as fish habitat based on the definition provided in the *Fisheries Act*. The *Fisheries Act* defines fish habitat as "the spawning grounds and nursery, rearing, food supply and migration areas on which fish depend directly or indirectly in order to carry out life processes, as further identified by the Department of Fisheries and Oceans Canada."

A total of 50 watercourses are considered to be direct or indirect fish habitat based on the watercourse classification provided by the CAs or the visible presence of a defined channel and connectivity.

Review of the Credit River Fisheries Management Plan (2002), the Credit Valley Subwatershed Management Plan (2004), the Silver Creek Subwatershed Management Plan (2003), and the Grand River Fisheries Management Plan (2005) was conducted to determine watercourse names, general fisheries communities, and future direction of the fisheries management within the watersheds. The Grand River Information Network (GRIN) GIS database was searched for watercourse classification (warm, cool/mixed and coldwater) and Drain Classification status. The CVC website was also useful in determining the classification of watercourses within the Credit River watershed.

Watercourses within the study limits were classified as coldwater (19), cool water or mixed (1), warmwater (10) and unclassified (20) based on the GRCA and CVC GIS information.

Based on timing of the field work (September 19 to November 10, 2008) and the annual precipitation amounts, most watercourses had visible water flow or evidence of water from previous rain events.

Credit River Watershed
The Credit River watershed along the ROW includes the mainstem Credit River, Huttonville Creek and tributaries, smaller tributaries to the mainstem Credit River east of Georgetown, Silver Creek, Black Creek and tributaries west of Georgetown. A total of 24 watercourse crossings associated with the Flood Regulation Limit and CVC watercourse classification were identified along the study area. The watershed boundary between the Credit River and the Grand River exists at approximate Mile 36.50.

The Credit River watershed in the study area is classified primarily as cold/coolwater and is managed as a mixed water fishery. The mainstem river receives runs of migratory salmonids and trout from Lake Ontario where they migrate upstream to spawning grounds. An initiative to restore the Atlantic salmon (*Salmo salar*) populations in Lake Ontario are supported by CVC and one of the selected migratory rivers for stocking of Atlantic salmon is the Credit River. Resident species of brown trout (*Salmo trutta*), rainbow trout, northern hog sucker (*Hypentelium nigricans*), mottled sculpin (*Cottus bairdi*), darters, stonecat and American brook lamprey (*Lampetra appendix*) are known to exist near the mainstem crossing (Mile 22.50). Coldwater species known to exist in the tributaries of the Credit River (Silver and Black Creeks) consist of brook trout (*Salvelinus fontinalis*), brown and rainbow trout, sculpins, dace and darters. Upper reaches of Huttonville Creek (Mile 19.45 and 18.97) are managed as coldwater but fish species captured reflect a cool to warmwater classification. Historic capture records of redside dace 500-700 m downstream from the ROW on Huttonville creek were documented by CVC in 1995. See Appendix C3 for more detailed information on species present in watercourses along the study area.

Grand River Watershed
There are 38 watercourse crossings within the study area in the GRCA jurisdiction. From east to west, there are two major watersheds (Eramosa and Speed Rivers) that flow into the Grand River, which is the main watershed in the area. Watercourses within these watersheds are tributaries of larger streams that flow into the Eramosa, Speed or directly to the Grand River.

The Grand River watershed is home for over 84 fish species. Due to the magnitude of the study area, species lists for each watercourse crossing was not obtainable. Based on the types of watercourses encountered along the ROW, fish species would range from low diversity in small watercourses to very high diversity in large rivers, such as the mainstem Grand River (Mile 58.70). Warmwater species in the Grand River watershed would primarily consist of bass, carp, catfish, sunfishes, and a range of minnows. Coolwater species would consist of suckers and pike, and coldwater species in the area primarily consist of brook, brown, and rainbow trout, sculpins and dace. See Appendix C3 for more detailed information on species present in watercourses along the study area.

4.2.5.3 Station and Layover Alternatives

Aquatic resources observed in, and adjacent to, the station alternatives and layover are described below and summarized in Appendix C3. Watercourses at each station or layover alternative are shown on Figures E-01 through E-11.

Georgetown GO Station
The Georgetown GO Station is located within Georgetown's urban boundary. No watercourses are present in the vicinity of the site.

Acton- Old Hide House
This site is located entirely within the existing paved parking area at the Old Hide House in Acton's urban centre. No watercourses are present or in the vicinity of the site.

Acton – Dublin Line
This site is comprised almost entirely of agricultural lands. A small cattail marsh (MAS2) wetland area is located at the eastern edge of the site. This wetland is regulated by the Conservation Authority (CA). A culvert was observed along the ROW that would convey flow during the spring, but did not have water during the site visit.

Guelph - Watson Road
Lands along Clythe Creek to the north of the site form part of the Clythe Creek Provincially Significant Wetland (PSW). It is not believed that the floodplain of Clythe Creek extends into the site. Clythe Creek is classified as coldwater by GRCA and is considered fish habitat.

Guelph – Downtown VIA
The existing VIA Station is located within the City of Guelph's Central Business District. No watercourses are present in the vicinity of the site.

Guelph - Lafarge
This site has experienced some previous disturbance. Areas with gravel fill and compacted soils and unauthorized trails are located throughout the site. Much of the site is in a state of re-naturalization and a thin riparian buffer with some mature vegetation exists along the watercourse. A storm sewer outlet enters the site on the northeast corner. The water source is from a residential area located north of the CN ROW. The watercourse on the site is unclassified by GRCA and is characterized by an irregular meandering channel with low flow.

Breslau – Greenhouse Road
This site is characterized by previous human disturbance. The northern portion of the site is currently in agricultural use. The southern portion contains areas of gravel fill with trails running throughout the site. A small watercourse was observed on the southwest portion of the site. The watercourse is a tributary of Hopewell Creek and is classified as coldwater by GRCA and likely provides indirect fish habitat in the form of cold water supply and nutrients. No fish were observed during the site visit and all-terrain vehicle use in the area has disturbed the flow path.

Breslau – Fountain Street
Evidence of previous disturbance is apparent across this site. Hopewell Creek runs east to west along the northern boundary of the site and is classified as a coldwater tributary of the Grand River. Evidence of springs and seeps were observed along the creek valley with watercress present near Hopewell Creek.

Kitchener - Downtown VIA
The existing VIA Station is located within the City of Kitchener's urban area in close proximity to the downtown core. No watercourses are present in the vicinity of the site.

Kitchener - King Street
This site is within the City of Kitchener's downtown district. No watercourses are present in the vicinity of the site.

Kitchener - Ira Needles Boulevard
This site contains two small wetlands that form part of the Waldau Non-PSW Complex. A watercourse, not classified by GRCA or noted on Floodplain mapping, was observed on the north side of the ROW. The watercourse flows east from the onsite wetlands into the Henry Storm Creek. If a future station is pursued at this location, the watercourse may need to be relocated in discussion with the CA.

Petersburg
No watercourses observed on this site.

Baden - Sandhills Road
No watercourses observed on this site.

Baden – Nafziger Road
No watercourses observed on this site.

4.2.6 Terrestrial Environment

4.2.6.1 Designated Sites

A number of designated sites are located adjacent to, or spanning the study area. These include PSWs, Provincially and Regionally Significant Areas of Natural and Scientific Interest (ANSI), Environmentally Significant Areas (ESA) and other wetlands of non-Provincial significance. All are listed in Table 4.6 below.

Table 4.6 Designated Sites

Site Name	Significance	Designation
Petersburg Bog	Provincial	PSW
Breslau Wetland Complex	Provincial	PSW
Clythe Creek Wetland	Provincial	PSW
Eramosa River-Blue Spring Creek	Provincial	PSW
Ellis Creek Swamp	Provincial	PSW
Eramosa River Valley	Provincial	Life Science ANSI
Georgetown Credit River Valley	Regional	Life Science ANSI
Blue Springs Creek Wetlands	Regional	Life Science ANSI
Georgetown Credit River Valley	Local	ESA
Waterfall Woods	Local	ESA
Black Creek at Acton	Local	ESA
Limestone Cliffs	Local	ESA
Waldau Wetland Complex	N/A	Wetland
Black Creek at Acton	N/A	Wetland

4.2.6.2 Designated Species

The NHIC database was reviewed for records of rare species in the vicinity of the study area. A total of five species records were found on the database. None of these species were observed during field investigations. However, several Butternut trees, *Juglans cinerea*, a species listed as Endangered federally and provincially, were noted in the wooded area at the Lafarge Station Alternative Site and in the Waterfall Woods Local ESA. At the Lafarge site, it was found in close proximity to the south side of the ROW. The Butternut found at the Waterfall Woods Local ESA was located well away from the south ROW.

A summary of recorded and observed designated species along the ROW is provided in Table 4.7.

Table 4.7 Designated Species

Common Name	Scientific Name	S-Rank	Provincial Status	Federal Status	SARA Schedule	Record Date	Habitat Present in/adjacent to Study Area*
Eastern Ribbon-snake	*Thamnophis sauritus*	S3	Special Concern	Special Concern	1	1977, 1985, 1990	Semi-aquatic species found along edges of shallow ponds, streams, marshes, swamps etc. bordered by dense vegetation for cover.
Milksnake	*Lampropeltis triangulum*	S3	Special Concern	Special Concern	1	1984, 1986, 1993	Rural areas, in and around old buildings and structures or debris piles
Northern Map Turtle	*Graptemys geographica*	S3	Special Concern	Special Concern	1	1924	Inhabits both lakes and rivers with slow moving currents, muddy bottoms, and abundant aquatic vegetation. Basking sites are also required.
Grey Fox	*Urocyon cinereo-argenteus*	SZ?	Threatened	Threatened	1	1963	Prefer deciduous forests and marshes but can be habitat generalists and inhabit areas on the outskirts of cities (SARA Registry)
Red-shouldered Hawk	*Buteo lineatus*	S4	Special Concern	Special Concern	3	1990	Large (10-100 ha) deciduous or mixed-wood forests.
Butternut	*Juglans cinerea*	S3?	Endangered	Endangered	1	Observed during field investigations	Deciduous stands, rich, moist, well-drained soils.

* Source of habitat profiles: SARA Public Registry, www.sararegistry.gc.ca.

S-Rank Definitions

S1 **Critically Imperiled –** Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the stat/province.

S2 **Imperiled** – Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.

S3 **Vulnerable** – Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 **Apparently Secure** – Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 **Secure** – Common, widespread, and abundant in the nation or state/province.

? **Rank Uncertain**

SZ **Not of practical conservation concern** inasmuch as there are no clearly definable occurrences; applies to long distance migrants, winter vagrants, and eruptive species, which are too transitory and/or dispersed in their occurrence(s) to be reliably mapped; most such species are non-breeders, however, some may occasionally breed.

4.2.6.3 Historical Species

This NHIC database lists several records of provincially rare but non-designated species, as listed in Table 4.8.

Table 4.8 Historical Species

Common Name	Scientific Name	S-Rank	Date of Record	Habitat Present in/adjacent to Study Area
Clamp-tipped Emerald	*Somatochlora tenebrosa*	S2	Pre-1941	N/A - historical record, species is unlikely to currently inhabit the area
Sharp-leaved Goldenrod	*Solidago arguta*	S3	1973	N/A- historical record, species is unlikely to currently inhabit the area
Eastern Pipistrelle	*Pipistrellus subflavus*	S3	1965	N/A- historical record, species is unlikely to currently inhabit the area
Mottled Darner	*Aeshna clepsydra*	S3	1995	Wetlands with open water, ponds and lakes. Few open water areas exist along the ROW. If any are disturbed or removed, similar habitat can be created elsewhere.
Carey's Sedge	*Carex careyana*	S2	1905	N/A- historical record, species is unlikely to currently inhabit the area
Halloween Pennant	*Celithemis eponina*	S3	1924	N/A- historical record, species is unlikely to currently inhabit the area
Painted Skimmer	*Libellula semifasciata*	S2	1913	N/A- historical record, species is unlikely to currently inhabit the area
Evening Primrose	*Oenothera pilosella*	S2	1939	N/A- historical record, species is unlikely to currently inhabit the area

4.2.6.4 Vegetation Communities

Field visits were conducted in the study area including the ROW and alternative station and layover sites including the ROW and alternative station and layover sites in October 2008 and March 2009. Vegetation communities at the alternative station and layover sites were assessed using the Ecological Land Classification for Southern Ontario Lee et al. 1998). Vegetation communities along the ROW and at each station or layover alternative are shown on Figures N-1 through N-25.

Rail Line

Vegetation communities along the rail line range from heavily disturbed to intact and naturally functioning communities. Regardless of the quality of the community as a whole, all natural features were disturbed to some degree in the areas immediately adjacent to the existing ROW. All were influenced by edge effects and existing maintenance and trimming activities along the ROW.

Approximately half of the natural features along the ROW were comprised of upland vegetation communities including cultural meadows, cultural woodlands, coniferous plantations and four naturally forested communities. The other half was more characteristic of wetland features and included communities such as meadow and shallow marsh, thicket swamp and treed swamp. Nearly all natural features had some provincial or local designation.

The composition, characteristics and corresponding designation of each natural area along the study area, is outlined in tabular form in Appendix C4.

Station and Layover Alternatives

Vegetation communities in, and adjacent to, the station and layover alternatives are described below and summarized in tabular form in Appendix C4.

Georgetown GO Station
This site is entirely developed. No vegetation communities are present on the site.

Acton – Old Hide House
This site is located entirely within the existing paved parking area at the Old Hide House in Acton's urban centre. No vegetation communities are present on the site.

Acton – Dublin Line
This site is comprised almost entirely of agricultural lands. A narrow strip of meadow and sparse tree cover is present along the ROW.

A small cattail marsh (MAS2) wetland area is located at the eastern edge of the site. This wetland is regulated by the CA.

Guelph – Watson Road
Existing residential development is located at the western limit of the site. A Scots pine (*Pinus sylvestris*) plantation (CUP3) separates the houses from the ROW. This plantation becomes sparser to the east and becomes characteristic of cultural woodland (CUW1). A steep berm is located along the northern boundary of the CUP3 and CUW1 communities, separating them from a cultural meadow to the north. A variety of common meadow grasses dominate the meadow which also includes lesser amounts of wildflower cover such as goldenrods, asters and Queen Anne's Lace (*Daucus carota*).

Lands along Clythe Creek to the north of the site form part of the Clythe Creek PSW. It is not believed that the floodplain of Clythe Creek extends into the site.

Guelph - Downtown
This site is entirely developed. No vegetation communities are present on the site.

Guelph - Lafarge
This site has experienced some previous disturbance. Areas with gravel fill and compacted soils and unauthorized trails are located throughout the site. Much of the site is in a state of renaturalization and is characterized as either cultural meadow (CUM1) or cultural woodland (CUW1). The cultural meadow areas included common meadow species such as asters, goldenrods, Queen Anne's lace and a variety of grasses. Some trees were present including Manitoba maple (*Acer negundo*), buckthorn, staghorn sumac (*Rhus typhina*) and willow species. The cultural woodland had a denser canopy cover than the meadow, but less cover than a forest community. The dominant species was Siberian elm (*Ulmus pumila*). Very few other tree species were present. A watercourse runs along the eastern edge of the site. Tree cover along its banks and riparian zone was greater than in the woodland and the community was classified as lowland deciduous forest (FOD7). Species in this community also included Siberian elm and Manitoba maple.

Several young butternut trees (*Juglans cinerea*) were noted in this community. Butternut trees are designated Endangered under the *Ontario Endangered Species Act* and are listed on Schedule 1 of the *Species At Risk Act*.

Breslau – Greenhouse Road
This site is characterized by previous human disturbance. The northern portion of the site is currently in agricultural use. The southern portion contains areas of gravel fill with trails running throughout the site. Vegetation communities are characteristic of disturbed conditions and include cultural meadows (CUM1) and several small cultural woodlands (CUW1). The most prominent woodland in the centre of the site is comprised almost entirely of Manitoba maple with lesser amounts of buckthorn present.

A reed-canary grass meadow marsh (MAM2) running across the northeast corner of the site, forms part of the Breslau PSW Complex and is the only feature of significance on the site.

A sugar maple (*Acer saccharum*) and white ash (*Fraxinus americana*) dominated forest community lies to the west of the site. This dry forest community transitions into wetland. Areas just to the northwest of the site are also part of the Breslau PSW. Lands immediately south of the ROW are also designated as part of the same PSW.

Breslau – Fountain Street
Evidence of previous disturbance is apparent across this site. The western-most portion is covered by broken pavement. Some limited tree and wildflower cover has emerged through the pavement. Various trails run throughout the length of the site. The majority of the site is comprised of cultural meadow, including common grasses and forbs. Several small cultural woodland patches are located throughout the site. Most of these are comprised of poplar species with some Eastern white cedar (*Thuja occidentalis)*, with the exception of a narrow Scots pine and Eastern white pine (*Pinus strobus)* plantation across the centre of the site. Loss or disturbance to any of the vegetation or communities on the site would not be considered significant.

A mixed Eastern white cedar and hardwood swamp (SWM1) is located to the north of the site. This wetland forms part of the Breslau PSW Complex.

Kitchener – Downtown
This site is entirely developed. No vegetation communities are present on the site.

Kitchener - Ira Needles Boulevard
This site contains two small wetlands that form part of the Waldau Non-PSW Complex. Both wetlands are comprised of two vegetation communities, a cattail shallow marsh (MAS2) and a thicket swamp (SWT2). Both wetland are regulated by the GRCA. Vegetation communities across the remainder of the site include a cultural meadow area and manicured grass areas. A narrow strip of black cherry trees lines the north side of the ROW along the eastern half of the site.

Several hydro towers, associated with the power generating station to the south, are located in the central portion of the site.

Petersburg
This layover alternative is characterized entirely by human-influenced communities. The majority of the site is currently in agricultural use with the exception of a narrow strip of meadow and sparse tree cover immediately adjacent to the ROW. The meadow area contains meadow grasses and forbs common to old field and disturbed sites, including goldenrods, asters and milkweed. A small number of trees are present within the strip including, white ash, Manitoba maple, basswood (*Tilia americana*) and balsam poplar (*Populus balsamifera*).

Baden – Sandhills Road
The majority of this site is currently in agricultural use. A small narrow strip of trees and shrubs is located immediately adjacent to the ROW which includes species such as staghorn sumac, crabapple and red-osier dogwood (*Cornus stolonifera*).

Baden – Nafziger Road
This site is almost entirely in agricultural use and was planted in corn at the time of the site visit on March 17, 2009. Minimal vegetation was located along the ROW, including red-osier dogwood in the ditch along the track. A small treed strip was also located along a portion of the ROW. Although not inventoried in detail, it appeared to include crabapple, hawthorn, elm and a number of shrub and vine species. A woodlot was located to the south, outside of the area associated with the layover site. Dominant species included sugar maple, American beech (*Fagus grandifolia*), white ash, ironwood (*Ostrya virginiana*) and elm, and the feature was classified as a sugar maple deciduous ecosite (FOD5).

4.3 Social/Cultural Environment

This section profiles the socio-economic characteristics of the major market areas that would utilize the proposed rail expansion service including the Town of Halton Hills, the City of Guelph and the City of Kitchener. The data was obtained from Statistics Canada Population Census of 2001 and 2006. Statistics Canada conducts the census once every five years.

4.3.1 Population, Employment and Age Characteristics

The population data for the three major communities in the study area was compared to Ontario's population during the same time period. The results are summarized in Table 4.9.

Table 4.9 Populations in Study Area (Major Communities)

Census Year	Halton Hills		City of Guelph		City of Kitchener		Ontario	
	Total	Change	Total	Change	Total	Change	Total	Change
2001	48,184		106,170		190,399		11,410,046	
2006	55,289	14.7%	114,943	8.3%	204,668	7.5%	12,160,282	6.6%

Source: Statistics Canada, Population Profile of Canada (2006).

The largest increase in population between census years is in the Town of Halton Hills. In addition to some smaller villages, the Town of Halton Hills includes the communities of Georgetown and Acton, which are situated along the rail corridor. According to Town of Halton Hills website (http://www.town.halton-hills.on.ca/discover/population.php, Accessed January 29, 2009), the population of Georgetown increased from 31,510 to 36,690 between census years. This represents an increase of 16.4 percent. Therefore the majority of the increase in population for the Town of Halton Hills is attributed to significant growth in Georgetown. Although marginally higher, the population change between census years for Guelph and Kitchener are more comparable to Ontario overall.

Labour force activity in the three major communities in the study area was compared to Ontario's activity during the same time period. The results are summarized in Table 4.10.

Table 4.10 Labour Force Activity in Study Area (Major Communities)

	Halton Hills	City of Guelph	City of Kitchener	Ontario
Employment Rate	72.0%	67.7%	67.1%	62.8%
Unemployment Rate	4.1%	5.3%	5.7%	6.4%

Source: Statistics Canada, Population Profile of Canada (2006).

The rate of employment is higher in each of the three communities as compared to Ontario's average.

The age characteristics of the population are shown in Table 4.11. In general, the figures show that in 2006 the populations of the major communities in the study corridor have the greatest number of people in the mid to older age groups (ages 35-49) and lowest number of people in older age groups (ages 85 and over). This trend is very similar to the age characteristics of the population in Ontario.

Table 4.11 Age Characteristics in the Study Area (Major Communities)

Age Characteristics of Population (years)	Halton Hills (% of total)	City of Guelph (% of total)	City of Kitchener (% of total)	Ontario (% of total)
Age 0 - 4	3,600 (6.5%)	6,875 (6.0%)	12,265 (6.0%)	670,770 (5.5%)
Age 5 -9	4,255 (7.7%)	6,960 (6.1%)	12,295 (6.0%)	721,590 (5.9%)
Age 10 - 14	4,475 (8.1%)	7,335 (6.4%)	13,360 (6.5%)	818,445 (6.7%)
Age 15 - 19	3,730 (6.7%)	7,565 (6.6%)	13,695 (6.7%)	833,115 (6.9%)
Age 20 - 24	2,815 (5.1%)	9,190 (8.0%)	14,955 (7.3%)	797,255 (6.6%)
Age 25 - 29	2,565 (4.6%)	8,555 (7.4%)	15,485 (7.6%)	743,695 (6.1%)
Age 30 - 34	3,505 (6.3%)	8,470 (7.4%)	15,145 (7.4%)	791,955 (6.5%)
Age 35 - 39	4,810 (8.7%)	8,620 (7.5%)	15,650 (7.6%)	883,990 (7.3%)
Age 40 - 44	5,865 (10.6%)	9,550 (8.3%)	17,145 (8.4%)	1,032,415 (8.5%)
Age 45 - 49	4,835 (8.7%)	8,960 (7.8%)	16,160 (7.9%)	991,970 (8.2%)
Age 50 - 54	3,625 (6.6%)	7,555 (6.6%)	13,975 (6.8%)	869,400 (7.1%)
Age 55 - 59	3,120 (5.6%)	6,440 (5.6%)	1,1905 (5.8%)	774,530 (6.4%)
Age 60 - 64	2,455 (4.4%)	4,615 (4.0%)	8,625 (4.2%)	581,985 (4.8%)
Age 65 - 69	1,795 (3.2%)	3,575 (3.1%)	6,685 (3.3%)	466,240 (3.8%)
Age 70 - 74	1,355 (2.5%)	3,330 (2.9%)	5,595 (2.7%)	401,950 (3.3%)
Age 75-79	1,175 (2.1%)	3,145 (2.7%)	5,225 (2.6%)	338,910 (2.8%)
Age 80-84	755 (1.4%)	2,395 (2.1%)	3,715 (1.8%)	250,270 (2.1%)
Age 85 and over	545 (1.0%)	1,820 (1.6%)	2,785 (1.4%)	191,810 (1.6%)
Median age	37.9	36.4	36.6	39
TOTAL (all persons)	55,280	114,955	204,665	12,160,295

4.3.2 Recreation

The Bruce Trail, which is Canada's oldest and longest footpath (Bruce Trail Conservancy, 2009), provides the continuous public access to the Niagara Escarpment. The Trail crosses through study rail corridor at Limehouse. The trail crossing is made via the 5th Line which overpasses CN mainline at this location. The future twinning of the mainline track will required a widening of the 5th Line overpass.

4.3.3 Built and Cultural Heritage

Burnside retained Archaeological Services Inc. (ASI) to complete a cultural heritage assessment for the proposed rail expansion from Georgetown to Kitchener (March 2009). The assessment addressed both built heritage and cultural heritage landscapes at the alternative stations and layover sites. ASI's full report is provided in Appendix C5. The CN mainline track that runs through the study corridor is identified as a cultural heritage landscape because it follows the original railway alignment as indicated on historical mapping. The existing CN ROW was originally surveyed in the 1850s. Tracks extending from Toronto to Stratford by way of Georgetown, Acton, Guelph and Kitchener were constructed in 1856 by the Grand Truck Railway. A summary of the existing built heritage and cultural heritage landscapes of the study area is provided in Table 4.12.

Table 4.12 Summary of Cultural Heritage Features in Study Area

Area	Description of Built Heritage and Cultural Heritage Landscapes
Georgetown GO Station	Existing VIA/GO Station designated under the *Railway Station Protection Act.* Late 19th Century commercial building (Georgetown Exchange Tavern) is located on the southern boundary of the station area.
Acton - Hide House	Olde Hide House former tannery warehouse.
Acton – Dublin Line	Mid 19th Century roadscape (Dublin Line).
Guelph – Watson Road	Mid 19th Century roadscape (remnant entrance drive located just east of study area).
Guelph – Downtown	VIA Station is designated under the *Railway Station Protection Act*. Miltary storage facility. Early 20th Century industrial building. Guelph City Hall is designated under the *Ontario Heritage Act.*
Kitchener – Downtown	Seven Late 19th Century / Early 20th Century industrial buildings are nearby. VIA Station is designated under the *Railway Station Protection Act.* A 1920s public utility building. Two Late 19th Century residential building.
Petersburg	Mid 19th Century roadscape (Agatha Road / Notre Dame Drive South).
Baden – Sandhills Road	Mid 19th Century roadscape (Sandhills Road).
Baden – Nafziger Road	Mid 19th Century roadscape (Nafziger Road).

4.3.4 Archaeology

ASI also completed a Stage 1 Archaeological Assessment for the study area. They assessed the potential for archaeological resources at each of the alternative stations and layover sites. ASI's full report is provided in Appendix C5.

Archaeological potential is dependent on a series of possible attributes. ASI found the most significant attributes for the study area were the following:

- Known sites within 250 m;
- Primary water source within 300 m or secondary water source within 200 m;
- Past water source within 300 m;
- Exceptional physiographic features (cf. elevated topography, well drained soil within area of heavy or rocky soil, or distinctive landforms);
- Locale of early Euro-Canadian settlement; and,
- Historic transportation route within 100 m.

Based on their field review and the attributes above, the percentage of archaeological potential at each alternative station and layover area was estimated based on the proportion of lands with Aboriginal or Euro-Canadian archaeological potential. Table 4.13 provides the results of ASIs estimation.

Table 4.13 Approximate Percentage of Archaeological Potential for Each Alternative Station and Layover Site

Site	Percentage (%)
Georgetown GO Station	0
Acton – Hide House	33.33%
Acton – Dublin Line	100%
Guelph – Watson Road	90%
Guelph – Downtown	15%
Guelph – Lafarge	75%
Breslau – Greenhouse Road	10%
Breslau – Fountain Street	0%
Kitchener – Downtown	0%
Kitchener – Ira Needles	25%
Petersburg	95%
Baden – Sandhills Road	95%
Baden – Nafziger Road	95%

ASI found that the Georgetown GO Station, the Breslau – Fountain Street and the Kitchener-Downtown sites do not retain archaeological site potential due to previous disturbances. The remaining alternative sites exhibit archaeological potential. ASI noted that if the proposed project impacts these locations, then a Stage 2 Archaeological Assessment should be conducted during detailed design on lands determined to have archaeological potential.

5.0 Concept Alternatives

5.1 Description of Concept Alternatives

All feasible concept alternatives were developed as a part of the feasibility phase. The concept alternatives are:

- Do Nothing;
- Transportation Demand Management (TDM);
- New or Expanded Commuter Rail Service;
- New or Expanded Bus Service; and,
- Increased Road Capacity.

5.1.1 Do Nothing

The "Do Nothing" alternative is a mandatory alternative for consideration under the GO Transit Class EA, as it serves as a reference point for comparing other alternatives. The "Do Nothing" alternative would mean no improvements or changes would be undertaken to address the problem. The existing mainline track would continue to be used by freight and passenger (VIA) rail traffic.

5.1.2 Transportation Demand Management

This alternative would involve the implementation of strategies or policies to encourage commuters to use alternatives to traveling alone (ie. education through marketing). Some of these strategies could include high occupancy (HOV) and reserved bus lanes (RBL), area traffic/transit signal priority, parking management, congestion pricing, ridesharing, land use density increases and telecommuting.

5.1.3 New or Expanded Commuter Rail Service

This alternative would involve the expansion of rail service from the Georgetown GO Station to the Kitchener area. This alternative would include construction of new commuter rail stations, corridor rail line improvements, and layover site in the western extremity of the study corridor to provide required train service to the Kitchener/Waterloo area. Current GO commuter rail service would be expanded within the study area, providing opportunities for increased ridership to/from the Greater Toronto Area (GTA) and within the expanded corridor. GO expansion would make use of the currently underutilized rail corridor.

5.1.4 New or Expanded Bus Service

This alternative would involve the expansion of bus service on existing major arterial roadways and highways. The expanded service would be primarily an express service to enable the most efficient travel time for inter-regional commuter traffic. In order to improve the frequency and reliability of bus services, transit signal priority, rush-hour reserved bus lanes or dedicated bus-only roadways / transit-ways may be considered. Additional infrastructure would be required

to support the increased number of buses such as new bus terminals and maintenance and storage facilities.

5.1.5 Expand Road Capacity

This alternative would involve one of two measures. As a first approach, the implementation of traffic management improvements could enable more efficient use of the existing roadway networks. Improvements could include enhanced traffic signalization controls and HOV lanes. However, the most effective means of increasing road capacity is by widening existing roadways and highways in order to serve increasing inter and intra-regional commuter traffic.

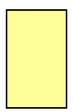
5.2 Evaluation of Concept Alternatives

The concept alternatives were evaluated based on four major criteria/factors including: natural environment, social/cultural environment, economic, and technical. Natural environment factors are those having regard for or effect to the protection of natural and physical components of the environment including air, land, water, wildlife, etc. and environmental sensitive areas. Social/Cultural environment factors are those regarding residents, neighborhoods, businesses, community landscapes and features, social interactions, historical/archaeological remains, and heritage features. Economic factors are those related to the financial costs associated with the undertaking (e.g. capital costs, operating costs, end-user costs). Technical factors refer to issues such as feasibility and longevity of the undertaking, traffic implications and impacts on other modes of transportation.

For each of the four major factors above, the concept alternatives were assigned a rating based on a scale of least preferred to most preferred. In this method of rating, the alternatives are compared to each other in a relative manner rather than a precise manner as with a numerical-based rating system. The relative-based method was chosen because it was a more effective means of comparing the concept alternatives in order to arrive at the best possible solution to the identified problem/opportunity in a simple and timely way. The evaluation of the concept alternatives is presented in Table 5.1.

Table 5.1 Evaluation Summary of Concept Alternatives

FACTOR	CONCEPT ALTERNATIVES				
	Do Nothing	**Transportation Demand Management (TDM)**	**New or Expanded Commuter Rail Service**	**New or Expanded Bus Service**	**Expand Road Capacity**
A Natural Environment *Rating*					
	Continued and/or additional road congestion would lead to continued air quality degradation. No impact on existing natural environment conditions along the rail corridor.	Implementing TDM measures would have no effect on the natural environment.	Potential physical impacts contained to existing rail corridor for most of the study area. Potential for physical impacts at proposed layover and new station sites. Impacts to air quality are low as compared to other alternatives. One GO Train provides equivalent capacity of 2,000 single-occupant cars, which represents a net benefit to air quality as compared to other alternatives dependent on automobile commuting.	Little impact on the natural environment unless additional ROWs were to be provided. Will have a significant impact on existing road congestion levels. An increase in bus service will produce a negative impact on air quality versus rail service.	Increasing road capacity (i.e. additional ROW required) will have impacts on natural environment. Expansion of existing roads and highways to accommodate growing Toronto/GTA-oriented commuter traffic would have the potential for the greatest impact to the natural environment of all alternatives. Expansion of roads and highways will result in more single-driver automobile traffic on major routes and will lead to continued air quality degradation.
B Social/Cultural Environment *Rating*					
	With no increase in transit capacity or road improvements, additional road congestion will negatively impact travelers on existing major routes between Kitchener and the Toronto/GTA area. Not consistent with provincial growth management policies.	Effectiveness of transportation demand management strategies depends heavily on the willingness of commuters to change or modify their travel habits, and in turn, requires a comprehensive package of HOV lanes, priority programs, transit improvements and parking policies. There are significant potential social benefits to these strategies, but the benefits will not be realized by the greater public until there is a considerable volume of commuters using the new strategies. However, the ability to achieve this potential is limited in the short-medium term. This alternative is consistent with provincial growth management policies.	Provides for a convenient and efficient means of moving commuters between Kitchener/Guelph areas and Toronto/GTA which is a net social benefit. Supports initiatives to have a balance between roadways and transit. Potential for minor impacts to land owners adjacent to the rail corridor due to introduced commuter rail traffic along existing corridor. Potential for impact to heritage or archaeological resources if development occurs in previously undisturbed lands. Consistent with *Places to Grow Act* and related provincial growth management policies, including smart growth objectives.	If expanded service were to operate on existing roads, little social impact would result; for new bus priority facilities, the potential for significant negative effects is higher. The inadequacy of additional bus service to meet demand forecasts would become a factor in limiting urban expansion and development potential in the corridor. Consistent with provincial growth management policies.	Road widenings of the scope required would involve significant property acquisition and infringement on adjacent residents in terms of noise, odour and visual impact. Widenings would maintain, to some degree, the car-oriented lifestyle which most corridor residents currently prefer. Realistically, the ability to widen roads beyond the already planned widenings will become increasingly difficult to accomplish due to the social impacts. Not consistent with provincial growth management policies. Potential impacts to heritage conditions in study area.



FACTOR	CONCEPT ALTERNATIVES				
	Do Nothing	**Transportation Demand Management (TDM)**	**New or Expanded Commuter Rail Service**	**New or Expanded Bus Service**	**Expand Road Capacity**
C Economic *Rating*	●	●	●	●	●
	The societal costs of congestion, delays and accidents will continue to increase. These impacts may influence future development in the corridor which in turn could impact the municipal tax base.	Net cost to society in terms of accelerated need for other transportation facilities/services, congestion in other modes and operating/user costs would depend on available alternatives. Many TDM programs (such as higher parking costs, telecommuting, car parking, road pricing), could shift costs to the public.	Significant initial capital cost. Allows for incremental staged growth based on ridership. Fares and operating costs kept to efficient minimum – Revenue/Cost ratio better for train as compared to bus transit. Ability to lower the need or defer road expansion. Some residents may not need to acquire a car for commuting. Benefits the largest number of people for money invested. Supportive of new residential/ employment development in corridor.	Potentially significant capital and operating costs, depending on the facilities and operational strategy required (it would take 40 buses and 40 drivers to move as many people as one train with three crew).	The cost to drivers and to society in general would be significant. Road construction cost in built-up areas is very high and 100% publicly funded. To the driver, the cost of acquiring, operating and parking a car is far more than a transit fare. Congestion, delay and accidents have significant impact on corridor commuters.
D Technical Factors *Rating*	●	●	●	●	●
	Demand is continuing to grow. Without increased regional transit, travel demand would continue to shift to road based modes exacerbating road peek period congestion.	Measures to reduce transportation demand and encourage diversion of trips from single occupant vehicles would range from high occupancy and reserved bus lanes, area traffic control/transit signal priority, parking management, congestion pricing, ridesharing, land use density increases and telecommuting. TDM measures are flexible, adaptable and readily staged, as incremental improvements to (increased) capacity or (reduced) demand can be implemented. However, on its own, TDM measures are unlikely to satisfy the anticipated future travel demands.	Additional track improvements required to resolve operating conflicts between GO Transit and other rail operators (CN, GEXR, VIA) which will allow for the implementation of GO Rail service. One GO train has equivalent people-moving capacity (2,000 persons) to an additional highway lane (2,000 vehicles/hour). Development of stations in Halton Region, Wellington County and Waterloo Region will make service more attractive and convenient as compared with the auto mode. Requires effective local transit and walk-in access to reduce parking demand at stations. Less flexible staging in meeting incremental changes in demand; however, enhanced capacity can meet long-term demand. Limits on frequency of service, due to shared use of	Bus service between Kitchener and Union Station would currently take at least 45 minutes longer than the GO train; with growing road congestion this gap would increase. Bus service is therefore less attractive. Buses can operate more flexibly than trains in terms of schedule, routes, stops and destinations. Bus service can be readily staged, but buses operating within the general traffic stream cannot accommodate the projected long term demand for commuter travel. On-road priority measures (HOV lanes) or dedicated bus facilities (bus rapid transit, BRT) would be required in the long term,	Increased road capacity (where ROW availability permits) would address needs in short term, allowing more efficient and flexible transit and vehicle travel in corridor. However, more road capacity would generate more auto-oriented demand in the absence of improved public transit. The negative results would be severe roadway congestion, air quality degradation, greater parking needs in constrained urban areas, and lower transit ridership. Widening local roads will not address demand for the Kitchener/Georgetown/Toronto commuter market.

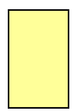
● → ● → ●

Least Preferred Most Preferred

▭ Recommended Alternative

FACTOR	CONCEPT ALTERNATIVES				
	Do Nothing	Transportation Demand Management (TDM)	New or Expanded Commuter Rail Service	New or Expanded Bus Service	Expand Road Capacity
			a single track corridor, affecting convenience until an additional full second track rail line is implemented.	which makes this option similar in scope and impact to TDM alternative.	
SUMMARY	Inadequate and unaccepable approach to dealing with planned growth in the corridor. Does not accommodate forecast population and employment growth and increasing travel demands. "Do Nothing" alternative is not compatible with provincial policy objectives to improve transportation and the environment.	Overall, transportation demand strategies (such as high occupancy and reserved bus lanes, ridesharing, telecommuting, parking management, etc.) are considered to be part of the "tool box" of alternatives but not a stand alone strategy which would be capable of meeting the anticipated corridor traffic demands.	Expanded rail service is a significant element in area-wide transportation/land use strategy; expansion of service is capable of accommodating demand with relatively little environmental impact. Although initial costs are high in comparison to the other alternatives, this option provides the best option for monies invested and would improve air quality. Consistent with provincial policy including smart growth objectives.	Increased bus service has a key role to play, but is less efficient and attractive than train service for specific downtown Toronto-oriented commuter market. Without exclusive travel lanes (HOV) this option will be severely impacted by congestion and travel delays on the road system.	Further road expansion poses significant social and environmental impacts. Transportation demands cannot be met solely with a "road-based" solution due to ROW limitations. Costs and impacts of further road expansion would be significant.
RECOMMENDED ALTERNATIVE	Not recommended.	Not recommended.	Recommended.	Not recommended.	Not recommended.

Least Preferred Most Preferred



Recommended Alternative

5.2.1 Do Nothing

This alternative does not support the forecast population and employment growth and increasing travel demands within the corridor.

Passenger rail travel between Kitchener and Georgetown would continue to be provided by VIA Rail and by Greyhound/GO Bus Service, which are currently at a limited capacity. The existing major highways and regional arterial roads experience significant congestion levels at peak travel times. Doing nothing to solve the problem would result in the following impacts:

- Continued and/or additional road congestion will lead to air quality degradation;
- Travelers will experience more frustration and added costs with major delays on routes between Kitchener and the Toronto/GTA area; and,
- A "Do Nothing" alternative is inconsistent with provincial growth management policies.

Ultimately, this alternative does not address the problem/opportunity statement.

5.2.2 Transportation Demand Management

TDM measures are flexible, adaptable and readily staged. These strategies would not have a negative impact on the natural environment and would be consistent with provincial growth management policies.

However, the effectiveness of TDM strategies is somewhat limiting in nature and highly dependent on the willingness of commuters to change their travel habits. This strategy requires a comprehensive commitment to HOV lanes, priority programs, transit improvements, parking policies and road pricing. This success of TDM strategies will only be realized when there is significant public acceptance and usage of the TDM options. Overall, this strategy is viewed as short-term or stop-gap measure.

While these strategies could form part of the long term solution, they are not capable of meeting the anticipated corridor traffic demands.

5.2.3 New or Expanded Commuter Rail Service

The expansion of rail service represents a significant component in an area-wide transportation / land use strategy. Expansion of rail service is capable of accommodating demand with relatively little environmental impact and the ability to improve air quality. Although initial costs are high in comparison to the other alternatives, this option provides the best overall choice for monies invested. This alternative is consistent with provincial policy, including smart growth objectives and fully addresses the problem statement.

5.2.4 New or Expanded Bus Service

Expanded Bus Service is a valuable component to solving the issue of increased travel demand. However, it is less efficient and attractive than train service or the automobile, especially for the majority of commuters who are trying to minimize their travel time from home to work/business or school. Without dedicated lanes for travel, buses will be impacted to the same degree as regular vehicular traffic due to the increased congestion on major routes. A further disincentive to bus travel is the loss of time by users related to the bus headways, schedule stops and transfer time.

5.2.5 Expand Road Capacity

Expanding the existing capacity of major roads will address increased travel demand by providing commuters with increased road capacity for conventional vehicular travel. However, in the absence of convenient and efficient public transit options, this alternative will continue to generate auto-oriented only travel demand. Expanding only road capacity to solve the "problem" would result in the following impacts:

- Potential for significant impact to natural features associated with widening existing road ROWs;
- More single-driver automobile traffic on major routes will lead to continued air quality degradation;
- Potential for significant property acquisition;
- Infringement on livelihoods of adjacent landowners (noise, traffic, odour, visual impacts);
- Tax payers will experience the greatest cost burden for road widenings;
- Lower GO ridership may result in higher fares and need for subsidies;
- Further degradation of the attractiveness of public transit use; and,
- Inconsistency with provincial growth management policies.

While improvements to the existing road system are required and are inevitable, the anticipated corridor transportation demands cannot be met solely with a 'road-based' solution due to ROW limitations. This solution would pose significant social and environmental implications and its cost would be significant. In addition, as a stand alone solution, this alternative is not consistent with growth management policies.

5.2.6 Preferred Concept Alternative

Based on the above rationale, the preferred concept alternative is a **New or Expanded Commuter Rail Service**. With the implementation of appropriate mitigation measures, this alternative will have limited impacts on the natural, socio-economic and built environment.

6.0 Preliminary Design Alternatives

In order to implement the preferred concept alternative of a New or Expanded Commuter Rail Service, various design alternatives were investigated. Several alternatives were considered for potential GO train stations and a GO train layover facility. Descriptions of these alternatives and their evaluations are provided in Sections 6.1 to 6.4 below.

In order to accommodate the proposed increase in train traffic associated with expansion, there are a number of corridor areas which require improvements to minimize conflicts as well increase running speed along the corridor. As the majority of track from Silver Junction to Baden is single mainline, for the purposes of this project GO Transit has advised that the twinning of the existing mainline was to be used as the ultimate design for the corridor. Rather then evaluate different scenarios, efforts were focused on managing Opening Day service and identifying areas to resolve existing and potential conflicts. Further discussion regarding these improvements is provided in Section 6.5 below.

Preliminary design details for the preferred station sites, layover site and proposed rail line / corridor improvements are provided in Section 8.

6.1 Station Alternatives

As part of the service expansion additional station locations would be required. Potential station locations were investigated using ridership estimates prepared as well as discussing possible alternatives with local municipal, railway and resident representatives. Similar to the proposed railway improvements, station construction has been phased into requirements for Opening Day and Future scenarios. GO Transit identified that the following design elements be considered during preliminary station site determination:

- Full accessibility;
- Mini-platforms;
- Platforms (315 m minimum);
- Parking;
- Bus loop/bays;
- Kiss and Ride;
- Station building; and,
- Bike racks.

The following station alternatives were identified for potential sites:

Halton
Georgetown GO Station – Mile 23.5 Halton S/D – Figures ST1 and ST2
Acton – Hide House – Mile 35.6 Guelph S/D – Figure ST3
Acton – Dublin Line – Mile 37.3 Guelph S/D – Figure ST4

Guelph
Guelph – Watson Road – Mile 46.2 Guelph S/D – Figure ST5
Guelph – Guelph VIA – Mile 48.7 Guelph S/D – Figure ST6
Guelph – Lafarge Site – Mile 50.2 Guelph S/D – Figure ST7

Kitchener/Waterloo
Breslau – Greenhouse Road – Mile 57.3 Guelph S/D – Figure ST8
Breslau – Fountain Street – Mile 58.3 Guelph S/D – Figure ST9
Kitchener – Kitchener VIA – Mile 62.7 Guelph S/D – Figure ST10
Kitchener – IRA Needles/Hydro One – Mile 66.6 Guelph S/D – Figure ST12

6.2 Station Alternatives Evaluation

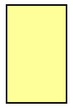
Each of the station alternatives were comparatively evaluated according to the same qualitative or relative-based method that was used to compare the concept alternatives. Evaluation criteria were developed using the four major criteria/factors namely: natural environment; social/cultural environment; financial; and, technical.

The results of the station alternative evaluation are presented in Table 6.1 through 6.3. In addition to the proposed improvements to the existing Georgetown GO Station, new GO stations were considered for three communities along the study corridor including Acton, Guelph and Kitchener area. A discussion of the results for each of these three communities follows.

Table 6.1 Evaluation of Alternative Station Locations in Georgetown/Acton Areas

CRITERIA FOR EVALUATING ALTERNATIVES	Improvements to Existing Georgetown GO Station	ALTERNATIVE STATION LOCATIONS EVALUATED (ACTON AREA)	
		Construct New Station near Hide House	Construct New Station near Dublin Line
A Natural Environment *Rating*:			
1 Number of Designated Sites/Species	No designated sites or species identified within existing station property.	No designated sites or species identified within proposed property.	No designated sites or species identified within proposed property.
2 Potential for impact on terrestrial habitat (flora and fauna)	No impact over existing conditions.	No impact over existing conditions.	Minimal potential for impact to terrestrial habitat. Natural environment is limited to a very sparse hedgerow / meadow strip along rail ROW. Mitigation measures required.
3 Potential for impact to floodplain lands	No impact over existing conditions.	No impact over existing conditions.	Construction that may occur in the floodplain (seasonal flow from a wetted area adjacent to the site draining into Fairy Lake) will be subject to CVCA regulations and permitting requirements. Flood storage and conveyance in project-affected fill-regulated areas not anticipated to be negatively affected.
4 Potential for impact on existing watercourses/crossings, aquatic habitat and fisheries resources	No watercourses or watercourse crossings are affected by proposed improvements.	No watercourses or watercourse crossings are affected by proposed improvements.	Potential indirect impact to a seasonal watercourse which flows south under the mainline track to Fairy Lake adjacent to the site (east side). Potential impacts to habitat quality in watercourse due to construction and operation activities. Mitigation measures required.
B Socio-economic/Cultural Environment *Rating*:			
1 Compatibility with Surrounding Land Uses	Compatible. Uses existing station, so land use does not change.	Compatible. Adjacent land zoned as commercial. Residential zoning north of the ROW, outside proposed development property.	Compatible. Lands primarily zoned as agricultural and employment lands. Small residential areas (estate properties) north and south of the ROW.
2 Conformity to Local Planning Provisions	Conforms.	Conforms. Proposed property located adjacent to the Old Hide House in Acton's urban centre, designated by the Town of Halton Hills Official Plan (OP) as a Tourist Commercial Sub Area within the Urban zone. According to the OP, public structures, including rail lines and associated buildings are permitted in all Urban Areas.	Conforms. Site is located within Protected Countryside of the Greenbelt and is subject to the policies of the Greenbelt Plan. Site located within Zone 3 Wellhead Protection Area and may be subject to further hydrogeological study.

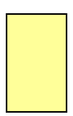
Least Preferred Most Preferred



Recommended Alternative

CRITERIA FOR EVALUATING ALTERNATIVES	Improvements to Existing Georgetown GO Station	ALTERNATIVE STATION LOCATIONS EVALUATED (ACTON AREA)	
		Construct New Station near Hide House	Construct New Station near Dublin Line
3 Potential for impact to Heritage Resources (archaeological features, built heritage, and cultural heritage landscapes)	Due to the extent of previous disturbance, the existing station property does not exhibit archaeological site potential. The existing Georgetown GO Station building is designated under the *Railway Stations Protection Act*. No changes will be made to the existing station building; therefore the cultural heritage value of this station building is not anticipated to be affected.	A central portion of the proposed property has remained relatively undisturbed and exhibits archaeological site potential. A Stage 2 archaeological assessment will need to be conducted for this portion of land. The remaining portions of the proposed property do not have archaeological site potential. The former tannery warehouse is identified as built heritage resource. The proposed station is not anticipated to impact the cultural heritage value of the warehouse.	With the exception of the lands immediately adjacent to the ROW, the proposed property remains relatively undisturbed and exhibits archaeological site potential. A Stage 2 archaeological assessment will need to be conducted for this property. Dublin Line is identified as a historic roadscape. However, the proposed station is not anticipated to impact this roadscape.
4 Potential for noise impacts	Maximum incremental adjusted noise level for both Day 1 and Ultimate Service are 2dBA. Increase is insignificant.	Maximum incremental adjusted noise level for Day 1 Service is 2dBA. Increase is insignificant. Maximum incremental adjusted noise level for Ultimate Service is 6dBA. Increase is noticable. Mitigation measures will need to be considered.	Maximum incremental adjusted noise level for both Day 1 and Ultimate Service are 1dBA. Increase is insignificant.
5 Potential for air quality impacts	Air contaminant concentrations at the station (including parking facilities) are below the MOE air quality standards for existing and future conditions.	Predicted air contaminant concentrations at proposed station (including parking facilities) are below the MOE air quality standards.	Predicted air contaminant concentrations at proposed station (including parking facilities) are below the MOE air quality standards.
6 Potential for vibration impacts	Vibration impact is classified as insignificant.	Vibration impact is classified as insignificant.	Vibration impact is classified as insignificant.
7 Potential to require land	No land required as proposed improvements would be made within existing station property.	No land required as proposed station would be constructed within existing ROW and municipal owned property.	Approximately 2.1 ha required.
C Financial Factors *Rating*:			
Full Service Capital Costs	$17.8 M	$13.7 M	$17.5 M
D Technical Factors *Rating*:			
1 Local Transit Integration	Situated in a location with good connectivity to other transportation modes and local transit systems.	Situated in a location with good connectivity to other transportation modes and local transit systems.	Not well serviced by local transit systems, but could be integrated with intra-city transit services.

Least Preferred Most Preferred



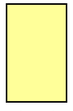
Recommended Alternative

CRITERIA FOR EVALUATING ALTERNATIVES	Improvements to Existing Georgetown GO Station	ALTERNATIVE STATION LOCATIONS EVALUATED (ACTON AREA)	
		Construct New Station near Hide House	Construct New Station near Dublin Line
2 Site Accessibility	Good access to site from multiple street locations. Station to be upgraded to barrier free site with mini-platforms. Elevators, stairs and tunnel required for island platform.	Good access to site directly from Highway 7. Can accommodate barrier free site with mini-platforms. Elevators, stairs and tunnel required for future north platform.	Good site location relative to Highway 7. Access to site is limited to one entrance/exit off Dublin Line. Can accommodate barrier free site with mini-platforms. Elevators, stairs and tunnel required for future island platform.
3 Parking / Passenger Drop-off Availability	Adequate parking available on-site, improvements will add 222 additional parking spaces for a total of 837 parking spaces and an additional kiss and ride facility on the north side.	Potential for reduction to parking available for existing commercial use (Olde Hide House). Can accommodate bus bays and passenger drop-off and ultimate parking demand of 200 spaces.	Good potential for parking on-site. Can accommodate a minimum of 300 parking spaces, bus bays and passenger drop-off.
4 Compatibility with Existing and Future Rail Operations	Compatible.	Compatible. Future north platform can be adjusted to accommodate future CN rail realignment.	Compatible. Hot box detector will need to be relocated. Can accommodate future double track.
5 Station Location Relative to Potential Market Area	Existing GO Station provides good local service to Georgetown, lesser service to Acton and Rockwood.	Good local service to Acton; lesser service to Rockwood.	Site equidistant from Acton and Rockwood. Acton customers would have to drive in opposite direction from GO train travel.
6 Effect on Existing Utilities / Municipal Services / Infrastructure	No impact to existing utilities. Site already serviced by municipality.	No major impact to existing utilities anticipated. Site can be serviced by municipality. May require closure of Queen Street to accommodate 12 car platform; which will result in impact to local traffic.	No major impact to existing utilities anticipated. Site cannot be serviced by municipality. Private services for sewer and water.
SUMMARY	Negligible impact to the environment. Improvements are compatible with planning policy. Since no changes will be made to the existing station building there is no anticipated impact to cultural heritage value of building. Future additional parking and kiss and ride will improve utility of station for public.	Negligible impact to the environment. Conforms to planning policy. Some archaeological site potential to be assessed through a Stage 2 archaeological assessment. No anticipated impacts to cultural heritage value of nearby tannery warehouse building. More affordable option than Dublin Line site. Was site of previous GO station. Can accommodate buses and passenger drop-off. May require closure of Queen Street to accommodate future island platform. Will provide good service to Acton and nearby Rockwood.	Minor impact to environment, site located near seasonal watercourse. Mitigation measures required. Generally compatible with planning policy; however, site located within Zone 3 Wellhead Protection Area and may need further study. Some archaeological site potential to be assessed through a Stage 2 archaeological assessment. More expensive option than Hide House site. Acton patrons would have to drive in the opposite direction from GO train travel.
RECOMMENDATION	Recommended.	Recommended alternative for Acton.	Not recommended.

Table 6.2 Evaluation of Alternative Station Locations in Guelph Area

CRITERIA FOR EVALUATING ALTERNATIVES	ALTERNATIVE STATION LOCATIONS EVALUATED		
	Construct New Station at Property near Watson Road	**Expand Existing VIA Rail Station in Downtown Guelph**	**Construct New Station at Former Lafarge Pit Property**
A Natural Environment *Rating*:			
1 Number of Designated Sites/Species	No designated sites or species identified within existing property.	No designated sites or species identified within existing VIA Rail station property.	*Species at Risk Act* (SARA) Schedule 1 species were observed on the property on the north edge of the proposed property near the toe of slope of the rail bed. A more detailed survey would need to be completed to assess the potential impacts to this species as a result of the proposed development. Mitigation measures required.
2 Potential for impact on terrestrial habitat (flora and fauna)	No impact over existing conditions.	No impact over existing conditions.	Site was formerly used as a pit operation. Much of the site is in a state of re-naturalization. The eastern portion of the site contains a Non-Core Greenlands overlay. The ecological value and function of natural heritage and hazard features within the overlay should be protected. There is potential for minor impacts to terrestrial habitats. Mitigation measures required.
3 Potential for impact to floodplain lands	No impact over existing conditions.	No impact over existing conditions.	Construction that may occur in the floodplain (Howitt Creek) will be subject to GRCA regulations and permitting requirements. Flood storage and conveyance in project-affected fill-regulated areas not anticipated to be negatively affected.
4 Potential for impact on existing watercourses/crossings, aquatic habitat and fisheries resources	No watercourse or watercourse crossings are affected by proposed improvements.	No watercourse or watercourse crossings are affected by proposed improvements.	Potential impact to aquatic habitat quality and existing fisheries resources in Howitt Creek due to construction and operation activities. Mitigation measures required.
B Socio-economic/Cultural Environment ***Rating*:**			
1 Compatibility with Surrounding Land Uses	Compatible. Lands are naturalized with either forest or open meadow. No residential zoning in immediate area with the exception of an estate property fronting Watson Road on the west side of the proposed property.	Compatible. Uses existing station, so land use does not change. No residential zoning in immediate area.	Compatible. Uses former aggregate operation lands which have been disturbed; lands designated primarily for industrial uses. Residential area on north side of ROW, outside proposed development property.

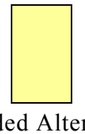
Least Preferred Most Preferred



Recommended Alternative

CRITERIA FOR EVALUATING ALTERNATIVES	ALTERNATIVE STATION LOCATIONS EVALUATED		
	Construct New Station at Property near Watson Road	**Expand Existing VIA Rail Station in Downtown Guelph**	**Construct New Station at Former Lafarge Pit Property**
2 Conformity to Local Planning Provisions	Conforms. According to the City of Guelph Official Plan, the site is designated for industrial uses. "Transportation terminals" are permitted within the Industrial Zone.	Conforms.	Conforms. According to the City of Guelph Official Plan, the site is designated for industrial uses. "Transportation terminals" are permitted within the Industrial Zone.
3 Potential for impact to Heritage Resources (archaeological features, built heritage, and cultural heritage landscapes)	With the exception of the lands immediately adjacent to the ROW and along the western side where previous road construction and grading has occurred, the proposed property remains relatively undisturbed and exhibits archaeological site potential. A Stage 2 archaeological assessment will need to be conducted for these undisturbed areas. There is a remnant entrance drive crossing the mainline track approximately 150 m east of the eastern limit of the proposed property, which is identified as a historic roadscape. However, the proposed station is not anticipated to impact this roadscape.	Due to the extent of previous disturbance, the existing station property does not exhibit archaeological site potential. The existing Guelph VIA Station building is designated under the *Railway Stations Protection Act*. Three other buildings near the station property were identified as cultural heritage resources (Armory, Guelph City Hall, industrial building). Station improvements will be confined to the platforms and ROW. The only change to the existing station building layout will be the accommodation of a GO ticket booth. The proposed improvements are not anticipated to impact the cultural heritage value of these buildings.	With the exception of the western end which has been disturbed, the proposed property remains relatively undisturbed and exhibits archaeological site potential. A Stage 2 archaeological assessment will need to be conducted for these undisturbed areas.
4 Potential for noise impacts	No incremental noise level increases anticipated.	Maximum incremental adjusted noise level for both Day 1 and Ultimate Service are 3dBA. Increase is tolerable.	Maximum incremental adjusted noise level for both Day 1 and Ultimate Service are 1dBA. Increase is insignificant.
5 Potential for air quality impacts	Predicted air contaminant concentrations at proposed station (including parking facilities) are below the MOE air quality standards.	Predicted air contaminant concentrations at proposed station (including parking facilities) are below the MOE air quality standards.	Predicted air contaminant concentrations at proposed station (including parking facilities) are below the MOE air quality standards.
6 Potential for vibration impacts	Vibration impact is classified as insignificant.	Vibration impact is classified as insignificant.	Vibration impact is classified as insignificant.
7 Potential to require land	Approximately 6.3 ha required.	No land required as proposed GO Station would be operated within existing VIA station property.	Approximately 5.0 ha required.
C **Financial Factors** *Rating*:			
Full Service Capital Costs	$21.6 M	$12.0 M	$21.8 M

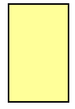
Least Preferred Most Preferred



Recommended Alternative

CRITERIA FOR EVALUATING ALTERNATIVES	ALTERNATIVE STATION LOCATIONS EVALUATED		
	Construct New Station at Property near Watson Road	**Expand Existing VIA Rail Station in Downtown Guelph**	**Construct New Station at Former Lafarge Pit Property**
D Technical Factors *Rating*:			
1 Local Transit Integration	Situated in a location with potential for connectivity to other transportation modes and local transit systems. Local transit routes could be modified to service site (Guelph Transit Depot located nearby).	Situated in a downtown location with good existing connectivity to other transportation modes and local transit system. Fits with *Places to Grow Act* and City of Guelph's desire for downtown transit hub.	Situated in a location with potential for connectivity to other transportation modes and local transit systems. Local transit routes could be modified to service site.
2 Site Accessibility	Good site location relative to Highway 7. Access to site is limited to one entrance/exit off Watson Road. Can accommodate barrier free site with mini-platforms. Elevator, stairs and tunnel required for future island platform.	Good access to site from multiple street locations. Can accommodate barrier free site with mini-platforms. Elevator, stairs and tunnel required to access north and south platforms.	Good site location relative to Highway 6/7 and Paisley Road. Can accommodate barrier free site with mini-platforms. Elevator, stairs and tunnel required to access north platform.
3 Parking / Passenger Drop-off Availability	Good potential for parking on-site. Can accommodate approximately 1,000 parking spaces, bus bays and passenger drop-off.	Limited room for parking on existing property. Future Neeve Street multi-level garage to provide approximately 210 parking spaces.	Good potential for parking on-site. Can accommodate approximately 850 parking spaces, bus bays and passenger drop-off.
4 Compatibility with Existing and Future Rail Operations	Compatible. Can accommodate future double track.	Compatible. Can accommodate double track; required for Day 1 Service.	Compatible. Can accommodate double track; required for Day 1 Service.
5 Station Location Relative to Potential Market Area	Eastern edge of Guelph market area, but still provides good service to Guelph through local transit connectivity.	Central to Guelph market area.	Within Guelph market area. Good service through local transit connectivity.
6 Effect on Existing Utilities / Municipal Services / Infrastructure	No major impact to existing utilities anticipated. Site can be serviced by municipality.	No impact to existing utilities. Site already serviced by municipality.	No major impact to existing utilities anticipated. Site can be serviced by municipality.
SUMMARY	Potential for indirect impacts to watercourse and PSW to the north of site. Mitigation measures required. Compatible with planning policy. Some archaeological site potential to be assessed through a Stage 2 archaeological assessment. More expensive solution than the downtown site. Site access limited to Watson Road. Can accommodate parking, buses and passenger drop-off, but requires modification to local transit routes to adequately service the GO station.	Negligible impact to the environment. Improvements are compatible with City of Guelph planning policy. Proposed station improvements are not anticipated to impact the area cultural heritage resources. Most affordable option for Guelph. Central to Guelph market and provides good integration with local and regional transit systems. Future Neeve Street parkade will support the initial park and ride demand.	Potential for impact to designated species located on site and nearby watercourse associated aquatic habitat. Mitigation measures required. Compatible with planning policy. Some archaeological site potential to be assessed through a Stage 2 archaeological assessment. More expensive solution than the downtown site. Good location relative to local highways and market area. Can accommodate parking, buses and passenger drop-off, but requires modification to local transit routes to adequately service the GO station.
RECOMMENDATION	Not recommended.	Recommended.	Not recommended.

Least Preferred Most Preferred

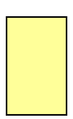


Recommended Alternative

Table 6.3 Evaluation of Alternative Station Locations in Kitchener Area

CRITERIA FOR EVALUATING ALTERNATIVES	ALTERNATIVE STATION LOCATIONS EVALUATED				
	Construct New Station in Breslau near Greenhouse Road	**Construct New Station in Breslau near Fountain Street**	**Expand Existing VIA Rail Station in Downtown Kitchener**	**Construct New Station at King Street**	**Construct New Station near IRA Needles Boulevard**
A Natural Environment *Rating*:					
1 Number of Designated Sites/Species	Breslau PSW crosses property on southeast side. Site access road will require approximately 350 m^2 of wetland area to be removed. Proposed GO Station property will be setback from the PSW.	None on site. Breslau PSW is located approximately 10-30 m north of proposed property limit.	No designated sites or species identified within existing VIA Rail station property.	No designated sites or species identified within proposed property.	None.
2 Potential for impact on terrestrial habitat (flora and fauna)	Disturbed site. A few scattered cultural woodlots. Minimal impact. Restricted Area to the west and south of site (part of Breslau PSW) presents minor constraints in terms of need for buffer area/setbacks.	Tree clearing will be required. Site is disturbed so potential impacts to terrestrial environment are minimal. Restricted Area to the north of site (part of Breslau PSW) presents minor constraints in terms of need for buffer area/setbacks.	No impact over existing conditions.	No impact over existing conditions.	Potential impact to two Non-PSW wetlands on the property.
3 Potential for impact to floodplain lands	Construction that may occur in the floodplain (tributary to Hopewell Creek and a PSW on southeast portion of the site) will be subject to GRCA regulations and permitting requirements. Flood storage and conveyance in project-affected fill-regulated areas not anticipated to be negatively affected.	Construction that may occur in the floodplain (Hopewell Creek) will be subject to GRCA regulations and permitting requirements. Flood storage and conveyance in project-affected, fill-regulated areas not anticipated to be negatively affected.	No impact over existing conditions.	No impact over existing conditions.	Construction that will occur in the floodplain (local wetlands) will be subject to GRCA regulations and permitting requirements. Flood storage and conveyance in project-affected fill-regulated areas will be affected. Consultation with GRCA to determine status of the wetlands observed on site will be required.
4 Potential for impact on existing watercourses/crossings, aquatic habitat and fisheries resources	Potential direct impact to one existing watercourse (tributary of Hopewell Creek) and a PSW on the southeast portion of the site. Mitigation measures required.	Potential indirect impact to one existing watercourse – Hopewell Creek located approximately 30-100 m north of proposed property limit. Mitigation measures required.	No watercourse or watercourse crossings are affected by proposed improvements.	No watercourse or watercourse crossings are affected by proposed improvements.	Impact to one unclassified watercourse observed onsite. Approximately 407 m of watercourse will be impacted. Impact to existing conditions dependent on site alterations either from potential habitat loss or changes to water quality. Consultation with GRCA to determine status of the watercourse observed on site will be required. Mitigation measures required.

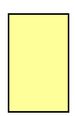
Least Preferred Most Preferred



Recommended Alternative

	CRITERIA FOR EVALUATING ALTERNATIVES	ALTERNATIVE STATION LOCATIONS EVALUATED				
		Construct New Station in Breslau near Greenhouse Road	**Construct New Station in Breslau near Fountain Street**	**Expand Existing VIA Rail Station in Downtown Kitchener**	**Construct New Station at King Street**	**Construct New Station near IRA Needles Boulevard**
B	**Socio-economic/Cultural Environment** *Rating*:					
	1 Compatibility with Surrounding Land Uses	Compatible. Uses former industrial lands which have been disturbed. No residential zoning in immediate area. Lands are currently owned by a private developer.	Compatible. Uses former commercial lands which have been disturbed. Residential area to the west, outside proposed development property. Lands are currently owned by the Regional Municipality of Waterloo.	Compatible. Uses existing station, so land use does not change. No residential zoning in immediate area.	Compatible. No residential zoning in immediate area.	Compatible. No residential zoning in immediate area. Lands in the vicinity of the site as designated for general industrial and public utilities. A Hydro One transformation station plant is located on the lands south of the mainline track. Lands are currently owned by the Regional Municipality of Waterloo.
	2 Conformity to Local Planning Provisions	Conforms. The Township of Woolwich identifies the site as an Urban Area. Transit terminal or layover uses is permitted in these designations subject to the outcome of an EA.	Conforms. This site is designated as a Prime Agricultural area and Sensitivity 4 Wellhead Protection Area according to the Region of Waterloo Official Plan. The Township of Woolwich Official Plan designates lands partially as a Core Area and partially as an Urban Area with an adjacent Restricted Area to the north. Public utilities and associated facilities are permitted on these lands, subject to completion of an EA. Minor constraints are associated with the adjacent Restricted Area.	Conforms.	Conforms.	Conforms. The Region of Waterloo Official Plan designates the site as an Urban Area and a Sensitivity 4 Wellhead Protection Area. Lands in the vicinity of the site as designated for general industrial and public utilities by the City of Kitchener Official Plan. None of these designations presents a significant constraint. Transportation depot and terminal facilities are listed as appropriate uses within the industrial zone.
	3 Potential for impact to Heritage Resources (archaeological features, built heritage, and cultural heritage landscapes)	The northeastern corner and the woodlot along the north edge of the proposed property have remained relatively undisturbed and exhibit archaeological site potential. A Stage 2 archaeological assessment will need to be conducted for these portions of proposed property. The land immediately adjacent to	The proposed property has been disturbed and does not have archaeological site potential.	Due to the extent of previous disturbance, the existing station property does not exhibit archaeological site potential. The existing Kitchener VIA Station building is designated under the *Railway Stations Protection Act*. Several other buildings near the station property were identified as cultural heritage resources	Due to the extent of previous disturbance, the potential station property does not exhibit archaeological site potential.	There are two areas within the proposed property where the land tends to level out and traverses a level to gently undulating landscape. These areas have archaeological site potential. A Stage 2 archaeological assessment will need to be conducted for these portions of the proposed property. The remainder of the proposed

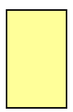
Least Preferred Most Preferred



Recommended Alternative

CRITERIA FOR EVALUATING ALTERNATIVES	ALTERNATIVE STATION LOCATIONS EVALUATED				
	Construct New Station in Breslau near Greenhouse Road	**Construct New Station in Breslau near Fountain Street**	**Expand Existing VIA Rail Station in Downtown Kitchener**	**Construct New Station at King Street**	**Construct New Station near IRA Needles Boulevard**
	the ROW has been disturbed and does not have archaeological site potential. The remaining portion of land appears to be low and wet; however, this has not yet been confirmed. These areas should be visually checked during the Stage 2 assessment to confirm the extant of low and wet areas.		(industrial sites, a public utility building and two residences). Station improvements will be confined to the platforms and ROW. The only change to the existing station building will be the addition of a GO ticket booth inside. The proposed improvements are not anticipated to impact the cultural heritage value of these buildings.		property does not have archaeological site potential.
4 Potential for noise impacts	No incremental noise level increases anticipated.	Maximum incremental adjusted noise level for both Day 1 and Ultimate Service are 1dBA. Increase is insignificant.	Maximum incremental adjusted noise level for both Day 1 and Ultimate Service are 4dBA. Increase is tolerable.	Maximum incremental adjusted noise level for Ultimate Service is 1 dBA. Increase is insignificant.	No incremental noise level increases anticipated.
5 Potential for air quality impacts	Predicted air contaminant concentrations at proposed station (including parking facilities) are below the MOE air quality standards.	Predicted air contaminant concentrations at proposed station (including parking facilities) are below the MOE air quality standards.	Predicted air contaminant concentrations at proposed station (including parking facilities) are below the MOE air quality standards.	Predicted air contaminant concentrations at proposed station (including parking facilities) are below the MOE air quality standards.	Predicted air contaminant concentrations at proposed station (including parking facilities) are below the MOE air quality standards.
6 Potential for vibration impacts	Vibration impact is classified as insignificant.	Vibration impact is classified as insignificant.	Vibration impact is classified as insignificant.	Vibration impact is classified as insignificant.	Vibration impact is classified as insignificant.
7 Potential to require land	Approximately 6.2 ha required.	Approximately 6.1 ha required.	No land required as proposed improvements would be made within existing station property.	Approximately 0.4 ha required.	Approximately 6.3 ha required.
C Financial Factors *Rating*:					
Full Service Capital Costs	$20.7 M	$23.4 M	$1.3 M	$14.9 M	$21.1 M

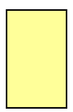
Least Preferred Most Preferred



Recommended Alternative

	CRITERIA FOR EVALUATING ALTERNATIVES	ALTERNATIVE STATION LOCATIONS EVALUATED				
		Construct New Station in Breslau near Greenhouse Road	**Construct New Station in Breslau near Fountain Street**	**Expand Existing VIA Rail Station in Downtown Kitchener**	**Construct New Station at King Street**	**Construct New Station near IRA Needles Boulevard**
D	**Technical Factors** *Rating*:					
1	Local Transit Integration	Situated in a location with limited connectivity to other transportation modes and local transit systems. Local transit routes would need to be upgraded to adequately service site.	Situated in a location with limited connectivity to other transportation modes and local transit systems. Local transit routes would need to be upgraded to adequately service site.	Situated in a downtown location with good connectivity to other transportation modes and local transit system.	Situated in a downtown location with good connectivity to other transportation modes and local transit system. Can be integrated with the future LRT System.	Situated in a location with limited connectivity to other transportation modes and local transit systems. Local transit routes would need to be upgraded to adequately service site.
2	Site Accessibility	Good site location relative to Highway 7, site accessible via Greenhouse Road.	Good site location relative to Highway 7. However, site access is limited to one entrance/exit off Fountain Street. Major improvements required including widening of Fountain Street and overpass in vicinity of station access.	Good access to site from multiple street locations.	Good access to site from multiple street locations.	Good site access from Glasgow Road.
3	Parking / Passenger Drop-off Availability	Good potential for parking on-site. Can accommodate barrier free site with mini-platforms. Elevator, stairs and tunnel required for future south platform.	Good potential for parking on-site. Can accommodate approximately 1,050 parking spaces, bus bays and passenger drop-off.	Limited room for parking on existing property. Must rely on walk-in / drop-offs and public transit.	Limited on-site parking. Relies on strong local transit / LRT interface, walk-in and Kiss and Ride patrons.	Good potential for parking on-site. Can accommodate approximately 980 parking spaces, bus bays and passenger drop-off.
4	Compatibility with Existing and Future Rail Operations	Can accommodate future double track. Can accommodate barrier free site, future elevator, stair and tunnel for future south platform.	Can accommodate future double track. Can accommodate barrier free site with mini-platforms. Elevator, stairs and tunnel required for future south platform.	Can accommodate double track; required for Day 1 Service. Can accommodate barrier free site with mini-platform.	Can accommodate double track; required for Day 1 Service. Can accommodate barrier free site.	Can accommodate double track; required for Day 1 Service. Can accommodate barrier free site with mini-platforms. Elevator, stairs and tunnel required for future south platform.
5	Station Location Relative to Potential Market Area	East of Kitchener market area. Site is within a designated urban expansion area.	East of Kitchener market area. Site is within a designated urban expansion area.	Central to market area.	Central to market area.	West of Kitchener market area.
6	Effect on Existing Utilities / Municipal Services / Infrastructure	No major impact to existing utilities anticipated. Site may not be serviced by municipality. Potential need for temporary private services for sewer and water until permanent connection can be made.	No major impact to existing utilities anticipated. Site can be serviced by municipality.	No impact to existing utilities. Site already serviced by municipality. Will require closure of Ahrens Street to accommodate station improvements; minor impact to local traffic.	No impact to existing utilities. Site can be serviced by municipality. Ahrens Street can be reopened.	Potential for impacts to hydro facilities. Site can be serviced by municipality.

Least Preferred Most Preferred



Recommended Alternative

CRITERIA FOR EVALUATING ALTERNATIVES	ALTERNATIVE STATION LOCATIONS EVALUATED				
	Construct New Station in Breslau near Greenhouse Road	Construct New Station in Breslau near Fountain Street	Expand Existing VIA Rail Station in Downtown Kitchener	Construct New Station at King Street	Construct New Station near IRA Needles Boulevard
SUMMARY	Potential for direct impacts to watercourse and PSW located on southeast side of site. Mitigation measures required. Compatible with planning policy. Some archaeological site potential to be assessed through a Stage 2 archaeological assessment. Least expensive option as Park and Ride station. Good access to Highway 7. Can accommodate parking, buses and passenger drop-off. East of Kitchener market area.	Potential for indirect impacts to watercourse and PSW to the north of site. Mitigation measures required. Compatible with planning policy. No archaeological site potential. More expensive option as a Park and Ride station. Site access limited to Fountain Street. Can accommodate parking, buses and passenger drop-off. East of Kitchener market area.	Negligible impact to the environment. Compatible with planning policy. Since no changes will be made to the existing station building, no anticipated impact to cultural heritage value of building. Most affordable option for Kitchener for Day 1 Service; however, requires more permanent solution to accommodate parking and transit integration needs. Central to Kitchener market.	Negligible impact to the environment. Compatible with planning policy. Most affordable option for Kitchener for Ultimate Service as it can accommodate integration with local transit and LRT service. Central to Kitchener market.	Potential for impacts to two local wetlands on site. Mitigation measures required. Compatible with planning policy. Some archaeological site potential to be assessed through a Stage 2 archaeological assessment. Can accommodate parking, buses and passenger drop-off. West of Kitchener market area. Site is better suited as a layover facility.
RECOMMENDATION	Recommended. Park and Ride facility (Day 1 Service).	Not recommended.	Recommended. Interim solution (Day 1 Service).	Recommended. Ultimate solution.	Not recommended for Day 1 service.

6.2.1.1 Georgetown GO Station

As this site is an existing GO Station, the emphasis was placed on identifying improvements that are required as a direct consequence of the proposed rail expansion. The details are provided in Table 6.1 for this site which summarizes the potential impacts resulting from the proposed improvements to the existing station property.

6.2.1.2 Acton – Hide House

Based on the comparative evaluation of the two alternatives for the Acton area (see Table 6.1), the Hide House alternative was recommended over the Dublin Line alternative for the following reasons:

- Site is situated in a developed urban setting where there are no natural heritage features or watercourses to be impacted;
- More affordable option;
- Site was previously used as a GO station stop;
- Site location would provide good connectivity to other transportation modes and local transit systems; and,
- Rockwood community could be served initially with GO bus service until ridership demand could justify a future Rockwood station.

6.2.1.3 Guelph – Downtown VIA

Based on the comparative evaluation of the three alternatives for the Guelph area (see Table 6.2), the Downtown alternative was recommended over the Watson Road and Lafarge alternatives for the following reasons:

- Site is situated in a developed downtown urban setting where there are no natural heritage features or watercourses to be impacted;
- More affordable option;
- Site is central to the ridership market for the Guelph area and provides good integration with local and regional transit systems.

The primary advantage of locating the GO station in the downtown core is to support the continued efforts of the City of Guelph to encourage its citizens to use sustainable transportation modes such as public transit, cycle and walking as means of linking with inter-regional transit systems such at rail or buses. At the same time, GO Transit recognizes the need to have adequate parking to meet potential park and ride demands. VIA currently has approximately 45 “reserved” spaces for their customers so this area needs to be protected close to the station if required for a proposed bus loop. As parking is currently limited in the area near the existing VIA Station, GO Transit will be working with the City of Guelph to ensure that there will be adequate parking available for GO train users when GO train service opens in Guelph, while avoiding conflict with the needs of the downtown business community.

Currently plans are in place to construct a parkade (80 spaces) along Wilson Street which could accommodate both local businesses as well as GO riders on an interim basis. For future demands, the City of Guelph is investigating a potential multi-level parking facility along the southeast side of the Guelph site. This future multi-level parking facility, in addition to the potential proposed transit hub would allow riders to arrive at the station via transit, active transportation i.e., bicycles, walk, etc. and personal vehicles. Future deigns will also need to implement grade separation plans at the Wyndham Street crossing.

6.2.1.4 Kitchener – Downtown VIA

Based on the comparative evaluation of the three alternatives for the Kitchener area (see Table 6.3), the Downtown VIA and Greenhouse Road sites were recommended for Opening Day Service. The Greenhouse Road site is intended to the support the initial park and ride demand from the Kitchener area for Opening Day Service. The recommended ultimate location of the Downtown Kitchener GO Station is at King Street. This site will require integration with the Region of Waterloo planned Rapid Transit initiative in the King Street road corridor, which is currently underway. The Downtown site was recommended over the other alternatives for the following reasons:

- Site is situated in a developed urban setting where there are no natural heritage features or watercourses to be impacted;
- More affordable option; and,
- Site is central to the ridership market for the Kitchener area and provides good integration with local and regional transit systems.

Similar to the Downtown Guelph area, parking is currently limited in the area near the existing VIA Station in Kitchener, while being more convenient to GO train patrons arriving on public transit, on bicycle or on foot site. GO Transit plans to discuss various options with City of Kitchener staff to provide limited parking in the vicinity of this station to accommodate limited park and ride demand.

6.2.1.5 Breslau – Greenhouse Road

The Greenhouse Road site was supported by Regional staff for a sub-urban station to service the park and ride demands of the community, based upon the following:

- Least expensive option as a Park and Ride station;
- Good access to Highway 7;
- Region of Waterloo are currently in the process of updating their regional master transportation plan with the view of further improving accessibility from other area regional roads;
- Good connectivity to the regional airport; and,
- Can accommodate parking, buses and passenger drop-off.

Consultation was undertaken with the Ministry of Natural Resources (MNR) regarding the Greenhouse Road Site. This site is supported in principle by the MNR. Record of communication with the MNR is provided in Table 7.6 and Appendix D10.

6.2.1.6 Kitchener - Ira Needles Boulevard

The Ira Needles Boulevard site may be considered in the future as a westerly sub-urban GO station but further discussions/approval would be required with adjacent property owners. More specifically, Hydro One who has indicated future expansion needs in the area. GO Transit would also need to ensure the ability to attract ridership for the area.

6.3 Layover Facility Alternatives

As part of the service expansion, a layover facility is required to allow for overnight storage of trains. Potential layover locations were assessed upon adjacent land use, accessibility and proximity to potential stations. GO identified that the following design elements be considered during preliminary station site determination:

- Minimum eight (8) storage tracks;
- Electrical Sub-station;
- Wayside Power;
- Fuelling;
- Crew Centre;
- Type B[2] Progress Maintenance Facility (PM bays); and,
- Site Servicing.

The following layover alternatives were identified for potential sites:

- Breslau – Greenhouse Road – Mile 57.3 Guelph S/D – Figure ST8
- Breslau – Fountain Street – Mile 58.3 Guelph S/D – Figure ST9
- Kitchener – IRA Needles/Hydro One – Mile 66.6 Guelph S/D – Figure ST11
- Petersburg – Notre Dame Drive - Mile 69.0 Guelph S/D – Figure ST13
- Baden – Sand Hills Road - Mile 71.6 Guelph S/D – Figure ST14
- Baden – Nafziger Road - Mile 72.82 Guelph S/D – Figure ST15

6.4 Layover Facility Alternatives Evaluation

Each of the layover facility alternatives were comparatively evaluated according to the same qualitative or relative-based method that was used to compare the concept alternatives.

[2] Type B progress maintenance facilities are to include PM bays, light repairs, toilet servicing, wheel machine, light cleaning, trip inspections, material storage, fixed refueling, consist parking, material storage, consist washing, and laser wheel measuring.

Evaluation criteria were developed using the four major criteria/factors namely: natural environment; social/cultural environment; financial; and, technical.

A total of five layover facility alternatives were initially identified and evaluated. The results of the layover alternative alternatives are presented in Table 6.4. It should be noted that a few other sites were initially investigated by the study team as potential layover facility sites, however these were not continued forward for further evaluation based on natural environment and technical constraints.

Of the five initial alternatives, the Ira Needles Boulevard site was originally selected as the preliminary preferred layover site for the following reasons:

- Close proximity to preferred GO Downtown Station site at the existing VIA Station in downtown Kitchener;
- Compatible with adjacent land uses (industrial/commercial);
- Potential for adding, in future, a terminal GO Station to satisfy the demands of the Kitchener west market; and,
- Requires less land area than other alternative sites.

For these reasons, this site was indicated as the preliminary preferred layover site at Public Information Centre (PIC) #2.

The Ira Needles Boulevard Layover site was the subject of intense discussions with Hydro One, adjacent landowners, City of Kitchener and Region of Waterloo. Options were presented to the area landowners who utilized the Hydro One lands on the north and south sides of the rail line west of Ira Needles Boulevard. Due to Hydro One's future expansion needs, which included a future transmission tower line and expansion to their existing sub-station, a train layover site design could not be accommodated at the Ira Needles / Hydro One / Glasgow Street site.

Given that the feasibility of a layover site near Ira Needles / Hydro One / Glasgow Street was no longer achievable based on landowner conflicts, GO Transit revisited two of the previously identified alternative layover sites presented at PIC #2 including the Petersburg and Baden-Sandhills Road sites. These two alternative sites were discussed with the Township of Wilmot staff as well as the Baden-Nafziger Road site which possessed future zoning compatibility (i.e. industrial).

6.4.1.1 Baden – Nafziger Road

Based on a re-evaluation of the revised list of alternatives (total of six), the Baden Nafziger Road site was recommended as the new preliminary preferred alternative for the following reasons:

- Minimal potential for impact on natural environment (no designated sites or species identified or recorded for site, no watercourses);

- Site is to be rezoned for industrial use;
- Site is reasonably well removed from existing residential areas;
- Potential for noise impacts is low with mitigation measures (landscaped berm and fence); and,
- Site can accommodate a future terminal station, Park and Ride, Kiss and Ride, and bus interface.

Numerous follow-up discussions and meetings between GO Transit and local municipal staff, Councillor's and Mayor were completed to ensure a preliminary design favorable to all parties. PIC #3 was held to allow local residents the opportunity to provide input prior to finalizing the preliminary design.

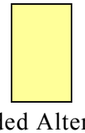
As GO ridership continues to increase along the Guelph S/D, so may the need for additional maintenance facilities for GO trains along this corridor. As such, the proposed Baden – Nafizger site has allowed sufficient space to accommodate for PM Bays as well as an ancillary building. Potential with this site also exists for possibly constructing a station at this location if ridership were to warrant.

See Figure ST-15 for further details.

Table 6.4 Evaluation of Alternative Layover Locations

CRITERIA FOR EVALUATING ALTERNATIVES	ALTERNATIVE LAYOVER LOCATIONS EVALUATED					
	Construct Layover Facility in Breslau near Greenhouse Road	**Construct Layover Facility in Breslau near Fountain Street**	**Construct Layover Facility near IRA Needles Boulevard**	**Construct Layover Facility near Petersburg**	**Construct Layover Facility near Sandhills Road**	**Construct Layover Facility Near Nafziger Road**
A Natural Environment *Rating*:						
1 Number of Designated Sites/Species	Breslau PSW crosses property on southeast side.	None on site. Breslau PSW is located approximately 10-30 m north of proposed property limit.	None.	None.	None.	None.
2 Potential for impact on terrestrial habitat (flora and fauna)	Disturbed site. A few scattered cultural woodlots. Minimal impact. Restricted Area to the west and south of site (part of Breslau PSW) presents minor constraints in terms of need for buffer area/setbacks.	Tree clearing will be required. Site is disturbed so potential impacts to terrestrial environment are minimal. Restricted Area to the north of site (part of Breslau PSW) presents minor constraints in terms of need for buffer area/setbacks.	Potential impact to two Non-PSW wetlands on the property.	Minimal potential for impact. Very sparse hedgerow / meadow strip along edge of ROW.	Minimal potential for impact. Very sparse hedgerow / meadow strip along edge of ROW.	Minimal potential for impact. Very sparse hedgerow / meadow strip along edge of ROW.
3 Potential for impact to floodplain lands	Construction that may occur in the floodplain (tributary to Hopewell Creek and a PSW on southeast portion of the site) will be subject to GRCA regulations and permitting requirements. Flood storage and conveyance in project-affected fill-regulated areas not anticipated to be negatively affected.	Construction that may occur in the floodplain (Hopewell Creek) will be subject to GRCA regulations and permitting requirements. Flood storage and conveyance in project-affected fill-regulated areas not anticipated to be negatively affected.	Construction that will occur in the floodplain (local wetlands) will be subject to GRCA regulations and permitting requirements. Flood storage and conveyance in project-affected fill-regulated areas will be affected. Consultation with GRCA to determine status of the wetlands observed on site will be required.	No impact over existing conditions.	No impact over existing conditions.	No impact over existing conditions.
4 Potential for impact on existing watercourses/crossings, aquatic habitat and fisheries resources	Potential direct impact to one existing watercourse (tributary of Hopewell Creek) and a PSW on the southeast portion of the site. Mitigation measures required.	Potential indirect impact to one existing watercourse – Hopewell Creek located approximately 30-100 m north of proposed property limit. Mitigation measures required.	Impact to one unclassified watercourse observed onsite. Approximately 407 m of watercourse will be impacted. Impact to existing conditions dependent on site alterations either from potential habitat loss or changes to water quality. Consultation with GRCA to determine status of	No watercourse or watercourse crossings are affected by proposed facility.	No watercourse or watercourse crossings are affected by proposed facility.	No watercourse or watercourse crossings are affected by proposed facility.

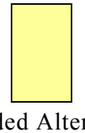
Least Preferred Most Preferred



Recommended Alternative

	CRITERIA FOR EVALUATING ALTERNATIVES	ALTERNATIVE LAYOVER LOCATIONS EVALUATED					
		Construct Layover Facility in Breslau near Greenhouse Road	Construct Layover Facility in Breslau near Fountain Street	Construct Layover Facility near IRA Needles Boulevard	Construct Layover Facility near Petersburg	Construct Layover Facility near Sandhills Road	Construct Layover Facility Near Nafziger Road
				the watercourse observed on site will be required. Mitigation measures required.			
B	**Socio-economic/Cultural Environment** *Rating*:						
	1 Compatibility with Surrounding Land Uses	Compatible. Uses former industrial lands which have been disturbed. No residential zoning in immediate area. Lands are currently owned by a private developer.	Compatible. Uses former commercial lands which have been disturbed. Residential area to the west, outside proposed development property. Lands are currently owned by the Regional Municipality of Waterloo.	Compatible. No residential zoning in immediate area. Lands in the vicinity of the site as designated for general industrial and public utilities. A Hydro One plant is located on the lands south of the mainline track. Lands are currently owned by the Regional Municipality of Waterloo.	Compatible. Majority of site is currently in non-prime agricultural use. Village of Petersburg is located on the south side of the mainline track. Surrounding lands are primarily designated as non-prime agriculture.	Compatible. Majority of site is currently in prime agricultural use. Residential lands are located on the south side of the mainline track adjacent to the Baden Creek. Lands to the west and north of the site are designated as prime agriculture.	Compatible. Site is currently in prime agricultural use and is to be rezoned for industrial use by the Township of Wilmot. The closest residence is a farm house located approximately 300 m north of the site. A residential subdivision is located approximately 775 m to the northeast. The separation between this site and residential areas is greater as compared to other alternative sites.
	2 Conformity to Local Planning Provisions	Conforms. The Township of Woolwich identifies the site as an Urban Area. Transit terminal or layover uses is permitted in these designations subject to the outcome of an EA.	Conforms. This site is designated as a Prime Agricultural area and Sensitivity 4 Wellhead Protection Area according to the Region of Waterloo Official Plan. The Township of Woolwich Official Plan designates lands partially as a Core Area and partially as an Urban Area with an adjacent Restricted Area to the north. Public utilities and associated facilities are permitted on these lands, subject to completion of an EA. Minor constraints are	Conforms. The Region of Waterloo Official Plan designates the site as an Urban Area and a Sensitivity 4 Wellhead Protection Area. Lands in the vicinity of the site as designated for general industrial and public utilities by the City of Kitchener Official Plan. None of these designations presents a significant constraint. Transportation depot and terminal facilities are listed as	Conforms. The Region of Waterloo designates the site as a Sensitivity 4 Wellhead Protection Area, a non-prime agricultural area and a mineral aggregate resource area. The Township of Wilmot Official Plan lists the site as an agricultural resource area. The construction or upgrade of major utility corridors and associated structures is permitted in	Conforms. The Region of Waterloo designates the site as prime agricultural area. The Township of Wilmot Official Plan lists the site as an agricultural resource area. The construction or upgrade of major utility corridors and associated structures is permitted in these areas is subject to an EA process.	Conforms. The Region of Waterloo designates the site as prime agricultural area. The Township of Wilmot Official Plan lists the site as an agricultural resource area. The construction or upgrade of major utility corridors and associated structures is permitted in these areas is subject to an EA process.

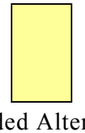
Least Preferred Most Preferred



Recommended Alternative

CRITERIA FOR EVALUATING ALTERNATIVES	ALTERNATIVE LAYOVER LOCATIONS EVALUATED					
	Construct Layover Facility in Breslau near Greenhouse Road	Construct Layover Facility in Breslau near Fountain Street	Construct Layover Facility near IRA Needles Boulevard	Construct Layover Facility near Petersburg	Construct Layover Facility near Sandhills Road	Construct Layover Facility Near Nafziger Road
		associated with the adjacent Restricted Area.	appropriate uses within the industrial zone.	these areas is subject to an EA process.		
3 Potential for impact to Heritage Resources (archaeological features, built heritage, and cultural heritage landscapes)	The northeastern corner and the woodlot along the north edge of the proposed property have remained relatively undisturbed and exhibit archaeological site potential. A Stage 2 archaeological assessment will need to be conducted for these portions of proposed property. The land immediately adjacent to the ROW has been disturbed and does not have archaeological site potential. The remaining portion of land appears to be low and wet; however, this has not yet been confirmed. These areas should be visually checked during the Stage 2 assessment to confirm the extant of low and wet areas.	The proposed property has been disturbed and does not have archaeological site potential.	There are two areas within the proposed property there the land tends to level out and traverses a level to gently undulating landscape. These areas have archaeological site potential. A Stage 2 archaeological assessment will need to be conducted for these portions of the proposed property. The remainder of the proposed property does not have archaeological site potential.	With the exception of the lands immediately adjacent to the ROW, which are characterized as having excessive slope, the proposed property remains relatively undisturbed and exhibits archaeological site potential. A Stage 2 archaeological assessment will need to be conducted for these undisturbed areas. Agatha Road is identified as a historic roadscape. The proposed layover station has the potential to impact this historic roadscape. Existing fence rows and hedgerows would need to be preserved.	With the exception of the lands immediately adjacent to the ROW, which are characterized as having excessive slope, the proposed property remains relatively undisturbed and exhibits archaeological site potential. A Stage 2 archaeological assessment will need to be conducted for these undisturbed areas. Sandhills Road is identified as a historic roadscape. The proposed layover station has the potential to impact this historic roadscape. Existing fence rows and hedgerows would need to be preserved.	With the exception of the lands immediately adjacent to the ROW, which slopes down to low and wet land, the proposed property remains relatively undisturbed and exhibits archaeological site potential. A Stage 2 archaeological assessment will need to be conducted for these undisturbed areas. Nafziger Road is identified as a historic roadscape. The proposed layover station has the potential to impact this historic roadscape. Existing fence rows and hedgerows would need to be preserved.
4 Potential for noise impacts	No incremental noise level increases anticipated.	Maximum incremental adjusted noise level is 10 dBA. Increase is significant. Opportunity for partial/limited noise mitigation.	Maximum incremental adjusted noise level is 14 dBA. Increase is very significant and will require mitigation. Acoustic barrier will be considered.	Maximum incremental adjusted noise level is 15 dBA. Increase is very significant and will require mitigation. Acoustic barrier will be considered.	Maximum incremental adjusted noise level is 7 dBA. Increase is noticable. Opportunity for partial/limited noise mitigation.	Maximum incremental adjusted noise level is 7 dBA. Increase is noticable and will require mitigation. With the addition of noise mitigation adjacent to the layover yard, the maximum incremental adjusted noise level is 3 dbA which is considered acceptable.

Least Preferred Most Preferred



Recommended Alternative

	CRITERIA FOR EVALUATING ALTERNATIVES	ALTERNATIVE LAYOVER LOCATIONS EVALUATED					
		Construct Layover Facility in Breslau near Greenhouse Road	Construct Layover Facility in Breslau near Fountain Street	Construct Layover Facility near IRA Needles Boulevard	Construct Layover Facility near Petersburg	Construct Layover Facility near Sandhills Road	Construct Layover Facility Near Nafziger Road
5	Potential for air quality impacts	Predicted air contaminant concentrations at proposed layover are below the MOE air quality standards.	Predicted air contaminant concentrations at proposed layover are below the MOE air quality standards.	Predicted air contaminant concentrations at proposed layover are below the MOE air quality standards.	Predicted air contaminant concentrations at proposed layover are below the MOE air quality standards.	Predicted air contaminant concentrations at proposed layover are below the MOE air quality standards.	Predicted air contaminant concentrations at proposed layover are below the MOE air quality standards.
6	Potential for vibration impacts	Vibration impact is classified as insignificant.	Vibration impact is classified as insignificant.	Vibration impact is classified as insignificant.	Vibration impact is classified as insignificant.	Vibration impact is classified as insignificant	Vibration impact is classified as insignificant
7	Potential to require land (for layover only)	Approximately 7.7 ha required.	Approximately 3.5 ha required.	Approximately 3.1 ha required.	Approximately 7.7 ha required.	Approximately 10.5 ha required.	Approximately 13.7 ha required.
C	**Financial Factors** *Rating*:	●	●	●	●	●	●
	Opening Day Capital Costs	$17.2 M	$14.3 M	$14.5 M	$17.2 M	$17.9 M	$19.9 M
D	**Technical Factors** *Rating*:	•	•	●	●	●	●
1	Compatibility with Existing Operations	Impacts to GO Operations (see below).	Impacts to GO Operations (see below).	2261 m of new track and four switches required for Phase 1 (Day 1 Service Level), 1626 m of new track and four switches required for Phase 2 (Interim Service Level). No conflicts with freight or VIA operations.	2229 m of new track and four switches required for Phase 1 (Day 1 Service Level), 2131 m of new track and six switches required for Phase 2 (Interim Service Level). No conflicts with freight or VIA operations.	2229 m of new track and four switches required for Phase 1 (Day 1 Service Level), 2131 m of new track and six switches required for Phase 2 (Interim Service Level). No conflicts with freight or VIA operations.	2700 m of new track and four switches required for Phase 1 (Day 1 Service Level), 4350 m of new track and nine switches required for Phase 2 (Interim Service Level). No conflicts with freight or VIA operations.
2	Compatibility with Future Operations	Impacts to GO Operations (see below).	Impacts to GO Operations (see below).	Provides for four layover tracks for Phase 1 and two additional storage tracks can be added in Ultimate Phase.	Provides for four layover tracks for Phase 1 and six additional storage tracks can be added in Ultimate Phase.	Provides for four layover tracks for Phase 1 and six additional storage tracks can be added in Ultimate Phase.	Provides for four layover tracks and one yard lead-in track for Phase 1. Four additional storage tracks, a second lead-in track and equipment track can be added in Ultimate Phase.

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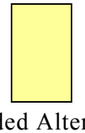
Least Preferred Most Preferred

▭ Recommended Alternative

	ALTERNATIVE LAYOVER LOCATIONS EVALUATED					
CRITERIA FOR EVALUATING ALTERNATIVES	**Construct Layover Facility in Breslau near Greenhouse Road**	**Construct Layover Facility in Breslau near Fountain Street**	**Construct Layover Facility near IRA Needles Boulevard**	**Construct Layover Facility near Petersburg**	**Construct Layover Facility near Sandhills Road**	**Construct Layover Facility Near Nafziger Road**
3 Potential Compatibility with GO Operations	Layover site located east of Kitchener Station requires additional track occupancy to reverse trains at station. As such, operations considered less efficient than layover alternatives west of Kitchener.	Layover site located east of Kitchener Station requires additional track occupancy to reverses trains at station. As such, operations considered less efficient than layover alternatives west of Kitchener.	Parallel storage tracks allow for flexibility in accessing layover and selection of trains. Layover site located west of Kitchener Station results in efficient train operations.	Parallel storage tracks allow for flexibility in accessing layover and selection of trains. Layover site located west of Kitchener Station results in efficient train operations.	Parallel storage tracks allow for flexibility in accessing layover and selection of trains. Layover site located west of Kitchener Station results in efficient train operations.	Parallel storage tracks allow for flexibility in accessing layover and selection of trains. Layover site located west of Kitchener Station results in efficient train operations.
4 Potential Effect on Existing At-Grade Road Crossings	Train frequency at Woolwich Street grade crossing is effectively doubled with layover site located east of Kitchener	Train frequency at Woolwich Street grade crossing is effectively doubled with layover site located east of Kitchener	No impacts directly associated with layover facility.	No impacts directly associated with layover facility. Potential for impacts to crossings due to future double track.	No impacts directly associated with layover facility. Potential for impacts to crossings due to future double track.	No impacts directly associated with layover facility. Potential for impacts to crossings due to future double track.
5 Potential Effect on Existing Utilities	Minimum adjustments required to provide clearances and protection.	Minimum adjustments required to provide clearances and protection.	Major impacts to Hydro One future expansion of transformer station. Go requirement for fueling and PM Bays not compatible with Hydro One facility.	No impacts.	No impacts.	No impacts.
6 Compliance with Federal / Provincial Requirements for Fueling Stations	Fueling facilities will be constructed to adhere to all federal and provincial regulations.	Fueling facilities will be constructed to adhere to all federal and provincial regulations.	Fueling facilities will be constructed to adhere to all federal and provincial regulations.	Fueling facilities will be constructed to adhere to all federal and provincial regulations.	Fueling facilities will be constructed to adhere to all federal and provincial regulations.	Fueling facilities will be constructed to adhere to all federal and provincial regulations.
SUMMARY	Potential for direct impacts to watercourse and PSW located on southeast side of site. Mitigation measures required. Compatible with planning policy. Some archaeological site potential to be assessed through a Stage 2 archaeological assessment. Operation of layover at this site less efficient than layover alternatives west of Kitchener.	Potential for indirect impacts to watercourse and PSW to the north of site. Mitigation measures required. Compatible with planning policy. No archaeological site potential. Operation of layover at this site less efficient than layover alternatives west of Kitchener.	Potential for impacts to two local wetlands on site. Mitigation measures required. Compatible with planning policy. Some archaeological site potential to be assessed through a Stage 2 archaeological assessment. However, could not obtain consent with adjacent landowners to resolve site issues due to the future expansion plans of Hydro One.	Minimal potential for impact on natural environment. Compatible with planning policy, however, potential for significant nuisance impacts to nearby rural community. Some archaeological site potential to be assessed through a Stage 2 archaeological assessment.	Minimal potential for impact on natural environment. Compatible with planning policy, however, potential for some nuisance impacts to nearby rural community. Some archaeological site potential to be assessed through a Stage 2 archaeological assessment.	Minimal potential for impact on natural environment. Compatible with planning policy. Site is further removed from residential areas as compared to other alternative sites. Some archaeological site potential to be assessed through a Stage 2 archaeological assessment.
RECOMMENDATION	Not Recommended.	Not Recommended.	Not Recommended.	Not Recommended.	Not Recommenced.	Recommended.

Least Preferred Most Preferred



Recommended Alternative

6.4.1.2 Stratford

During the course of public consultation activities for the Nafziger Road layover facility, several comments were received from the public requesting GO Transit's consideration of locating the layover facility in Stratford, Ontario at the old freight yard adjacent to the VIA train station as a alternative to the Nafziger Road site. In addition, requests were made to consider a GO train station in Stratford. A formal letter request was made by the Mayor of the City of Stratford and GO Transit staff provided a letter response. GO Transit staff also attended a meeting with City of Stratford on May 5, 2009. In general, the study team responded to these requests by noting that GO Transit does not plan to extend rail service to Stratford. The reasons provided included the following:

- GO's published "Strategic Plan – GO 2020" only provides a framework for developing capital and operating plans for potential expansion areas including Kitchener/Waterloo, Cambridge and Brantford.
- Redevelopment of the existing freight yard would typically take longer and cost more than the proposed Nafziger Road site. The existing freight storage tracks would need to be entirely removed, excavations made to accommodate oil separators and major electrical duct banks to power the GO wayside power stands and then tracks reinstated.

In addition to the reasons given above, the following issues are noted:

- The distance from the Stratford VIA station to the proposed downtown Kitchener GO station, the proposed terminal station for rail expansion is approximately 25.8 miles. This distance would compromise GO service in the Kitchener to Georgetown areas and, in so doing, would represent a significant divergence from the focus of the rail expansion.
- A minimum of a 1000 ft track is required for the layover facility. The Stratford site only provides 800 ft. Therefore, the site is physically not large enough to accommodate GO trains and there are no opportunities to expand due to physical site constraints.
- There is a residential development located immediately adjacent to the track (within 10 m).
- Existing active yard activities would need to be relocated.

Ultimately, the Stratford yard is not a viable option for the GO layover facility and was not pursued further.

6.5 Rail Infrastructure/Corridor Improvements

The proposed expansion of commuter rail services to Kitchener will require rail infrastructure improvements to increase capacity of the rail corridor. In general, this will be achieved by the construction of an additional mainline track from Mount Pleasant on the Halton S/D, to Kitchener on the Guelph S/D. Incremental phasing of the track work has been identified in support of Opening Day service and Future full service.

Existing conditions along with potential improvements for Opening Day and Future scenarios are included on Figures SC1 to SC6.

6.5.1 CN Halton S/D, Mount Pleasant to Silver Junction

Due to the existing bottle-neck created by the single track section over the Credit River Bridge, both freight and passenger trains (VIA Rail and GO Transit) experience major delays on a frequent basis. In order to provide an improved level of service for both passenger and freight traffic, GO Transit, in conjunction with CN, are proposing to "double track" the Credit River Bridge at Mile 22.50. The Credit River bridge expansion has been being undertaken as a separate project.

With current levels nearing capacity for freight and passenger traffic, major rail infrastructure improvements consisting essentially of track, signal and bridge/retaining wall structures between Bramalea and Mount Pleasant are underway. This work is proceeding in conjunction with the GO Transit Rail Improvement Program (GO TRIP) and it is scheduled for completion in 2009. Additional capacity will be provided by up-grading the existing double track corridor to three main line tracks.

In conjunction with the proposed GO Transit Georgetown to Kitchener Service Extension, CN is conducting an assessment of the existing double track corridor from Mount Pleasant to Silver Junction to determine the additional rail infrastructure required in support of GO Transit's proposed weekday peak service to Kitchener. In order to provide additional capacity for GO Transit's longer term Full Service scenario, the existing double track corridor from Mount Pleasant to Silver Junction will need to be up-graded to three mainlines including three tracks over the Credit River Bridge.

6.5.2 CN Guelph S/D, from Silver Junction to Kitchener

To enhance on time performance for passenger trains, increase train speeds and to protect current levels of freight traffic, major rail infrastructure improvements are required to increase the capacity as well as increase the level of safety on this single track corridor. The proposed GO Transit Georgetown to Kitchener Rail Expansion Project results in a corridor length of approximately 63 miles from Union Station to Kitchener and it includes 12 stations. Consequently, a key objective in undertaking rail infrastructure improvements on the Guelph S/D is to reduce the overall transit time from Union Station to Kitchener. Once the proposed infrastructure improvements are completed, the current zone speed of 70 MPH will be increased to 80 MPH as well as the elimination/improvement of several temporary and permanent slow orders. It is estimated that the higher zone speed of 80 MPH will reduce the transit time by approximately 12 minutes from Silver Junction to Kitchener.

6.5.3 Installation of New Centralized Traffic Control System

Train movements over the Guelph S/D from Silver Junction to London, a distance of approximately 90 miles are currently controlled by an Occupancy Control System (OCS), commonly referred to as "dark territory". As a separate initiative, VIA Rail is currently investigating replacing the existing OCS with a new CTC system. Funding has been appropriated for this work with design to commence in 2009. With the proposed substantial increase in passenger trains by VIA and GO Transit, CTC will provide a higher level of safety.

Benefits include; operational flexibility, less prone to human error, detection of broken rails and unauthorized open switches. CTC also enables the dispatching of higher levels of traffic in a more safe, efficient and reliable manner.

6.5.4 Passenger Train Service Improvements

VIA Rail is proposing to operate three additional trains in each direction between Toronto and London for a total of 12 trains from Toronto to London.

GO Transit is proposing to operate a limited week-day service (AM and PM peak periods only) as part of Opening Day service, between Kitchener and Union Station. It is proposed to operate a total of 16 trains between Toronto and Georgetown and a total of eight trains between Georgetown and Kitchener.

Ultimately, as a long term objective, GO Transit is proposing to operate a full service to Kitchener. A full service scenario consists of a service frequency of 20 minutes or less for peak hour trains (6:00 a.m. to 9:00 a.m. and 4:00 p.m. to 7:00 p.m.) and hourly service for off-peak weekday trains and weekend trains to the Kitchener/Waterloo area.

6.5.5 Road Crossing Improvements

The GO corridor on the Guelph S/D from Silver Junction to the proposed layover at Baden has 40 public road crossings and four private crossings. The public road crossings all have automatic warning systems comprised of 20 crossings with gates, and 21 crossings with lights. There are two private crossings with warning signs only located at Mile 67.05 and Mile 67.48. As these crossings provide access to major quarry operations with heavy truck traffic, it is proposed to install lights in place of existing.

It is also proposed to undertake improvements to several of the public road crossings automatic warning system in order to integrate them with the proposed CTC, as well as provide at higher speed across some of them. For example, there are five public road crossings on the west approach to the Guelph Station (Mile 49.09 to Mile 49.79) with an existing speed limit of 10 MPH. By increasing the speed limit to 30 MPH across these crossings, it is possible to reduce the transit time over this one mile section by approximately four minutes. Also, it is proposed to undertake other improvements to sightlines, track crossing and approach surfaces, signage, etc. to enhance safety at these crossings in accordance with the requirements of Transport Canada (Manual RTD 10).

7.0 Public and Agency Consultation

7.1 Consultation Activities

The process of consulting and engaging with review agencies and members of the public has been ongoing since the commencement of this EA study. Written notifications have been provided to review agencies and members of the public who have expressed an interest in being informed about the project. These notifications have been provided in paper form and advertised in local and regional newspapers at the commencement of the study as well as prior to PICs. The following section documents the consultation activities that took place during the EA study and the responses or feedback received from the parties who engaged in the consultation process.

7.1.1 Initial Contact

The Notice of Commencement for the rail expansion was published in local newspapers as follows:

- Georgetown Independent and Free Press – Friday, May 30, 2008 and Wednesday, June 2, 2008
- Guelph Mercury – Wednesday, May 28, 2008 and Saturday, May 31, 2008
- Waterloo Region Record – Wednesday, May 28, 2008 and Saturday, May 31, 2008

A copy of the Notice of Commencement as it appeared in the newspapers is provided in Appendix D1.

The Notice of Commencement was mailed out to all relevant review agencies and elected officials on May 30, 2008 with an accompanying letter. Copies of the letters and a list of the review agencies and elected officials who received the Notice of Commencement by mail are included in Appendix D1.

7.1.2 Public Information Centres

Three sets of PICs were held during the course of the EA study. The following sections summarize each PIC.

7.1.2.1 Public Information Centre #1

The first set of PICs were held in late September / early October 2008. A Notice of PIC #1 was published in local newspapers as follows:

- Brampton Guardian – Sunday, September 14, 2008 and Friday, September 19, 2008;
- Georgetown Independent – Wednesday, September 17, 2008 and Friday, September 19, 2008;
- Guelph Mercury – Wednesday, September 17, 2008 and Friday, September 19, 2008; and,
- Waterloo Region Record – Wednesday, September 17, 2008 and Friday, September 19, 2008.

A copy of the Notice of PIC #1 as it appeared in the newspapers is provided in Appendix D2.

The Notice of PIC #1 was also mailed out to all relevant review agencies and elected officials on September 10, 2008 with an accompanying letter. Copies of the letters and a list of the review agencies and elected officials who received the Notice of PIC #1 by mail are included in Appendix D2. A copy of the Notice of PIC #1 was also delivered to public citizens who requested to be added to the project mailing list.

PIC #1 was held at the following locations:

- Kitchener (St. Andrew's Presbyterian Church);
- Guelph (Italian Canadian Club of Guelph); and,
- Halton Hills/Georgetown (Halton Hills Cultural Centre).

The purpose of PIC # 1 was to describe the proposed project, present the results of the preliminary constraints analysis, as well as encourage, gather, and respond to public input and feedback, present additional studies to be undertaken, and to identify the next steps in the process. The PICs were organized as a "drop-in" format with presentation boards. Approximately 76 people attended PIC #1 in Guelph, 106 people attended PIC #1 in Kitchener and 18 people attended PIC #1 in Halton Hills/Georgetown.

Following PIC #1, a report was prepared, which summarized the materials presented at the PIC and the comments received from the public. A copy of the PIC #1 Summary Report is included in Appendix D3. The key issues that were raised at PIC #1 and the responses to these issues by the study team are summarized in Table 7.1.

Table 7.1 PIC #1 Feedback

Key Issues Raised	Study Team Response
Service/Schedules: In addition to Kitchener-Toronto service, operate trains in both directions between Guelph and Kitchener. Provide bus service when trains are not running. Minimize travel time from Kitchener/Guelph to Toronto. Provide trains in later PM and on weekends. Provide preliminary schedule of AM/PM trains.	Comments noted. Additional information on schedules will be presented during the next phase of the project.
Station Sites: Many favour downtown locations (Guelph and Kitchener), however concerned about adequacy of parking. Some also favour semi-urban locations of Lafarge, Watson, Breslau and Ira	A detailed evaluation of alternatives using natural, social, cultural, financial and technical criteria will be completed. Preliminary preferred alternatives will be presented at PIC #2.
Needles for park and ride facilities. Strong interest for station in Acton (Olde Hide House generally preferred over Dublin Line location).	
Technical Issues: Design, integration with local and regional transit systems, parking.	Technical issues will be broadly evaluated during the evaluation of alternative station and layover sites. Additional information will be available during the detailed design stage of the project.

7.1.2.2 Public Information Centre #2

The second set of PICs were held in February 2009. A Notice of PIC #2 was published in local newspapers as follows:

- Brampton Guardian – Friday January 23, 2009 and Sunday January 25, 2009;
- Georgetown Independent – Wednesday, January 21, 2009 and Friday January 23, 2009;
- Guelph Mercury – Wednesday, January 21, 2009 and Friday, January 23, 2009;
- Guelph Tribune – Friday, January 23, 2009 and Tuesday, January 27, 2009; and,
- Waterloo Region Record – Wednesday, January 21, 2009 and Friday, January 23, 2009.

A copy of the Notice of PIC #2 as it appeared in the newspapers is provided in Appendix D4.

The Notice of PIC #2 was also mailed out to all relevant review agencies and elected officials with an accompanying letter. A list of the review agencies and elected officials who received the Notice of PIC #2 by mail is included in Appendix D4. A copy of the Notice of PIC #2 was also delivered to public citizens who requested to be added to the project mailing list.

PIC #2 was held at the following locations:

- Kitchener (St. Andrew's Presbyterian Church);
- Guelph (Evergreen Seniors Centre); and,
- Halton Hills/Georgetown (Halton Hills Cultural Centre).

The purpose of PIC # 2 was to present a preliminary preferred station locations, track improvements and layover locations. The PICs were organized as a "drop-in" format with presentation boards. Approximately 190 people attended PIC #2 in Kitchener, 67 people attended PIC #2 in Guelph and 39 people attended PIC #2 in Halton Hills/Georgetown.

Following PIC #2 a report was prepared, which summarized the materials presented at the PIC and the comments received from the public. A copy of the PIC #2 Summary Report is included in Appendix D5. The major issues that were raised at PIC #2 and the responses to these issues by the study team are summarized in Table 7.2.

Table 7.2 PIC #2 Feedback

Key Issues Raised	Study Team Response
Concerned about environmental impacts to proposed station sites; concerned natural environment factors are not weighted heavily enough compared to other factors.	The potential environmental impacts to the preferred station locations have been assessed. These potential impacts and the measures to mitigate these impacts will be documented in the ESR.
Service/Schedules: Many people expressed a desire to have more information about proposed service and schedules. In general, the public was very keen to see increased service along the expanded rail corridor including as much as all day long hourly service on both westbound and eastbound directions and weekend service. Many people wanted to ensure that the travel time between Kitchener and Union Station is minimized; no more than two hours.	Comment noted.
Station Sites: Many favour downtown locations (Guelph and Kitchener); however, still a significant concern about adequacy of parking. Many comments were received advocating for a station site on the west side of Kitchener due concerns with efficiency of driving to the downtown site. Several people were concerned with the fact that a Rockwood station was not considered or evaluated.	GO Transit will work with the City of Guelph to accommodate parking for GO patrons at a future multi-level parking garage on Neeve Street. The Kitchener downtown site will serve as a intermodal transit bus for the City of Kitchener. This site relies on strong local transit/LRT interface walk-in and kiss and ride patrons. Park and ride demand will be provided at Greenhouse Road site. Park and ride demand for Day 1 Service in the Kitchener area is intended to be provided by the Greenhouse Road station site. GO Transit acknowledges the interest and the benefits of a GO station on the west side of Kitchener and will look at the feasibility of implementing a future station there provided that the ridership demand warrants it.

7.1.2.3 Public Information Center #3

The third PIC was held in March 2009. A Notice of PIC #3 was published in local newspapers as follows:

- Waterloo Region Record – Friday, March 13, 2009 and Wednesday, March 18, 2009; and,
- New Hamburg Independent – Wednesday, March 18, 2009.

A copy of the Notice of PIC #3 as it appeared in the newspapers is provided in Appendix D6.

The Notice of PIC #3 was also mailed out to all relevant review agencies and elected officials with an accompanying letter. Copies of the letters and a list of the review agencies and elected officials who received the Notice of PIC #3 by mail are included in Appendix D6. A copy of the Notice of PIC #3 was also delivered to public citizens who requested to be added to the project mailing list.

PIC #3 was held in Baden at the Wilmot Recreation Complex.

The purpose of PIC # 3 was to present a revised preliminary preferred layover location. Subsequent to PIC #2, Hydro One advised that a layover facility would conflict with their future expansion plans, and asked the study team to look for an alternate site. In looking at alternatives to the Ira Needles site, three sites in Wilmot Township were identified. As a result, the study team arranged for a PIC in the Baden area to obtain local input with respect to siting a train layover facility. The PIC was organized as a “drop-in” format with presentation boards. Approximately 150 people attended PIC #3.

Following PIC #3 a report was prepared, which summarized the materials presented at the PIC and the comments received from the public. A copy of the PIC #3 Summary Report is included in Appendix D7. The major issues that were raised at PIC #3 and the responses to these issues by the study team are summarized in Table 7.3.

Table 7.3 PIC #3 Feedback – Issues and Resolutions

Key Issues Raised	Study Team Response
Air Quality	An air quality assessment is being completed for the Nafziger Road layover facility as a part of the EA. The calculated maximum contaminant concentrations at the receptors of interest are well below the MOE air quality standards for nitrogen dioxide, carbon monoxide and particulate. The cumulative impacts of these very low levels on the existing good air quality would be insignificant.
Noise Pollution	A noise assessment is being completed for the Nafziger Road layover facility as part of the EA. With the proposed landscaped berm and fence, the noise impacts at the closest point of reception are well below the 55 dBA limit.

Light Pollution	For security reasons the site would be illuminated at night providing low level lighting with little or no spill over. The proposed landscaped berm and fence in combination with low level lighting proposed for the facility will minimize light spill over to residential areas to the north of the main rail line.
Traffic and Safety Impacts	All rail /road crossings will be equipped with gates and lights to protect against conflicts. As such, vehicular traffic and pedestrians will be adequately informed on approaching trains. The addition of four morning and four evening trains will not be considered a safety concern at a level grade crossing. In addition, it would take approximately 30 seconds for each GO train to clear an intersection. This timing would not seriously impact the delays at an intersection.
Safety of Children	The last train would leave Baden by 6:35 am and the first train to return would be at 6:20 pm which would not conflict with transferring children to and from school. GO train crossings are typically upgraded with gates and signals to provide maximum safety as noted above.
Layover Site Configuration	The layout of the Nafziger Road layover facility provided at PIC #3 has been revised to address concerns raised by the public, which predominantly relate to noise impacts and train re-fueling. The fueling station has been moved to a location adjacent to the parked overnight trains, some 700 m from the Brenneman Drive area.
Property Values	In general, home values (prices) have increased in areas where GO service has been introduced.
Park and Ride Facility	With regard to upgrading the Baden layover to a station, the intention is to provide sufficient land within the Nafziger Road site to accommodate a future park and ride station when potential ridership justifies one.
Benefits to the Township	Benefits to the Township would include adding to the Township tax roll as well as new employment for operating and maintenance staff (11 for opening day, and 10 more once the PM bays are established), and long-term the establishment of a station.
Land Use Compatibility	The land proposed for the Nafziger Road layover facility is currently designated as an agricultural resources area in the Township of Wilmot Official Plan (2006). Public transportation infrastructure is a permitted use in this designation. The Township of Wilmot intends to develop an industrial area on these lands. Accordingly, the proposed train layover facility would still be compatible with the future industrial land use designation.
Layover Facility in Stratford	The layover facility would require a miminum of a 1000 ft track, and since the Stratford site only provides 800 ft the site is physically inadequate and cannot be expanded due to site constraints. There is also a residential development within 10 m adjacent to the site. Existing active yard activities would need to be relocated. Section 6.4.1.2 provides additional rationale for why a Stratford layover yard is not a viable option.

7.1.3 PIC #3 Followup

Following PIC #3, the study team received comments and concerns about potential impacts of the proposed Nafziger Road layover facility. The study team endeavored to respond directly to many members of the public who requested an individual response. All comments received from PIC #3 are summarized in the PIC #3 Summary Report, which is included in Appendix D7. An information bulletin was also prepared by the study team to address the most frequently mentioned concerns relating to the Nafziger Road layover facility including the details of the site layout and the potential environmental issues. Copies of the information bulletin and accompanying revised layover layout drawing were sent to local stakeholders who either: a) received the Notice of PIC #3; b) signed in at PIC #3; or c) provided specific comments following PIC #3. The information bulletin and revised layout was also sent to property owners within a 1 km radius of the site. A copy of the information bulletin and the revised layover layout/drawing are included in Appendix D8.

Several comments were received from the public in response to the PIC #3 Follow-up Bulletin (Bulletin). Some favorable comments were received; however, many comments were of a concerned nature. Generally, the issues raised subsequent to the issuance of the PIC#3 Bulletin were similar in nature to the issues raised after PIC#3 The main concerns related to:

- noise
- air quality
- light impacts
- Stratford service
- too close to residential area
- property values
- visual impacts
- response time for Bulletin too short
- emergency response issues
- health effects

The only new issue that was raised relates to concerns about low frequency noise / infrasound.

A summary of the comments received and the study team response to these comments is provided in Appendix D8.

7.1.4 Record of Meetings

Throughout the project, additional meetings were held with key agencies and stakeholders to present and receive feedback on the project. Meetings have been summarized in Table 7.4.

Table 7.4 Record of Meetings

Meeting Participant	Date	Issues Discussed
Municipalities		
Region of Waterloo / Grand River Transit	May 14, 2008	Project overview; background data request; and, Regional council interest in promoting public transit.
City of Guelph / Guelph Railway / Wellington County	June 17, 2008	Project overview; background data request; and, local issues.
City of Guelph / Guelph Transit / Wellington County	June 17, 2008	GO Station options in Guelph and City's Transit System Growth Strategy and Plan.
Town of Halton Hills / Halton Region	June 23, 2008	Project overview; background data request; and, local issues.
Region of Waterloo / City of Kitchener	July 23, 2008	Potential GO station and layover sites in Kitchener area.
Town of Halton Hills	July 25, 2008	Proposed Georgetown GO Station improvements; and, potential GO Station options in Acton.
Township of Woolwich / Region of Waterloo	August 21, 2008	Project overview; and, potential use of old Breslau Hotel site for GO Station / layover site.
City of Kitchener	October 23, 2008	Presentation to Council Committee on status of EA study; and, results to-date.
Region of Waterloo	November 3, 2008	Explored integration of future grade separate with CN/GEXR at King Street and Weber Street.
City of Guelph	December 12, 2008	Ridership estimates; confirmation of downtown VIA Station site; downtown parking issues; and, local transit integration.
City of Kitchener / Region of Waterloo	February 11, 2009	Viability of providing a GO rail layover site in southwest quadrant of Ira Needles / CN Rail Line.
Township of Wilmot	March 4, 2009	Options for a GO rail layover side in Wilmot Township.
Township of Woolwich	March 31, 2009	Presentation to Council Committee of Recommended Project Plan
Township of Wilmot	April 27, 2009	Review of PIC #3 Followup Bulletin and revised layover facility layout.
Agencies / Interested Groups		
CVC	July 4, 2008	Project overview; collected information on natural features in study area; and, obtained initial comments.
Ministry of Transportation / GTA West EA	October 21, 2008	Overview of GTA West Transportation Study and GO Transit Rail Expansion Study to Kitchener; and, comparison of respective study time lines and milestones.
Hydro One / Ontario Realty Corporation	January 23, 2009	Implications of GO rail layover site on Hydro lands and north of CN / GEXR rail line / Ira Needles.
Hydro One	February 19, 2009	Alternative proposal for GO rail layover site on Hydro lands and south of CN / GEXR rail line / Ira Needles.
Ministry of Transportation / GTA West EA	February 25, 2009	Comparison of demand forecasting approach and results; and, differences, rationales and opportunities for co-ordination.
Railways or Affiliates		
GEXR	June 10, 2008	Project overview for GO Transit Expansion to Kitchener; GEXR / CN / VIA Rail ownership issues and Operating Agreements; current rail operating environment; background data request; Hi-Rail tour.
CN	June 25, 2008	Project overview for GO Transit Expansion to Kitchener and Credit River Bridge Improvements; and, background data request.
VIA/UMA	June 26, 2008	Project overview for GO Transit Expansion to Kitchener; and, overview of UMA corridor assessment on Guelph S/D for VIA Rail.
UMA	July 15, 2008	Identification of potential corridor improvements that may be beneficial to both GO Transit and VIA Rail including possible cost sharing opportunities.

Meeting Participant	Date	Issues Discussed
GEXR	October 7, 2008	Review potential station and layover sites; GO prototype train schedules / GEXR freight operation; request GEXR's track maintenance program and projected freight traffic; and, future Hi-Rail tour.
VIA/UMA	November 18, 2008	Project overview; proposed improvements to Georgetown Corridor; service extension to Kitchener; UMA Infrastructure Improvement Report GEXR Guelph S/D.
UMA	April 17, 2009	Joint review of the proposed corridor improvements required by VIA Rail and GO Transit on the Guelph S/D from Silver Junction to Baden.
VIA/GEXR/CN/ UMA	May 11, 2009	Coordination of proposed rail corridor improvements.
VIA/GEXR/UMA	May 26, 2009	Finalized details of rail corridor improvements.

7.2 First Nation Correspondence

The Notice of Commencement was delivered to the following aboriginal groups and First Nations:

- Union of Ontario Indians;
- Association of Iroquois and Allied Indians;
- Mississauga of the New Credit First Nation; and,
- Six Nations of the Grand River Territory.

The Notice of Commencement was also delivered to the following aboriginal agencies in order to obtain information about any First Nation communities that may have claims within the study area or may be affected by the proposed project and should be consulted:

- Ontario Secretariat for Aboriginal Affairs;
- Ministry of Aboriginal Affairs – Policy and Relations;
- Indian and Northern Affairs Canada (INAC) – Ontario Research Team Specific Claims Branch;
- INAC– Comprehensive Claims Branch;
- INAC – Litigation Management and Resolution Branch; and,
- Ministry of Attorney General – Aboriginal Legal Issues Office.

The responses received from these consultations have been summarized in Table 7.5. Copies of the response communication received from these parties is included in Appendix D9.

Table 7.5 First Nation Correspondence

Agency/Group/First Nation	Correspondence Received	Study Team Response
Association of Iroquois and Allied Indians (AIAI)	AIAI noted that they have member First Nations whose traditional hunting and gathering areas may be affected. Noted that First Nations people have collective constitutional rights, including land rights, hunting, gathering and fishing rights; however, these rights in southern and central Ontario is an outstanding issue between the provincial and federal governments and their member nations.	Comments noted.
INAC Specific Claims Branch	The Branch noted that the Mississaugas of the New Credit First Nation have submitted a claim in the vicinity of the study area and should be notified of the project. They also noted that Six Nations of the Grand River Territory could be contacted due to their location in the general vicinity of the study area.	Both the Mississaugas of the New Credit First Nation and the Six Nations of the Grand River Territory were contacted at the commencement of the project to ascertain their interest in the study. Letters were also sent out to these communities inviting them to a meeting to discuss the study and to address any concerns they may have with the proposed rail expansion. Notifications of the PICs were also sent to the First Nations. To date, the study team has not received a response from these communities.

7.3 Agency Correspondence

Comments have been received from review agencies throughout the duration of the EA study. All correspondence with agencies is summarized in Table 7.6. Copies of the response communication received from these agencies and any study team responses given is included in Appendix D10.

Table 7.6 Summary of Agency Correspondence

Company	Name	Comment Received	Response Given
A. Provincial Agencies			
Ministry of Environment West Central Region	Barbara Slattery Environmental Assessment and Planning Coordinator	Letter dated June 12, 2008. Noted MOE standard practice to advise proponents to contact MMA, INAC and Ministry of Attorney General to inquire about land claims. Asked to be provided copies of all PICs for file. Asked for a copy of the ESR.	Comments noted.
		Email dated July 2, 2008. Advised that Barbara would be MOE contact ongoing rather than both her and Chunmei Lui. No comments at time. As more details are available, starting with identification of alternatives wished to be circulated on information and may provide more substantive comments then.	Email response from Leonard Rach (Burnside) dated July 3, 2008. Retained Barbara Slattery on list as MOE contact. Noted will provide her with future updates as they become available.
Ministry of Natural Resources	Mike Stone Environmental Assessment Contact	Email dated March 18, 2009 from Art Timmerman on behalf of Mike Stone. Indicated that the wetlands in question related to the Breslau Greenhouse Road Site are part of the PSW.	Email from Erica Anderson (Burnside) dated February 26, 2009 requesting clarification if the wetland on the southeast corner of Greenhouse Road GO Station property was part of the Breslau PSW.
		Jennifer Burnham called Mike Stone on March 25, 2009 to follow up on the March 19 email. Mike Stone requested more information on the alternative plans considered for the proposed Breslau Greenhouse Road GO Station and why the preferred layout was reached.	Email from Jennifer Burnham (Burnside) dated March 19, 2009. Noted that preferred site entrance on east side of property falls within the PSW. Asked MNR to confirm if there were any concerns about working within the PSW prior to finalizing layout. Noted that landowner would be amenable to compensation. Requested site meeting to discuss site plan with MNR staff.
		Jennifer Burnham called Mike Stone on April 3, 2009 to follow up on April 1 email. Mike Stone requested more information about the evaluation of alternatives. Mike Stone noted that he would provide written comments regarding the proposed GO Station.	Email from Jennifer Burnham (Burnside) dated April 1, 2009. Provided Mike Stone with the original layout presented at PIC#2 and the revised (preferred layout) noting reasons for shifting the south platform to the east and need to accommodate future development needs to the north of the site. Email from Jennifer Burnham on April 3, 2009 providing Mike Stone with a copy of the PIC#2 display boards which included the evaluation of the alternative station sites. Asked MNR to provide specific mitigation measures they would like to see for the Greenhouse Road site in their written response. Asked MNR to provide a statement about their agreement 'in principle' of the Greenhouse site station site.
Ministry of Natural Resources	David Marriott A/District Planner	Email dated May 7, 2009. Noted that the MNR would like to see justification for the preferred layout showing that it is the optimal route versus original layout.	Response email from Jennifer Burnham (Burnside) dated May 7, 2009. Noted that team would respond with more information as soon as possible. Second Response email from Jennifer Burnham (Burnside) dated May 14, 2009. Provided memo outlining comparison of issues associated with the original and the preferred site layouts. Concluded that given the original layout cannot be approved by landowner, Thomasfield Homes due to the incompatibility with the intended land use and that the wetland parcel which would need to be removed is considerably small, the preferred layout is the

Company	Name	Comment Received	Response Given
			optimal route. Noted that rationale for the preferred layout is consistent with the PPS and justified on technical merit under Class EA process. Noted that the preferred layout would involve an encroachment or removal of approximately 350 m^2 of wetland from the Breslau PSW. Asked MNR to provide agreement 'in principle' to our preferred site layout. Once the MNR's support is confirmed, GO Transit is open to considering specific mitigation measures.
		Letter dated May 26, 2009. Noted that the Ministry is satisfied that the preferred design layout was appropriately vetted through the Class EA process and acknowledges that the preferred site layout will result in an encroachment and/or removal of approximately 350 m^2 of wetland. Noted that they understood that mitigation measures would be formalized in the ESR. Recommended that mitigation strategies be tailored to address maintenance of the overall ecological and hydrological functions of the wetland. Noted that the MNR supports the assessment of alternatives in principle contingent on development of appropriate mitigation measures. Asked to receive a copy of the ESR document.	Email dated May 26, 2009. Thanked MNR for there support in principle of the preferred site layout. Noted understanding that approval is contingent on development of appropriate mitigation measures and noted that these measures would be documented in the ESR. Noted that a copy of the ESR will be provided to the MNR.
Ministry of Agriculture, Food and Rural Affairs	Carol Neumann Rural Planner	Fax dated June 16, 2008. Noted that impacts to agriculture and related infrastructure should be avoided, and if unavoidable, impacts must be appropriately repaired and minimized. Requested David Cooper to be removed from contact list.	Comments noted. Added to contact list on June 24, 2008.
Ministry of Transportation – Central Region	Greg Roszler Project Manager, Corridor Management Section	Email dated July 3, 2008. Asked to participate in the study as portion of the proposed rail expansion north of Acton to the Erin/Halton Hills Townline runs parallel to Highway 7. This section is within MTO permit control. Any works within permit control area will require MTO Building and Land Permits and works within Highway 7 ROW will require MTO Encroachment Permit. Asked to be circulated on future notices and study materials.	Email response from Leonard Rach (Burnside) dated July 3, 2008. Retained on contact list. Will provide updates to MTO as available.
Ministry of Energy and Infrastructure Ontario Growth Secretariat	Janet Lo Senior Associate	Email dated July 30, 2008. Asked if consultations with municipalities have included looking at opportunities to link possible rail stations with their planning for their urban growth centres. Provided link to technical paper showing proposed urban growth centres. Asked to see mapping of the location of alternative station sites in relation to Downtown Guelph, Downtown Kitchener and Uptown Waterloo and others.	Email response from Leonard Rach (Burnside) dated August 1, 2008. Provided brief outline of EA/Preliminary Design GO Rail Extension Study. Noted notice of commencement advertised, provided dates. Noted holding PIC #1 end September 2008 and PIC #2 for end of January 2009 and ESR to be placed on public record in April 2009. Noted possible station locations and layover/fueling locations currently being considered in Kitchener area. Noted possible station sites considered for Guelph area. Noted proposed improvements to Georgetown station and consideration of a station in Acton. Described what full service will involve, but noted start up service may only be limited to peak periods. Noted design year is 2031 with start up in 2011. Noted that a Notice of Commencement package was to be forwarded and agency would be added to contact list. Noted interest to obtain any information that is available from the Ministry of Energy and Infrastructure.
		Email dated August 6, 2008. Asked if team could provide a map of the proposed station locations in relation to the urban growth areas (Downtown Guelph, Downtown Kitchener, and Downtown Waterloo, and possibly others such as Downtown Brampton). Provided link to mapping for urban growth	Email response from Leonard Rach (Burnside) dated August 8, 2008. Noted that we are merely identifying potential station sites between Georgetown and Kitchener at this stage of project. Noted two potential station sites within the Guelph and Kitchener urban growth centres are

Company	Name	Comment Received	Response Given
		centres. Noted that Growth Plan's policies (Section 2 on Where and How to Grow, and 3.2.3 on Moving People) may have implications for station locations, and in particular, potential implications regarding the suburban park and ride in Guelph. Would like to know where the Park and Ride is planned for Guelph in relation to Guelph's growth planning work. Also would like to have more information about proposals for Acton and for Halton's conformity to the Growth Plan (i.e., meeting their intensification targets).	at the current Via stations. Noted that team will not be in a position to identify preferred station sites along the Georgetown/Kitchener route until November 2008. Noted team will keep the Ministry apprised of study findings as they become available.
Ontario Realty Corporation (ORC)	Lisa Myslicki Environmental Coordinator	Letter dated June 10, 2008 from Lisa Myslicki (emailed June 11, 2008 by Julius Lindsay). Noted that there is ORC managed property in study area.	Email response from Leonard Rach (Burnside) dated June 12, 2008. Lisa Myslicki is to be added to contact list on June 13, 2008.
Niagara Escarpment Commission (NEC)	Kathryn Pounder Senior Strategic Advisor (Acting)	Email dated June 6, 2008. Noted that reduced car use through corridor is positive. Asked if this project will displace freight capacity of line? (negative impact). Noted that any expansion of the ROW through Niagara Escarpment Plan Area (NEPA) would require more detailed review by NEC. Asked to be kept informed.	Added to contact list on June 13, 2008.
Niagara Escarpment Commission (NEC)	Nancy Mott-Allen, MCIP, RPP Senior Planner	Letter dated September 30, 2008. Would like to comment on and be involved with the Environmental Study as the rail line crosses the Niagara Escarpment Plan area and Limehouse. If NEC staff are unable to attend the PIC on October 1, 2008 they would like to obtain copies of any display materials or handouts at the meeting.	Comment noted.
		Email dated January 22, 2009. Asked to receive a copy of PIC #2 materials prior to the meeting to provide advance input. Follow-up email dated February 6, 2009. Noted that there is little information about design consideration for future track. No details to understand implications of the second track in the NEP area (especially Limehouse). Would have expected to see cross-sections prior to the preferred design alternatives and ESR. Asked if additional information would be forthcoming.	Response email from Leonard Rach (Burnside) dated January 23, 2009. Noted that a copy of the PIC #2 materials would be provided in advance for input. Copy of materials provided by email on February 4, 2009. Follow-up response email from Leonard Rach (Burnside) dated March 4, 2009. Noted the PIC #2 boards did indicate track improvements between stations with an ultimate 2-track concept through corridor. Noted that generally, the second track will be within existing ROW. There may be some areas of impact between stations requiring a cut or fill or culvert extensions. Noted that detail design phase will identify impact areas and mitigation plans. Noted that the EA will cover any mitigation aspects if encountered. Asked if NEC would identify the specific areas of concern.
		Email dated March 5, 2009. Noted area of concern is between Trafalgar Road and Regional Road 25. Would like to be provided with additional information on nature of construction in these areas.	Response email from Leonard Rach (Burnside) dated March 6, 2009. Noted that study team would look at this area and respond back. Response email from Jennifer Burnham (Burnside) dated March 31, 2009. Noted for section of interest, improvements to corridor are minimal. Noted a part of future scenario, this section of the corridor would require double tracking but most of the grading would occur within existing 30m CN ROW. Noted that twinning the track would include track upgrades, track bed construction, cut/fill operations and extension/widening of culverts. Noted timing of future improvements are not known at this time. Noted that all impacts to rail line would be identified at a future detailed design phase by GO Transit following the completion of this EA. Noted that these future details would be discussed with interested agencies (including NEC) at future date.

Company	Name	Comment Received	Response Given
		Email dated April 6, 2009. Trying to ascertain if the rail expansion would result in need for a Development Permit from NEC. Asked if GO Transit or CN owns the line. Asked if GO Transit or CN would be constructing the new tracks. Asked if other railways will be using the tracks for inter-provincial and international rail traffic.	Email response email from Leonard Rach (Burnside) dated April 8, 2009. Noted rail line is owned by CN. Noted it is likely that CN will arrange to construct the rail line improvements on GO's behalf. Anticipate all rail line improvements to be confined to the existing corridor. GO would defer to CN's practice for development within corridor in dealing with the NEC. GO would likely follow NEC guidelines for GO owned development (stations, layovers, etc.) and apply for a permit. Noted understanding that GO Transit is only "new rail company" proposing to use the corridor.
		Email dated April 9, 2009. Asked if the construction through ROW will involve grade changes, removal of vegetation, new access roads (temporary or permanent). Asked if there will be site rehabilitation after construction to blend with surrounding landscape. Asked about impacts to Bruce Trail crossing. Highlighted importance of maintaining the natural state through the Escarpment Natural and Protection Areas.	Jennifer Burnham (Burnside) responded to NEC April 9, 2009 email on June 1, 2009. Apologized for delayed response. Noted that for the purposes of this project, most of construction related to the twinning of the existing CN mainline will be contained within the right-of-way. Noted that retaining walls will be used in areas falling with Escarpment Natural or Protection Areas Land Use Designations. Noted what construction of double track will involve. Noted that most of the construction areas are accessible by adjacent municipal roads and therefore few will require a temporary access. Regarding the Bruce Trail, since trail crosses at 5th Line, potential impacts to this crossing will be described at the detailed design phase. Provided reference to environmental effects and mitigation measures outlined in the ESR document regarding vegetation, wildlife/habitat, surface water/hydrology and soil and sedimentation, fish and fish habitat. Also provided information about proposed monitoring activities during the course of the project implementation. Finally, provided an update on the status of the EA finalization and release for public review. Noted that a copy of the final ESR would be provided to NEC.
Grand River Conservation Authority	Fred Natolochny	Fax dated July 7, 2008. Respondent was Drew Cherry. Noted Fred Natolochny should be contact for approvals ongoing. Noted potential impacts on natural resources features regulated by GRCA e.g wetlands, floodplains, water crossings, etc. No critical issues noted at this time, however and new water crossings or impacts on PSWs could be of concern.	Comment noted.
Credit Valley Conservation	Liam Marray	Meeting was held at CVC Office on July 4, 2008 to discuss project. CVC asked study team to correspond with CVC throughout project.	Study team agreed to correspond with CVC throughout project.
Toronto Region Conservation Authority	Sharon Lingertat	Letter dated June 10, 2008. Noted that study area is not in TRCA's jurisdiction. Asked to be removed from contact list.	Email response from Jennifer Burnham (Burnside) dated June 16, 2008. Acknowledged comments. Removed from contact list on June 16, 2008.
B. Federal Agencies			
Transport Canada - Ontario Region (PHE) Environment and Engineering	Haya Finan Environmental Officer	Email dated June 10, 2008. Noted approval requirements for any navigable water crossings (if applicable). Noted notification requirements prior to construction of railways. Also noted there may be CEAA triggers for this project.	Email response from Bruce Sevier (GO Transit) dated June 16, 2008. Acknowledged comments. Added to contact list on June 16, 2008.

Company	Name	Comment Received	Response Given
Canadian Transportation Agency	John Woodward Senior Environmental Officer	Fax dated September 12, 2008 from John Woodward in response to letter dated September 12, 2008. May have an interest if the undertaking involves the following activities: Construction of a federally regulated railway outside of the ROW of an existing railway line. Construction of a road or utility crossing of a federally regulated railway, or varying or rescinding an Agency order that originally required an EA.	Comment noted.
C. Municipal Agencies			
Peel Region	Murray McLeod Manager of Transportation Planning	Email dated July 7, 2008. Asked to be kept informed at project progresses. At this time, comments are general in nature. Positive/negative effects: in support of project for expanded services, services would relieve growing traffic on Highway 401 in the Kitchener-Toronto corridor. Critical issues: priority for Peel is to ensure earliest implementation of all day, two-way rail to Georgetown and to ensure expansion of service in future can be achieved in relation to growing need. Asked all future notices be sent to Murray McLeod.	Email response from Leonard Rach (Burnside) dated July 7, 2008.
Wellington County	Gordon Ough County Engineer	Email dated July 15, 2008. Noted CAO (Scott Wilson) asked that Gord Ough be contacted for future mailings.	Email response from Bruce Sevier (GO Transit) dated July 15, 2008. Noted we would forward future correspondence to Gord.
Waterloo Region	John Cicuttin Manager, Transit Development	Email dated June 27, 2008. Noted many positive benefits of project (alternative to auto travel, enhances inter-city services). Critical issues: potential for downtown multi-modal station, property acquisition requirements for RT and GO Transit should be coordinated where possible. Intercity transit identified by Regional Council as a key strategic priority.	Email response from Leonard Rach (Burnside) dated June 27, 2008. Thanks for response, look forward to continuing dialogue with Region of Waterloo. Added to contact list on July 2, 2008.
Township of Wilmot	Harold O'Krafka Director of Development Services	Fax dated June 24, 2008. Provided copy of report to council. Recommendations to council: Township endorse extension of GO Transit to region, Township mention possibility of station in vicinity of Nafziger Road, adjacent secondary main line close to Highway 7 and 8, if station not feasible, consideration for GO Bus service to Kitchener station as an interim option.	Letter response from Leonard Rach (Burnside) dated June 24, 2008. Thanked Township for input. Noted that comments would be taken into consideration. Retained on contact list.
		Letter dated October 15, 2008. In response to PIC #1 the Township of Wilmot supports the extension of GO Train service to the community, and in particular to the Ira Needles Boulevard area. Consideration should be given to the Petersburg site for the overnight facility / rural sites to facilitate future expansions without constraints. Un-serviced lands should be used for the overnight facilities instead of serviceable lands within an urban setting.	Comments noted.
		Letter dated February 10, 2009. In response to PIC #2, Township of Wilmot continues to support extension of the GO Train service to Township. Encourages GO to consider merits of a station at Ira Needles Boulevard. Encourages GO to using non-prime, un-serviced lands in the Township for layover versus serviceable lands in the urban setting.	Follow-up meeting was held with the Township of Wilmot on March 4, 2009.
City of Stratford	Michelle Smibert Deputy City Clerk	Email dated February 18, 2009. Council adopted following: "That the City of Stratford request that consideration be given to the placement of a train station with parking in the City of Stratford or at the very least on the west side of Kitchener for the Georgetown to Kitchener (GO Transit) Rail Expansion Project."	Information and comments noted.

Company	Name	Comment Received	Response Given
City of Stratford	Mayor Dan Mathieson	Letter dated March 24, 2009, submitted at PIC #3. Strongly urges GO Transit to consider use of existing rail yards in Stratford as the proposed layover facility and to approach CN for use of a portion of current train station. Feels that this approach would represent significant savings in infrastructure investment.	Letter response from Andreas Grammenz (GO Transit) dated April 10, 2009. Noted that GO must operate within the scope of the current EA, which is limited to the study area west from Georgetown to Kitchener, and precludes evaluation of any sites outside of the study area. Noted that there are no immediate plans to extend GO Transit rail service to Stratford. Made reference to GO's recent publication strategy plan for the 2020 planning horizon. Noted potential expansion identified in the plan includes Kitchener-Waterloo, Cambridge, and Brantford. Noted any expansion outside of GO's existing legislated service area or beyond the regions identified in the strategic plan comes at the direction of the MTO. Noted that interested stakeholders are invited to approach MTO.
		Email dated April 17, 2009. In relation to comments provided to a local resident, asked to be provided with and studies conducted regarding the Stratford rail yards and its viability. Noted that there seemed to be inconsistency in the information provided to the public and the City relating to the costs of brining the layover station to Stratford.	Email response from Leonard Rach (Burnside) dated April 23, 2009. Noted that residents question regarding costs to implement a layover station in Stratford called for a specific mention of the fact that freight yards usually cannot accommodate commuter train layover activities without major renovation, thus necessitating significant costs.
Township of Perth East	Glenn Schwendinger CAO	Letter dated February 18, 2009. Requested GO to consider that there is no current plan to have a station on the west side of Kitchener – Waterloo; downtown Kitchener station does not have adequate parking and will rely of local transit; current plan does not provide adequate service to residents and businesses on west side of Kitchener and further to Perth County and Stratford; requested consideration for a GO station near the boundary of Township of Wilmot and Perth East. Noted the potential benefits to Perth County with GO service and the need integrate such services to provide a long term transportation servicing for the Perth County. Noted that GO service to Perth County could reduce current and future demand on Highway 7/8.	Comments noted.
Town of Caledon-Planning and Development Dept.	Haiqing Xu Senior Transportation Planner	Email dated June 20, 2008. Positive effect of easing peak hour pressure on east-west highways, especially Highway 401. Critical issues will be station accessing, especially linking with GO Transit, local transit and commuter parking. Wishes to remain on contact list.	Email response from Leonard Rach (Burnside) dated June 20, 2008. Acknowledged comments. Retained on contact list.
City of Guelph – Engineering Services Community Design and Development Services	Rajan Philips Transportation Planning and Development Engineering Manager	Email dated June 12, 2008. Asked to have all future correspondence sent to him rather than Carrie Musselman	Email response from Leonard Rach (Burnside) dated June 12, 2008. Noted, made change to contact list on June 13, 2008.
		Letter dated January 9, 2009 noting resolution passed to: adopt the Community Design and Development Services Report (dated December 5, 2008); to inform GO Transit EA Project Team of the City's preference to use the existing Downtown VIA Station site as the location for the future GO Station in Guelph; and, to direct City staff to work with GO Transit EA Project Team to identify local bus connections and parking and improvements to the VIA Station to accommodate initial GO Rail Service.	Information and comments noted.

Company	Name	Comment Received	Response Given
City of Guelph – Community Design and Development Services	Marion Plaunt Manager of Policy and Urban Design	Email dated June 25. 2008. Asked to be added to the contact list. Would be interested to see current commuter data for traffic between Kitchener and Guelph, Cambridge and Guelph, Guelph and Georgetown and Guelph and Toronto in both directions if available. Asked is a needs and justification analysis has been undertaken/available.	Email response from Leonard Rach (Burnside) dated June 27, 2008. Added to contact list for notification. Noted we are currently updating estimates with more current population/employment data using the 2006 TTS data. Report expected at end of July 2008.
Downtown Guelph Business Association	Audrey Jamal Executive Director	Email dated August 26, 2008 from Audrey Jamal. Wishes to be kept informed about the EA and wanted to know when there are opportunities for public involvement.	Email response from Leonard Rach (Burnside) dated August 26, 2008 advising Audrey Jamal of timelines.
City of Kitchener	Grant Murphy Director Engineering Services	Fax dated July 3, 2008. Critical issue that must be addressed in the project is the location of park and ride facilities. Wishes to be kept informed about the projects progress.	Comments noted.
		Email dated December 29, 2008. Noted that City of Kitchener staff see benefits to a two-station approach for Kitchener, a station downtown and on in outlying areas (either at Breslau or Ira Needles). Agrees to future relocation of downtown GO station to integrate with future LRT at King Street. Provided copy of Environmental Committee report (dated October 23, 2008) noting recommendation of committee to support project.	Information and comments noted.
City of Kitchener	Mayor Carl Zehr	Letter dated February 24, 2009. Noted the City of Kitchener's overall satisfaction with the progress of the EA for the GO Transit service to Kitchener. Make reference to the various initiatives being pursued by the City to revitalize the downtown core, invest in universities and attract high-technology firms to the area. Noted that in-bound commuter services are important to help better serve the region. Overall, noted that the GO service is an important piece to ensuring the growth of the region.	Letter response from Leaonard Rach (Burnside) dated March 4, 2009. Thanked Mayor Zehr for City of Kitchener's support of the GO Transit expansion to the Kitchener area. Noted that the EA is intended to be filed in April 2009.
Halton Hills Fire Protection and Prevention Services	Brent Marshall Fire Chief and Director	Email dated July 8, 2008. Response came from John E. Martin Chief of Operations – Fire. Noted no concerns with project and asked to be removed from contact list.	Email response from Leonard Rach (Burnside) dated July 9, 2008. Noted we would remove from contact list.
Wellington County Police Service	Staff Sergeant Scott Smith	Fax dated June 10, 2008. Noted critical issues to be addressed as part of the project are First Nation land claims. Asked to remain on the contact list.	Retained on contact list.
Halton Regional Police Service Planning and Research Bureau	Linda Shaw Planner	Letter and response form dated June 24, 2008. Positive effects of project are reduction of number of vehicles on road and reduced vehicular emissions. Critical issues: 1) parking, 2) traffic circulation near stations, 3) crime prevention. Wishes to be kept informed. Also identified following key issues to be addressed in early stages of project: sufficient parking at stations, carefully consider access points to minimize traffic congestion, safety considerations at station.	Letter response from Leonard Rach (Burnside) dated June 24, 2008. Acknowledged issues raised would be taken into consideration in design of stations and parking areas. Retained on contact list.
Waterloo Catholic District School Board	Lindsay Reinhardt Planner	Response form and letter dated June 24, 2008. Noted school board has several elementary schools and one secondary school along the GEXR with two schools directly adjacent to railway (west side of Kitchener). Concerned about increase in service along rail and potential adverse impacts on nearby schools, specifically during school hours. Critical issue is safety around schools. Asked to be kept informed on progress of study.	Letter response from Leonard Rach (Burnside) dated June 30, 2008. Acknowledged comments. Noted comments would be taken into consideration in EA and design. Retained on contact list.

Company	Name	Comment Received	Response Given
Peel District School Board	Paul Mountford	Fax dated June 8, 2008. Asked to remain on contact list.	Comment noted. Added to contact list on June 13, 2008.
		Letter dated September 15, 2008. PDSB is interested in the project and wants to be kept informed about the status of the project.	Email response from Bruce Sevier (GO Transit) dated September 19, 2009 providing the current status of the project.
		Letter dated January 23, 2009. Noted PIC #2 notice received, wishes to remain informed.	Comment noted.
Peel District School Board	Paul Mountford	Letter dated March 18, 2009. Noted PIC #3 notice received, wishes to remain informed.	Comment notes.
City of Brampton - Planning and Design and Development Department	Janice Given Manager, Growth Management	Response form dated June 23, 2008. Noted positive effect of project would be provision of transit for commuters to/from Kitchener/Waterloo. Critical issues: impact on track and lay-by requirements for Mount Pleasant GO Station.	Comments noted. Added to contact list on July 2, 2008.
City of Waterloo	Philip Hewitson Director, Transportation Division, Public Works Services	Email dated August 16, 2008 Philip Hewitson advised Burnside that at the July 14, 2008 City of Waterloo Council meeting unanimously indicates its support for the extension of GO rail service to Kitchener. The City of Waterloo is currently undertaking a Transportation Master Plan Study and future consultation with the City of Waterloo should be through that project team with the contact being Chris Hodgson.	Email response from Leonard Rach (Burnside) dated August 19, 2008. Acknowledged comment and that they would be included in the EA study. Also noted that Chris Hodgson would be added to contact list.
City of Waterloo	Susan Greatrix City Clerk	Letter dated September 23, 2008. Advising that at its meeting held on September 22, 2008, the Council of the City of Waterloo approved the following resolution: "That the Council of The Corporation of the City of Waterloo supports the extension of GO Transit from Georgetown to Kitchener to serve the citizens of the Waterloo Region communities as a vital link for our residents who routinely commute in and out of the Toronto area."	Comment noted.
		Letter dated April 7, 2009 noting resolution passed to approve Response Paper DS-09-21 dated March 26, 2009 highlighting the City of Waterloo Council support of the GO Transit expansion project and provide more details following previous resolution on September 22, 2008.	Information and comments noted.
City of Waterloo	Adam Lauder Policy Planner	Email dated March 11, 2009. Noted that a report is being prepared for Council to support the GO Transit rail expansion, but report will not be to council until April. Requested clarification of the ESR and timing of it's public release. Follow-up email dated March 16, 2009. Understands that AM Peak westbound trains are not contemplated in the EA. Noted that there are significant numbers of people traveling westbound into the City of Waterloo in the AM periods. Noted that there is a need for this service because the Region is increasingly becoming a commuter destination.	Email response from Leonard Rach (Burnside) dated March 12, 2009. Clarified what the ESR will include and that the report should be put on public record in early April for 45 days. Noted that study team would be interested to obtain Council's view of the rail expansion study.
D. Rail and Utilities			
VIA Rail Canada – Capital Programs	Aaron Branston Senior Project Manager	Email dated June 19, 2008. Positive effects are cooperation to upgrade infrastructure on GEXR Guelph S/D. Negative effects are additional frequencies presenting capacity issues for both VIA and GO. Critical issues: preliminary phase should be coordinated with VIA (UMA Engineering) as VIA is at same time planning for major infrastructure upgrade. Noted VIA/UMA meeting with GO/Burnside on June 29, 2008. Asked to remain on contact list.	Email response from Leonard Rach (Burnside) dated June 20, 2008. Acknowledged comments. Retained on contact list.

Company	Name	Comment Received	Response Given
Waterloo North Hydro	Erik Veneman Manager of Distribution Engineering	Email dated June 11, 2008. Noted link to the new LRT that Region is proposing is positive. May need to comment further once details are available.	Email response from Leonard Rach (Burnside) dated June 12, 2008. Acknowledged comments. Retained on contact list.
Guelph Hydro Electric Services	Arlen R. Molyneaux Director of Engineering	Email dated July 21, 2008. Asked to be kept informed on project's progress.	Comments noted.
Hydro One Networks, Inc.	Charles Esendal Sustainment Manager	Email dated August 22, 2008 with attached document from Charles Esendal confirming that Hydro One Transmission facilities are located in study area. In planning, developments should not reduce line clearances and limit access to Hydro One facilities. Electrical clearance from the transmission line conductors as specified in the *Ontario Health and Safety Act* must be maintained. If developments affect Hydro One facilities submit plans to: Kent Taylor, Hydro One Real Estate Management 185 Clegg Road, Markham, ON L6G 1B7 (kent.taylor@hydroone.com)	Comments noted.
Enbridge Pipelines Ltd.	Ann Newman Crossing Co-ordinator	Email dated June 9, 2008. Noted that Enbridge Pipelines Inc. has no facilities in study area. No concern with study and asked to be removed from contact list.	Email response from Leonard Rach (Burnside) dated June 9, 2008. Noted comments. Removed from contact list on June 13, 2008.

7.4 Elected Official Correspondence

Comments have been received from elected officials throughout the duration of the EA study. All communication has been very supportive of the proposed rail expansion. Copies of correspondence rail received from elected officials and any study team response is included in Appendix D11.

7.5 General Stakeholder Correspondence

Comments have been received from stakeholders throughout the duration of the EA study. Most of the comments were received at the time of the PICs and are summarized in the PIC Summary Reports (see Section 7.1.2). All other general stakeholder correspondence is summarized in Table 7.7. Copies of the response communication received from stakeholders and any study team responses given is included in Appendix D12.

7.6 Media Releases

The study team has been made aware of several newspaper articles that have been published during the course of this EA relating to the proposed rail expansion project.

Copies of the articles collected by the study team are provided in Appendix D13.

Table 7.7 Summary of General Stakeholder Correspondence

ID	Comments Received	Response Given
1	Email dated May 28, 2008. Asked to be added to contact list. Advocate for station on former Lafarge lands in Guelph.	Email response from Leonard Rach (Burnside) dated May 29, 2008. Added to contact list on May 29, 2008. Acknowledged comments, noted that as study is in initial stages and therefore cannot add anything further to comments at this time.
2	Email dated May 28, 2008. Asked to be added to contact list. Noted interest in service especially for transportation after Toronto sports games.	Email response from Leonard Rach (Burnside) dated May 29, 2008. Acknowledged comments. Added to contact list on May 29, 2008.
3	Email dated May 28, 2008. Asked to be added to contact list. Noted interest in service for business to Brampton.	Email response from Leonard Rach (Burnside) dated May 29, 2008. Acknowledged comments. Added to contact list on May 29, 2008.
4	Email dated May 28, 2008. Asked to be added to the contact list. Supports idea of station on former LaFarge lands in Guelph.	Email response from Leonard Rach (Burnside) dated May 29, 2008. Acknowledged comments. Added to contact list on May 29, 2008.
5	Email dated May 29, 2008. Noted full support of project. Noted major faults with service provided a few years ago in the Guelph area where there were no parking facilities and poor schedule times. Suggested most reasonable location for station would be the Lafarge site.	Email response from Leonard Rach (Burnside) dated May 29, 2008. Acknowledged comments. Added to contact list on May 29, 2008.
6	Email dated May 29, 2008. Welcomes service. Asked how far north of King Street and Maple Grove is project planned? Asked for a more detailed map. Asked how close project is to the Toyota plant. Follow-up email dated May 29, 2008. Asked if there would be a station relatively close to Toyota at Cherry Blossom and Maple Grove.	Email response from Bruce Sevier (GO Transit) dated May 29, 2008. Acknowledged comments. Noted project is in initial stages; however, study team is planning to look at GO Station located in the area of the existing VIA Rail Station on King Street that could possibly be integrated with existing VIA Rail service and Region's proposed LRT system. In addition, will look at possibility of locating a Park and Ride GO Station in Breslau. Added to contact list on May 29, 2008. Follow-up email response from Bruce Sevier (GO Transit) dated June 2, 2008. Noted that a station is not currently planned at this location. Noted the rail line running north/south close to the Toyota Plant is a CP line and the expansion from Georgetown to Kitchener is currently planned via the CN line operated by GEXR.
7	Letter received on May 30, 2008. Asked to be added to contact list.	Letter response from Leonard Rach (Burnside) dated June 2, 2008. Acknowledged request to be added to list. Added to contact list on June 4, 2008.
8	Letter dated May 30, 2008. Asked to be added to contact list. The project is good news. There is nothing more wasteful then moving millions of people in motor cars especially since most of the time there is only one person in them. If we are serious about changing our wasteful ways we have to stop widening roads and building express ways. We have to put the money into the kind of train and bus service that is giving all those people in sprawling subdivisions the opportunity to get rid of their cars and using transit service. It took me 1.5 hours in a streetcar to move from University Ave. to High Park in Toronto because of all the cars slowly crawling around the streetcar. The pedestrians could move faster then the cars, yet all of them had their motors running. Busses and street cars have to get the right of way in City traffic. Go Trains need their own tracks with service all day. Cars have become a trap and we need to free ourselves from them.	Letter response from Bruce Sevier (GO Transit) dated June 17, 2008. Added to contact list on July 2, 2008.
9	Email dated June 2, 2008. Asked to be added to the contact list.	Email response from Bruce Sevier (GO Transit) dated June 4, 2008. Acknowledged comments. Added on contact list on June 4, 2008.
10	Email dated June 2, 2008. Commutes from Halton Hills to Waterloo and supports the undertaking of the project. Asked where more information about the project could be found. Also wanted to know what skills or knowledge would be required to be	Email response from Leonard Rach (Burnside) dated June 4, 2008. At this point in time we are merely collecting a master list of potential members of the public who may wish to know what's happening and/or may wish to offer comments and suggestions. In future we

ID	Comments Received	Response Given
	involved in the project as the notice stated that people wanting to be involved in the study should indicate their interest.	plan to add information on the GO web page from time to time. In addition our plans call for holding Public Information Open House in the Guelph, Kitchener and likely the Acton area starting in the Fall of this year. Added to contact list on June 4, 2008.
11	Letter dated June 2, 2008. Asked to be added to contact list. Currently only interested in the Guelph station as the Walker Office Complex is approximately 100 yards from the current Guelph VIA Station.	Letter response from Leonard Rach (Burnside) dated June 9, 2008. Acknowledged comments. Added to contact list on June 10, 2008.
12	Email dated June 3, 2008. Asked to be added to the contact list. In favour of project to reduce congestion on 401. Interested in a Breslau stop.	Email response from Bruce Sevier (GO Transit) dated June 3, 2008. Acknowledged comments. Added to contact list on June 4, 2008.
13	Letter dated June 7, 2008. In favour of project. GO Transit would mean more competition for VIA and Greyhound and more choices to get to the GTA. The project would be better for the environment and relieve some of the congestion on the 401. Suggests track and signal improvements to reduce conflicts with CN. Asked to be added to contact list.	Letter response from Leonard Rach (Burnside) dated June 16, 2008. Acknowledged comments. Added to contact list on June 18, 2008.
14	Email dated June 15, 2008. Encourages the continuation of the proposed GO Transit service from Georgetown to Kitchener. Currently resides in Georgetown and has frequently taken Go Transit into Toronto. Planning to move to Kitchener and is hoping to use GO Transit to commute to Toronto. Has been disappointed that GO Train service has not increased, even though tracks are present. There are only 4 commuter trains in the morning and in the evening on the Georgetown - Toronto line. Having lived for 5 years in the vicinity of NYC, as well as having lived in Berlin and traveled extensively in Europe and the USA, I am frankly shocked at how poor Toronto's public transit system into its outlying suburbs and cities is in comparison to other metropolitan areas. It is inconceivable, for instance, that there is no light-rail system to Pearson International Airport. The environmental impacts of reduced automobile emissions from using the Go-Train are significant. Accordingly, please do your best to improve public transit in Southern Ontario.	Email response from Leonard Rach (Burnside) dated June 16, 2008. Acknowledged comments. Added to contact list on June 17, 2008.
15	Email dated July 5, 2008. Asked what the expected timeframe would be for EA. Asked if project has been initiated under new streamlined EA process (6-month).	Email response from Bruce Sevier (GO Transit) dated July 7, 2008. Noted anticipated completion date for EA is March 31, 2009. Noted GO Transit is currently in the process of assessing if project would be transferred to the new streamlined EA process. Either way, completion date is still expected to be within same timeframe.
16	Letter dated August 13, 2008. Encourages the GO Transit Rail expansion from Georgetown to Kitchener and believes it is long overdue. Remembers when the Government stopped the VIA Rail service from Kitchener to Toronto and traffic on the 401 dramatically increased. A straight run from Kitchener to Toronto would be better then having to exchange trains in Georgetown. The schedule must be good for commuters.	Letter response from Leonard Rach (Burnside) dated August 20, 2008. Acknowledged comments. Added to contact list on August 26, 2008.
17	Email dated September 10, 2008. Hopes that small places like Rockwood are thoroughly evaluated in the study with regards to receiving service (i.e. stops) with minor station facilities (washrooms, pedestrian over/underpass, parking and ticket/pass purchase machine. The study should also consider connections from the study area to the Mississauga/ Oakville/ Milton area.	Email response from Leonard Rach (Burnside) dated September 16, 2008. Acknowledged comments and advised the dates of PICs in the area. Added to contact list on September 26, 2008.
18	Email dated September 14, 2008. Concerned with the expansion going through as there are already issues with the current service. When school is on, the trains are full by the Bramalea station. If you are not on the 5:15pm train (departing Union) by	Email response from Bruce Sevier (Go Transit) dated September 15, 2008. As part of the expansion, GO transit is looking into increasing the current 4 peak trains up to 7 peak trains, which provide more flexibility and almost double seating capacity. He asked if

ID	Comments Received	Response Given
	5 :08 pm, you don't get a seat. There is insufficient parking at Brampton and Mount Pleasant is basically full. Hopes that GO either puts more cars on their trains or adds more trains in the morning and afternoon – some running express.	concerned wanted to be included in the master mailing list.
19	Email dated September 17, 2008 requesting to be added to mailing list. Support GO rail train should it service Acton. If it does not, it would not be feasible for them due to poor scheduling and time conflicts (based on current Georgetown examples).	Email response from Leonard Rach (Burnside) dated September 19, 2008. Mr. Rach asked if they could share the type of train schedule that would better fit their schedule. Added to contact list on September 26, 2008.
20	Emailed dated September 19, 2008. In support the GO expansion. Requesting that instead of procuring land for more car parking space, investing in bicycle storage areas and security would encourage more people to leave their cars at home. In response to Leonard R. (Burnside) email dated September 19, 2008. An email dated September 19, 2008 was sent. Pleased with the bicycle shelters shown in the pictures provided. The following was suggested to make the facilities better: Increase the capacity and flexibility of the shelter to include e-bikes and tricycle scooters Add some kind of security system, since some of these machines are no longer just inexpensive toys Partner with a bicycle share program Designate some trains to accommodate commuters with bikes. This may be a logistical challenge, but most commuters are usually just a short bike ride away from their place of work and home Shuttle services to and from the stations Encourage car pools, through a cross reference database with commuters who are willing to participate Greater integration and coordination with the local transit systems Have more shops in the stations to improve the commuter experience and improve GO Transit's overall public image	Email response from Leonard Rach (Burnside) dated September 19, 2008. GO Transit is currently implementing bike enclosures system wide. He attached photos of GO's new bike shelters installed at Ajax and Lisgar GO station. He said he would also email a copy of the presentation material for the PIC. In response to second email, dated September 19, 2008. Leonard Rach (Burnside) responded via email on September 22, 2008 acknowledging the suggestions. Julie Kingdom (GO Transit) responded via email on September 23, 2008. Email provided information on when bicycles are permitted on trains, the security in place, how many trains per car, and other information about folding and electric bicycles. Added to contact list on September 26, 2008.
21	Email dated September 25, 2008. Advocate for public transportation especially railways. Would like to be kept informed.	Email response from Bruce Sevier (GO Transit) dated September 25, 2008. Informed James of the date of the PIC. Added to contact list on September 26, 2008.
22	Email dated Sept 27, 2008. Very encouraging to see GO Transit expansion to Kitchener. Needed due to increased traffic. Believes having a station at Ira Needles would be a good idea. Curious about frequency of trains and the estimated time required to get to Union Station.	Email response from Leonard Rach (Burnside) dated Sept 29, 2008. Plans are to start the Kitchener service with 4 rush hour trains [30 minute headway] in the morning and evening peak periods. Noted estimated trip time from Kitchener to Union Station is approximately 2 hours.
23	Three emails sent to MPP Leeanna Pedergast from three residents in Petersburg area. Email dated October 1, 2008. Concerned about air and noise pollution associated with early morning engine start ups and diesel fumes. Concerned about environmental issues relating to maintenance activities. Concerned about safety, loss of valuable land and loss of property value. Noted Glasgow/ Ira Needles site seems better alternative. Noted that gravel pits outside Kitchener could be considered as candidate sites. Email dated October 8, 2008. Surprised to see that a layover station alternative is being considered alongside the subdivision in Petersburg. Noted that there is significant land west of Kitchener before Petersburg that would be a better site than	Comments noted.

ID	Comments Received	Response Given
	Petersburg site. A layover site near Petersburg would affect property values and the noise and the diesel fumes would be significant. Has been a resident for over 20 years and is used to the train, but a layover station would be a big change. Concerned that if berms were constructed on the north side of the track south of the layover site, there would be trains echoing into subdivision's backyards. Feels that noise would be worse than currently conditions. Has contacted the local media to try to receive some feedback from this situation. Asked MPP if the office had any more information about the site. Also hoping that the layover site would be at the Ira Needles/Glasgow site but have been told that Hydro may not be willing to part with the land too easily. Asked MPP if any more has been heard on that. Email dated October 10, 2008. Concerned about the early morning train start ups. Feels it will negatively affect lifestyle, peace and quiet of neighborhood.	
24	Email dated October 14, 2008. Hopes that the Glasgow Street Location will be selected rather than Petersburg as there are many houses close to the tracks. They do have trains going through their quiet community several times during the day and night. They blow their whistle at the crossing and are gone, unlike the noise that will be created by the trains starting up their diesel engines at 5:00 am.	Email response from Leonard Rach (Burnside) dated October 15, 2008. Acknowledged comments and advised that there have been no decisions made at this point.
25	Letter dated October 16, 2008 from Manulife Financial. Supports the Georgetown to Kitchener rail expansion. Believes that traffic is negatively impacting our employees and increasing our costs. Expanding of GO service to Kitchener would make GO Transit a commuting option for more than 160 Manulife employees. Our employees make thousands of business trips between our KW offices and Toronto offices each year. The lack of regularly scheduled alternatives means that the vast majority of these trips are made by automobile. Due to traffic congestion, employees who must be at another locating early in the morning often travel the night before incurring additional lodging costs and time away from family.	Letter response from Leonard Rach (Burnside) dated October 21, 2008. Acknowledge comments made and recognize the potential for their employees to take advantage of GO services. Burnside's studies to date have confirmed that there is indeed a significant demand for this service particularly between Kitchener and Guelph. It is anticipated that the second PIC in the Kitchener area will be in January 2009 where we will be presenting our recommendations for station sites, train layover facilities and track improvements.
26	Letter dated October 17, 2008 addressed to Terry Keenie (Burnside). The letter compared the Challenger Site (owned by Region of Waterloo) and the Seagram site (owned by Thomasfield Homes). The letter pointed out several advantages of the Seagram site compared to the Challenger Site. The Seagram site is larger than the Challenger Site The Seagram site is relatively flat compared to the Challenger Site Access to the Challenger Site would be more difficult due to site lines The Challenger Site would be more costly due to grading and bridge widening that would be needed for a left and right hand turn lane. While the Seagram site would need a well and septic system as a temporary expense, the developer would bring full municipal services to the site at the developers expense in the median turn The Seagram site is within the urban boundary in the Region's smart growth area. There are opportunities to build residential and office buildings that are walkable to the station. The Challenger site is next to Hopewell Creek and the existing Village. While there are some future potential for housing and office development, surrounding lands are not within the urban boundary. The Challenger site has residential within 30 metres of the railway. The Seagram site would allow for buffering by means of stormwater management, parks and trails, and	Email response from Leonard Rach (Burnside) dated October 22, 2008. The comparisons of the Challenger/Seagram sites were helpful. The study team is in the process of evaluating some 4 station sites in the Kitchener area and hope to go back to the public with a recommended plan by the end of January, 2009. In the meantime, the study team appreciates the opportunity of keeping the lines of communication open with respect to the Seagram site. Added to contact list on October 23, 2008.

ID	Comments Received	Response Given
	more compatible use.	
27	Email dated January 21, 2009. Thrilled that GO trains is coming to Waterloo Region. Not able to attend PIC, but requested that a stop in Breslau be considered. This would make the line more accessible for people in Cambridge. If there is not a stop in Breslau, Cambridge Residents would be forced to drive into Guelph and/or Kitchener which will be more time consuming and there will be parking issues to contend with. Naturally people will be less inclined to use the service if it is inconvenient. Assumes that making the service easy to get to is a consideration that is made when trying to increase ridership. Requested to be added to the contact list.	Email response from Greg Ashbee (GO Transit) dated Jan 21, 2009. Noted that one of preferred stations is Breslau. Added to contact list on Jan 23, 2009.
28	Email dated January 29, 2009. Has been a Guelph-Toronto commuter for over 14 years. This is exciting news for the City of Guelph and will benefit may citizens. Asked to be added to the contact list.	Email response from Greg Ashbee (GO Transit) dated January 30, 2009. Added to contact list on February 4, 2009.
29	Email dated February 4, 2009. Commutes from Baden to downtown Toronto daily, so is very interested and supports the project. Cannot attend PIC, but is there anywhere else information can be received? Asked to be added to the mailing list.	Email response from Leonard Rach (Burnside) dated February 4, 2009. Noted that copy of PIC boards and comment form would be forwarded. Added to contact list on Feb 5, 2009.
30	Email dated February 13, 2009. Wanted to know if consideration was being made for safety/acoustic barriers to the east of the Guelph Downtown station. I know the trains are currently only able to go slowly thought that area due to the open access to the tracks and the proximity to the houses. In Japan, they had great barriers that were parabolic at the top and provided for vegetation growth on the outside.	Email response from Leonard Rach (Burnside) dated February 16, 2009. Noted that noise assessment did not recommend noise mitigation measures (acoustic barriers) for this station. The noise studies indicated that the increase in noise levels are insignificant at the Guelph Downtown station under Day 1 service; under full service, 7day/week the incremental sound level change is 3db(A) and rated as noticeable but with no recommendations for noise control. The noise levels would have to exceed 5db(A) before mitigation is considered in this case.
31	Email dated February 14, 2009. Asked to be advised about track improvements, especially between Acton and Guelph. Own property that backs onto the existing rail line and would like to have a clear understanding as to what work might be done and how it could affect us. Follow-up email dated February 16, 2009. Asked when 2nd track is planned for.	Email response from Leonard Rach (Burnside) dated February 16, 2009. Noted that the ultimate track improvements are to enable bi-directional train traffic. The interim start up service does not require a 2nd track between Acton and Guelph. Follow up email from Leonard Rach (Burnside) dated February 16, 2009. Noted 2nd track is dependant of several factors including ridership demands, public/political influences, funding. Likely that track will be in place prior to 2031 possibly as early as 2021-25.
32	Email dated February 14, 2009. Supports GO buses servicing Rockwood as often as possible so Eden Mills residents can use GO system. Asked to be kept advised.	Email response from Leonard Rach (Burnside) dated February 16, 2009. Noted copy of comment forwarded to GO Transit for appropriate review and action.
33	Email dated February 16, 2009 with attached letter that was sent to VIA customer relations and GO Transit, as well as the CAO of Perth East Township, Glen Schwendinger, and Planner of Wilmot Township, Mayor of Stratford, and the Chair of Waterloo Region. The email requested that a meeting be held with GO Transit, Burnside, Agricultural Business Community Committee, and National Farmers Union local chapter to discuss what they think would be an excellent act of transportation leadership to avoid the expansion of Highway 7 and 8. This letter attached was regarding the MTO planned expansion of Highway 7 and 8 from new Hamburg to Stratford that is currently in the EA stage. The letter outlined that the expansion is highly unfortunate for reasons outlined below:	Letter response sent from Greg Ashbee (GO Transit) dated Feb 20, 2009. Appreciates the invitation for local discussion on GO service to Stratford. The scope of our present EA only considers a possible extension to Kitchener. Any thought of extending GO commuter service beyond Kitchener is possibly many years away. Currently your area is serviced by VIA and our understanding is that they plan to possibly double their present service through your area. To enter the Stratford market, GO Transit would be in direct competition with VIA. The expected ridership demand may not be able to support two rail lines given the capital and operating costs. In our view, a much better outcome given your desire for added rail service through your area would be to pursue VIA for enhanced rail service.

ID	Comments Received	Response Given
	Declining petroleum supplies and the carbon emissions from vehicles create a strong push for reliance of methods that do not depend on fossil fuels Our population density is similar to that of parts of Europe where public transit, especially rail based has long formed the back bone of an effective transportation network Waterloo Region has made commitments to vastly improve their urban public transit networks, and is a strong advocate for options other than an expanded highway in the Kitchener-New Hamburg-Stratford corridor In order for rural communities to remain economically healthy, industries from agriculture to tourism require effective links to regional urban centres without creating the traffic gridlock that has plagued other Ontario communities, most notably much of the GTA While habitually committed to our private vehicles, many Ontario residents are genuinely seeking options that reduce their carbon emission impact, and are looking to transportation system decision-makers to provide creative and innovative leadership It is hard to imagine that by 2030 another highway through prime farm land carrying more private vehicles will appear to have been a visionary leadership choice. The current daily demand on Highway 7 and 8 warrants a serious consideration of creating a commuter rail option for the Stratford-KW route.	
34	Email dated February 17, 2009. Strong supporter of having a station in Rockwood. A stop in Rockwood is not just a matter of convenience, it is an environmental imperative, given the density of commuters who live in the Rockwood area, including Eden Mills, a village on a quest to become carbon neutral. Asked for a response and to be kept updated for the project.	Email response from Leonard Rach (Burnside) dated February 17, 2009. Based on our evaluation of alternate station locations, the Acton Hide House site was selected over the Dublin Line site. Both sites were evaluated on the basis of natural environment, social/cultural environment, economic, and technical considerations. Rockwood residents would be able to take GO Bus to the GO Station at the Hide House. Added to contact list on February 23, 2009.
35	Provided comments via faxed letter to GO Transit dated February 10, 2009. Did not feel his questions at the PIC #2 were adequately addressed. The letter was regarding the following summarized questions: Question 1 How will the Class EA and its ESR conform to the vision of Section 1.2.1 in the Growth Plan given its statement that "[public] transit be fast" (emphasis added)? Question 2 Given that restrictions such as the one in Guelph do not exist strictly as a result of the rail characteristics in the transportation corridor but instead include other land use considerations such as existing residential communities and heritage structures /districts, how will the Class EA and its ESR conform to the guiding principles of Section 1.2.2 in the Growth Plan that "[promotes] collaboration among all sectors – governments…. and residents to achieve the vision" together with Policy 3.2.1.1 of the Growth Plan stating that "[infrastructure] planning, land use planning, and infrastructure investment will be co-ordinated to implement this Plan"?	Added to contact list on February 11, 2009. Letter response to each question from Greg Ashbee (GO Transit) dated February 20, 2009. Summary of response Question 1: Go train service will increase transportation options, reduce vehicle trips and traffic congestion in the area. Working to develop a transportation network and integrate commuter rail line with local public transit creating public transportation access to most of Waterloo Region and beyond. Term "fast' is relative. Goal of rail-based transit is to provide competitive and cost-effective alternative to use of auto. Avoids gridlock Question 2: preferred Downtown station location in Guelph and Kitchener support the Growth Plan's policies. Bicycle parking is identified; opportunities for pedestrians, cyclists and transit users continue to be priorities. The Growth Plan dies not specify type of transit infrastructure/technology, phase-in or alignment. Key principles are that transportation systems will be planned and designed to shape growth by supporting the creation of walkable, bikeable and transit-oriented communities that meet the urban structure in the Growth Plan by directing growth to settlement areas and away from where

ID	Comments Received	Response Given
	Question 3 Further, how will the Class EA and its ESR conform to Paragraph 3.2.2.3(a) of the Growth Plan to "ensure that corridors are identified and protected to meet current and projected need"? Requested written response on or before February 20, 2009.	development is discouraged. The proposed Go stations encourage growth in these settlement areas. Growth Plan lists criteria which will guide decisions on transit planning and investment (listed in letter). Go Transit plans to utilize the existing rail ROW which has sufficient room for a second track between Georgetown and Kitchener. Thus the impact on adjacent land use would be minimal. Question 3: Go Transit will use the existing VIA rail corridor. Station and layover locations have been identified. In due course Go will approach landowners to secure these properties. Go Transit will form the principal regional link to future transportation hubs planned in Waterloo Region, Guelph and Georgetown/Acton. In turn these municipalities would plan for local hubs, which would connect municipal bus and/or LRT transit with regional service provided by Go and VIA. The Class EA will commit GO to certain tasks, including obtaining required approvals and to work cooperatively with the various government agencies to resolve any outstanding issues. Consultation with government and agencies will be documented within the ESR, which is subject to public review. The ESR must address agency comments and/or concerns. The commitments will be detailed in the ESR and if a stakeholder is not satisfied with the level of commitment, they can request a Part II Order (bump-up).
36	Email dated February 13, 2009. Re-iterating many concerns that he had above. I object to the fact that the EA has failed at all stages to consider Rockwood as a candidate location for a GO train stop and station. In contrast to Rockwood, Acton is located within the planning area under the Greenbelt Act. Coupled with its own water supply limits, its population is effectively capped for the foreseeable future. However, this EA appears to judge Acton as a promising candidate location. While Acton should be considered, it is illogical to consider it and exclude Rockwood based on these facts.	Email Response dated March 17, 2009 from Greg Ashbee (GO Transit). The EA study has investigated the feasibility of a Rockwood station and an Acton station. The anticipated ridership demand could only justify siting 1 station at this time and on balance the choice was Acton. People in Acton would be reluctant to travel west to ultimately go east. Also, Rockwood would be reasonably served with GO bus service where schedules could be adjusted to meet GO trains in Acton. A future GO station in Rockwood could be developed should the ridership demands in future merit a station (i.e. not ruling the possibility of a future station in Rockwood). Another factor to consider is that our current EA study is weighted heavily on a start up plan to extend peak period GO Rail service between Georgetown and Kitchener. Once the peak period service is successfully extended it becomes much easier to justify adding stations and/or 2 way and/or all day service in future.
37	Letter dated February 14, 2009. Puzzled and disappointed that there is not going to be a Rockwood station. What is the rational for not choosing this location? Don't you have to consider it due to the EA framework? Acton is in the Greenbelt, and Rockwood is not. Rockwood does not have public transportation for people who commute to work — both towards Kitchener-Waterloo and Toronto.	Added to contact list on March 5, 2009. Letter from Leonard Rach (Burnside) dated February 27, 2009. Letter outlined that the anticipated ridership demands in the Acton / Rockwood area could only justify one station at this time. One of the rationales in citing an Acton station was that it was felt that Acton residents would be reluctant to travel west to ultimately go east. A second consideration was the fact that the Rockwood community would be reasonably serviced with GO buses where schedules could be adjusted to meet the GO trains in either Guelph or Acton. Given the spatial separation between the proposed Acton station and Rockwood, a future GO station could be developed in Rockwood should the potential ridership demands merit a stop. The actual ridership numbers once the GO service is in operation would be the ultimate trigger in establishing a station in this community.

ID	Comments Received	Response Given
38	Email dated February 18, 2009. Asked if there have been communication between Region of Waterloo and GO Transit to include potential inter-modal connections between GO rail and proposed LRT. Asked if the connection would require a separate EA. Asked if there are any plans for transfers between proposed line extension and Halton [Milton] Line. Suggests a connection at Acton to Milton system.	Email response from Greg Ashbee (GO Transit) dated April 15, 2009. Apologized for delayed response. Noted that GO Transit has been in communication with the Region of Waterloo and their LRT team. Noted that GO Transit and the Region will be working together to develop the King Street site to accommodate VIA, the new LRT and GO Transit. Noted that GO Transit is considering to provide bus service to link Kitchener to Cambridge and the Milton Station, however there are no plans to link the Acton Station to the Milton Line.
39	Email dated April 12, 2009. Requested to discuss further plans for layover site. Noted being aware of consultation activities in Baden. Noted that there are other options for GO planners to consider, specifically relating to the City of Stratford Mayor's invitation to park trains in Stratford overnight at the existing rail yard. Noted that this facility would only need modest upgrades. Referenced planned expansion of Highway 7/8 and questioned why this would not warrant GO service to divert auto traffic off roads. Encourages GO to consider putting the layover in Stratford with the option of future stations in Stratford, Shakespeare and Baden/New Hamburg.	Email response from Leonard Rach (Burnside) dated April 28, 2009. Noted that current EA study has established a study area from Georgetown to the area west of Kitchener (Wilmot Township). Noted that at this time GO Transit have no plans to extend rail service to Stratford. Refered to GO's published "Strategic plan - GO 2020". Noted that developing a layover facility in an existing rail yard such as the one in Stratford, cost would likely be more than the Nafziger site and would typically take longer to develop. Provided details of the activities required to prepare the Stratford site for GO operations. Noted that an information bulletin outlining the proposed planning for the Nafziger Road site would be circulated within 2 weeks.
40	Email dated January 28, 2009. Wanted to know if the existing 6:10 bus leaving the Guelph terminal be moved up by 10 minutes so as to meet with the 6:50 Georgetown train to Union? Noted that there are a number of 'regular' passengers would like this improvement to service. Also noted that proposed station location along Highway 7 adjacent to the Guelph airstrip is ideal and would service growing community in Watson Road area.	Response email from Greg Ashbee (GO Transit) dated February 23, 2009. Noted that in order to provide a reliable connection on a trip from Guelph, GO would normally adjust the trip to operate 15 minutes earlier. However, noted that the downstream portion of the route cannot be adjusted due to the function is serves due to the additional wait time for downstream passengers. Since the current trip best serves the majority of all riders and the change requested will not be made. However, GO Transit we will keep this suggestion in mind for future service options. Noted that the Downtown VIA station location has been selected as the preferred site for the Guelph Station. Noted that this was presented at PIC #2. Noted that the City of Guelph has endorsed this selection.
41	Email dated June 23, 2009. Asked what side second track would be built on east of Rockwood crossing (concerned about fibre optic cable). Asked for schedule for opening day and future service.	Response email from Jennifer Burnham (Burnside) dated June 29, 2009. Noted that fibre optic cable would be protected and relocated when second track is added on north side. Provided copy of prototype schedule for four Kitchener bound trains noting that schedule is preliminary. Noted that future train schedules are not yet known.

8.0 Description of Proposed Project

8.1 Railway Improvements

The proposed rail improvements will include the ultimate twinning of the mainline between Silver Junction and Baden and construction of a third track between Mount Pleasant GO Station and Silver Junction. Portions will be completed as part of Opening Day service and ultimate twinning being constructed as part of the Future scenario. The following design criteria were considered as part of the preliminary design:

- Separation between the mainline tracks will be a minimum of 4.267 m (14 feet);
- Except at stations where a new platform has been added, the horizontal alignment follows closely the alignment of the existing tracks;
- The vertical profile is maintained within a 25 mm differential relative to the existing tracks. Depending on the section, the existing track was used as a baseline from which to design the new track;
- Where new tracks are being added, embankment widening, ditches, structure modifications and retaining walls may be necessary. New mainline track construction and the upgrading of service tracks will use continuously welded rail;
- Bridges and culverts to be widened/extended as required;
- Bridge and culvert works to be staged such that impact to rail and roadway operations are minimal; and,
- In order to avoid encroaching on adjacent private properties and due to the limited room available on the CN ROW, retaining walls are proposed in urban/industrial areas where a new track is being added.

The Halton and Guelph S/Ds Time Table establishes the maximum operating speeds as 70 mph for passenger trains and 55 mph for freight.

Separate from the GO expansion project, VIA is currently investigating possible track improvements for the corridor between Silver Junction and London to allow for an increase in running speed for the corridor. Investigations will determine potential track realignments and improvements which would increase the track speed for the corridor.

The Recommended Track Design is illustrated on Figure T-1 to Figure T-39.

8.1.1 Opening Day

Following is a brief description of the recommended Opening Day rail improvements:

- Upgrade the existing siding located at Rockcut, Mile 41.7. Silver Junction to Guelph is approximately 18 miles in distance and an upgraded siding at Rockcut will enable the dispatcher to arrange train meets as part of the recovery mode or when major delays occur.
- In order to eliminate or minimize delays, in particular, between GO Transit's proposed westbound PM trains and GEXR's eastbound #432 freight train, new double track sections are also proposed at Guelph and Shantz Station Terminals.
- At Guelph, it is proposed to upgrade the existing sidings from Mile 48.55 to Mile 50.55 to mainline track. Also, a new siding is proposed on the Fergus Spur which will replace GEXR's siding XW12 located at approximately Mile 50. These track improvements enable the proposed meets of VIA trains at the Guelph Station as well as over-takes. The proposed double track section will also enable GEXR's eastbound #432 to switch on to the south mainline, allowing for the passage of GO Transit's westbound PM trains on the north mainline at Guelph.
- At Shantz Station Terminals, Mile 55.7, GEXR currently occupies the mainline while switching the terminal. The terminal has recently increased its plant capacity and GEXR now estimates that their trains could occupy the mainline for approximately 30 minutes due to an increase in switching activity. It is proposed to construct a double track section, on the north side, from Mile 54.8 to Mile 57.8. This will enable the passing of GO Transit's westbound PM train's while GEXR eastbound #432 performs switching on the south track. Also, a new park and ride suburban GO Station at Breslau - Greenhouse Road is proposed along the north side of the corridor at Mile 57.3. This new station is located within the double track section thus, enabling the passage of other trains on the south track while GO trains transfer passengers at the station.
- The proposed tracks will include installing #20 - 136# welded turnouts and dual control. New mainline track will also be upgraded to 115# CWR and bonded, as required; and,
- The existing hot box and dragging equipment detector (HBD) would have to be relocated, possibly in the vicinity of Mile 53/54, which is in close proximity to the proposed GO station at Breslau – Greenhouse Road.

The need for the double track sections at Guelph and Shantz Station Terminals is based on train conflicts identified when analyzing GEXR's current Train Service Plan and GO Transit's preliminary Prototype Schedule (see Appendix B). During the detailed design phase, further analysis may be required to confirm the locations of the train conflicts and the corresponding additional corridor improvements in the event GEXR and/or GO Transit make major changes to their Train Service Plan and GO Schedules respectively at that time.

8.1.2 Future

Following is a brief description of the recommended Future rail improvements:

- Install third south mainline between Mount Pleasant to Georgetown Station, approximately Mile 18.57 to Mile 23.59 of the Halton S/D. These improvements will be subject to the expansion of the Credit River bridge and further design works by CN;
- Install second north mainline between Mile 23.59 (Halton S/D) to Mile 48.26 Guelph S/D;
- Install second north mainline between Mile 50.45 to Mile 54.80 Guelph S/D. Including new #20- 136# welded turnouts at Mile 53.64 and 55.31; and,

- Install second north mainline between Mile 57.80 to Mile 72.82 Guelph S/D. Including elimination of the KC30 siding (326 m), new #20 - 136# welded turnouts at Mile 60.30, 60.84, 62.14, 62.35, 63.01, 63.05, 63.79 and 72.80, dual switch control at the western limits.

Associated bridge, culvert and grade crossing improvements required as part this expansion are detailed in separate sections.

Timing for future twinning will be dependent upon a number of factors, including but not limited to, GO ridership, CN/GEXR lease agreement, future freight traffic projections, etc.

8.1.3 Centralized Traffic Control

As this is currently a "dark territory", upgrading of the corridor to a CTC system is proposed as part of Opening Day service for the entire Guelph S/D from Silver Junction to London. Design, installation and cost-sharing will be coordinated with VIA, CN and GEXR to ensure all parties are involved in the process and subsequent benefits.

8.1.4 Rail and Ties

In general, existing ties and ballast conditions are relatively good for the corridor. VIA/UMA has recently completed a detailed assessment for the corridor and the following improvements were identified:

- 115 lb rail be welded;
- 100 lb bolted rail be upgraded to 115 lb; and,
- Continuous Welded Rail (CWR) at locations where the speed is expected to exceed 50 mph.

Table 8.1 provides a summary of locations recommended for improvement within the GO project limits.

Table 8.1 Continuous Welded Rail Installations

Mile From	Mile To	Linear Feet
57.15	62.60	28,776
57.94	62.60	24,605
63.03	70.10	74,660
Total		128,041

In conjunction with proposed GEXR tie replacement programs, several improvements are recommended and are summarized in Table 8.2.

Table 8.2 Rail Tie Improvements

Mile From	Mile To	Quantity
30.00	33.00	740
38.00	39.00	100
41.00	45.00	550
46.00	47.00	100
48.80	49.80	600
55.00	56.00	100
61.80	62.60	500
63.03	63.52	300
67.00	68.00	100
Total		3,090

8.1.5 Surfacing and Ballast

Surfacing and additional ballast will be required with the installation of CWR and some tie replacements to provide for an adequate ballast shoulder in accordance with standard practice. Table 8.3 provides a summary of surfacing and ballast requirements.

Table 8.3 Surfacing and Ballast Requirements

Mile From	Mile To	Linear (Mile)	Comments
48.80	49.80	1.00	Tie Installation
57.15	62.60	5.45	CWR and Tie Installation
63.03	70.10	7.07	CWR and Tie Installation
Total		13.52	

8.1.6 Alignment

The existing alignment is generally in good condition, although opportunities do exist to possibly improve areas to allow for an increase in running speed through certain areas. VIA/UMA recently completed a detailed assessment of these potential opportunities, below is a summary of locations and resulting improvements:

- Silver – Mile 30.0 - Currently the junction with CN at Silver is currently speed restricted to 10 mph due to misalignment in the junction switch. Improvements at this location could increase the running speed to 40 mph;
- Acton – Mile 35.6 – The main track curve through Acton is currently three degrees and presently restricts running speed to 45 mph. Improvements at this location could potentially increase the running speed to 50 mph;
- Guelph – Mile 48.55 – Proposed siding extensions will minimize conflicts between freight and passenger traffic; and,
- Kitchener – Mile 62.70 – Proposed siding extensions will minimize conflicts between freight and passenger traffic.

8.1.7 Roadway Grade Crossings

There are 56 roadway grade crossings between Mount Pleasant and Baden, including both public roadway and private crossings. It is proposed that all public grade crossings warning signals be upgraded in conjunction with the installation of CTC along the Guelph S/D.

Public crossings were recently assessed by VIA/UMA, and a detailed summary of existing conditions and recommended improvements is included within the VIA/UMA report. The assessment was completed in accordance with Transport Canada's draft RTD-10 "Road/Railway Grade Crossings" manual and includes upgrades required, appropriate signage, etc.

Table 8.4 and Table 8.5 summarize the crossing locations, existing conditions and suggested improvements for both Opening Day and Future.

Table 8.4 Proposed Crossing Improvements – Opening Day

Mileage	Subdivision	Road Name	Existing	Proposed
49.20	GUELPH	Glasgow Street	Gates	Upgrade
49.33	GUELPH	Yorkshire Street	Gates	Upgrade
49.54	GUELPH	Edinburgh Road	Gates	Upgrade
49.79	GUELPH	Alma Street	Gates	Upgrade
57.00	GUELPH	Wurster Place	Passive	Lights
57.19	GUELPH	Private Crossing	Passive	Lights

Table 8.5 Proposed Crossing Improvements - Future

Mileage	Subdivision	Road Name	Existing	Proposed
19.17	HALTON	Mississauga Rd.	Gates	Upgrade
20.14	HALTON	Heritage Rd.	Gates	Upgrade
21.15	HALTON	Winston Churchill Blvd.	Gates	Upgrade
22.13	HALTON	10th Line	Gates	Upgrade
30.83	GUELPH	Trafalgar Rd.	Lights	Gates
33.54	GUELPH	4th Line Rd.	Lights	Gates
34.25	GUELPH	3rd Line Rd.	Lights	Gates
34.85	GUELPH	Private Crossing	Lights	Gates
35.48	GUELPH	Eastern Ave.	Lights	Close
35.69	GUELPH	Mill St./Highway 7	Gates	Upgrade
36.2	GUELPH	Main St.	Lights	Gates
37.2	GUELPH	Dublin Rd.	Lights	Gates
38.21	GUELPH	Townline Rd.	Lights	Gates
39.22	GUELPH	7th Line Rd.	Lights	Gates
40.56	GUELPH	Harris Street	Lights	Gates
41.3	GUELPH	Main Street	Lights	Gates
42.19	GUELPH	4th Line Rd.	Lights	Gates
43.02	GUELPH	3rd Line Rd.	Lights	Gates
43.97	GUELPH	Cty Road 29	Lights	Gates
45.8	GUELPH	Private Crossing	Passive	Lights
46.22	GUELPH	Watson Road	Gates	Upgrade
46.93	GUELPH	City View Drive	Gates	Upgrade
46.09	GUELPH	Dublin Street	Gates	Upgrade
52.95	GUELPH	Wellington Road 32	Lights	Gates
53.47	GUELPH	Private Crossing	Passive	Lights
54.06	GUELPH	Speedvale Ave.	Gates	Upgrade
54.37	GUELPH	Townline Rd.	Lights	Gates
58.39	GUELPH	Woolwich Street	Gates	Upgrade
59.67	GUELPH		Lights	Gates
59.81	GUELPH	Lackner Blvd 4	Gates	Upgrade
60.01	GUELPH	Private Crossing	Passive	Lights
62.08	GUELPH	Lancaster Street	Gates	NA
62.26	GUELPH	St. Leger Street	Gates	NA
62.6	GUELPH	Ahrens Street	Gates	NA
62.72	GUELPH	Weber Street	Gates	NA
62.82	GUELPH	Duke Street	Gates	NA
62.93	GUELPH	Waterloo Street	Gates	NA
63.03	GUELPH	King Street	Gates	NA

Further assessment the crossing improvements will be required as part of the detailed design phase of the project.

8.2 Station Location and Preliminary Site Layouts

The following sections describe the location and preliminary layout for each preferred station. Further details are provided on Figures ST-1 to ST-15.

8.2.1 Georgetown

The existing Georgetown GO Station has been in operation since 1973, and is located along the CN mainline at Mile 23.5 of the Halton S/D. The existing station is sufficient to accommodate additional ridership expected as part of the expansion to Kitchener. Currently, the station can accommodate regional and municipal bus services along the south side of the mainline along with the ability to accommodate parking for 615 vehicles.

Opening Day

The proposed Opening Day scenario will increase platform capacity by the addition of a new island platform. The island platform can be jointly used by GO Trains as well as VIA Rail. Below is a brief description of recommended improvements:

- The removal of the existing north service track and existing chain link fence;
- Construction of a new island platform located between the north mainline and GO Track BB45;
- Upgrading of the pocket track (BB45) to 115# continuous welded rail (CWR) and bonded. East #12-136# dual control turnout off the mainline at Mile 23.2 will remain. The west ladder track (BB53) to be retired. Tracks BB46/47/48 could also be stub-ended tracks, as current operations do not use the west ladder. By doing so, a trip-free walkway could be provided to

the west end of the platforms. The power turnout at the west end of the pocket track is to be equipped with a snow clearing device;
- A new chain link fence is to be installed between existing Mainlines 1 and 2;
- New tunnel to include stairs and elevators. Mini-platforms are to be installed on the new platform as well as the existing platform on Track BB45. New west stairs are to also be installed on the existing tunnel/platform;
- Although the pocket track will continue to function as a storage track, it can be used to short-turn trains between Union Station and Georgetown as well as the cycling of trains between Georgetown and Kitchener. All train movements to the pocket track to be controlled by signal indications; and,
- The replacement of the existing (run-through) turnout located at the east ladder to tracks BB/46/47/48 by a LCS switch.

Future

The Future alternatives for the Georgetown GO Station proposes to increase to the existing parking facilities as well as kiss and ride and reconstructed bus bays. Below is a brief description of recommended Future improvements:

- Removal of storage tracks BB 46/47/48;
- Construction of a Kiss and Ride area along the north parking lot;
- Additional 222 parking spaces; and,
- Installation of additional light standards.

If ridership in the area were to continue to increase beyond current expectations, further consideration could be given to further expansion to a second phase of parking i.e., multi-level facility, etc.

Further details are provided on Figures ST-1 and ST-2**.**

8.2.2 Acton – Hide House

The Acton – Hide House is located adjacent to the Olde Hide House site at the former GO station at approximately Mile 35.6 of the Guelph S/D. Located in Acton's urban area, the site is accessible to local residents as well as in close proximity to the downtown core.

Opening Day

The proposed Opening Day scenario would require minimal work for start up operation and would take advantage of the existing platform along the south side of the mainline. Closure of Queen Street may be required to accommodate a 12-car platform. Below is a brief description of recommended improvements:

- Construction of south platform and station building;
- Reorganizing existing parking along the south side, to allow for 200 spaces;
- Construction of bus bays; and,
- Construction of a Kiss and Ride area along the south parking lot.

Future

The Future alternatives for the Acton Station would allow for a north side platform and stairs, elevators and tunnels to allow the travelling public to access both north and south side platforms. Below is a brief description of recommended Future improvements:

- Construction north mainline;
- Construction of north side platform;
- Construction of stairs, elevators and tunnels; and,
- Queen Street closure at the existing at grade crossing.

In order to accommodate the second platform along the north side of the mainline, Queen Street located at the eastern limit of the site would need to be closed to local traffic. This is a result of the minimal spacing available between Mill Street and Queen Street (less than 300 m) which is insufficient to accommodate a north platform.

Further details are provided on Figure ST-3**.**

8.2.3 Guelph – Downtown VIA

The Guelph – Downtown VIA station is located in Guelph's downtown core at approximately Mile 48.7 of the Guelph S/D. The City of Guelph is currently in the process of also assessing this site to act as a local transit hub for the area.

Opening Day

The proposed Opening Day scenario would require minimal work for operation and would take advantage of the existing platform along the north side of the mainline. Below is a brief description of recommended improvements:

- Refurbishing of existing north platform and alterations to existing VIA station building to accommodate GO ticketing staff;
- Easterly extension of existing north platform;
- Construction of south side platform; and,
- Reorganizing of VIA parking along the north side of mainline to accommodate GO patrons. VIA currently has approximately 45 reserved parking spaces.

Future

The Future alternatives for the Guelph Station would allow for stairs, elevators and tunnels to allow the travelling public to access both north and south side platforms. Below is a brief description of recommended Future improvements:

- Construction of stairs, elevators and tunnels.

Further details are provided on Figure ST-6**.**

8.2.4 Breslau – Greenhouse Road

The proposed Breslau – Greenhouse Road Station is a greenfield site, located approximately five miles east of Kitchener at Mile 57.3 of the Guelph S/D. This site will service existing and proposed developments in the area and The Township of Woolwich has identified this area as an urban growth area. The Greenhouse site will function as a GO Park and Ride facility. Below is a brief description of recommended improvements:

Opening Day

The proposed Opening Day scenario would require a station building along the north side of the CN mainline, along with parking, bus bays and a Kiss and Ride area to allow for drop-offs and taxi patrons. Initial parking would be sized to accommodate 700 spaces. Below is a brief description of recommended improvements:

- Construction of a north platform;
- Construction of north mini-platform;
- Construction of north side parking area which accommodates 700 spaces;
- Construction of a storm water management pond;
- Construction of bus bays;
- Construction of a Kiss and Ride area along the east portion of the site; and,
- Construction of site servicing i.e., sanitary, potable water, etc.

To allow for construction of the Greenhouse site, GO will be required to coordinate with the local municipality and developers to allow for the construction of a road connecting to Township Road 72 (Greenhouse Road) and Krupp Road. Additional reconstruction/improvements may also be required to Greenhouse Road/Highway 7 to allow for this connection to occur i.e., turning lanes, traffic signals, etc. Further discussions will be required as part of the detailed design process.

Although the topography does vary throughout the site, sufficient grading can be completed to allow for constructing the proposed site and access road.

Future

The future alternatives for the Breslau – Greenhouse Station would allow for second platform along the south side of the CN mainlines along with, stairs, elevators and tunnels to allow for access to both north and south side platforms. Below is a brief description of recommended future improvements:

- Construction of a south platform;
- Construction of south mini-platform;
- Construction of stairs, elevators and tunnels; and,
- Construction of north side parking expansion along the western portion of the site, which will add an additional 350 spaces to the station site (1,050 total).

Sustained development and growth in the area greatly increases the need for a station site east of the Kitchener downtown core. This location, with future connection to Highway 7 will accommodate both interim and future growth for the area. To improve site accessibility in the long term it is recommended that the Region consider in their long range transportation plan a future station connection from Fountain Street together with appropriate Grand River Transit service connections.

Further details are provided on Figure ST-8**.**

8.2.5 Kitchener – Downtown VIA

The Kitchener – Downtown VIA station is located in Kitchener's downtown core at approximately Mile 62.7 of the Guelph S/D. Below is a brief description of recommended improvements:

Opening Day

The proposed Opening Day scenario would require minimal work for operation and would take advantage of the existing platform along the south side of the mainline. Below is a brief description of recommended improvements:

- Refurbishing of existing VIA station building;
- Easterly extension of the south side platform to accommodate 12 cars;
- Construction of south mini-platform;
- Reorganizing of VIA parking along the south side of mainline; and,
- Ahrens Street closure at the existing grade crossing.

Future

Although the proposed GO location at the Kitchener VIA can accommodate Opening Day and interim services to the area, ultimately, it is expected that the station will be incorporated into the regional transit hub plans which includes a proposal to establish an LRT facility on King

Street. Due to the uncertainty associated with locations/plans regarding the transit hub at this time, investigations would be required to determine further improvements required to the site to accommodate future ridership i.e., stairs/tunnels, parking, etc. if the transit hub were not constructed.

Further details are provided on Figure ST-10**.**

8.3 Layover Location and Preliminary Site Layouts

8.3.1 Baden – Nafziger Road

The proposed Baden – Nafziger Road layover facility is a greenfield site, located approximately ten miles west of Kitchener at Mile 72.8 of the Guelph S/D. The site is located within an agricultural/industrially zoned area and is adjacent to an existing chemical producer (Alpine Chemical). Alpine currently makes use of the adjacent railway with rail operations managed by GEXR.

Opening Day

The proposed Opening Day scenario would require a base facility to accommodate the overnight storage of four GO trains along with a crew centre and related infrastructure. Below is a brief description of recommended improvements:

- Construction of four storage tracks along the south side of mainline;
- Construction of lead track to connect storage tracks with existing mainline;
- Construction of crew centre;
- Construction of fueling facility;
- Construction of sub-station/wayside power for train plug-in;
- Yard service road;
- Site servicing i.e., sanitary and potable water; and,
- Acoustical or landscape fence and landscaped berm.

Although the topography does vary throughout the site, sufficient grading can be completed to allow for constructing the proposed site and access road.

Future

The future alternatives for the Baden – Nafziger Road layover would allow for additional storage tracks (8 total) as well as the potential for PM Bays (if required). Below is a brief description of recommended Future improvements:

- Construction of four additional storage tracks for a total of eight storage tracks;
- Construction of a second lead track; and,
- Construction of an equipment track and two potential PM Bay tracks.

As GO ridership continues to increase along the Guelph S/D, so may the need for additional maintenance facilities for GO trains along this corridor. The proposed Baden – Nafizger Road site has allowed sufficient space to accommodate for PM Bays as well as an ancillary building. A future station site for Baden has been identified at this location.

Further details are provided on Figure ST-15.

8.4 Detailed Design Requirements

As the project progresses to the detailed design stage, detailed topographic and geotechnical surveys will be required to supplement the base mapping coverage used for the preliminary design.

8.4.1 Property Acquisition

One of the project objectives set out at the beginning of the preliminary design was to minimize property acquisition related to the expansion of services along the rail corridor. In areas adjacent to residential/industrial and environmentally sensitive areas, the use of a retaining wall as well as moderately steeper slopes are recommended to reduce encroachment on adjacent properties.

8.4.2 Rail Corridor

Although minimal track work is required for opening day service, the future full double tracking between Silver Junction and Baden will result in areas where property acquisition or retaining walls may be required. See Table 8.6 and Table 8.7 for further details regarding locations and length of these requirements.

Table 8.6 Retaining Wall Requirements

Location		Length (m)	Height of Retaining Wall (m)	Area of Retaining Wall (m^2)
Mile From	Mile To			
30.48	30.82	550	5	2,750
33.42	33.54	197	3	591
34.25	34.57	515	33	16,995
40.54	40.68	213	5	1,065
41.26	41.37	179	1	179
47.68	48.50	1,313	4	5,252
54.36	55.30	1,515	15	22,725
55.60	55.77	274	15	4,110
58.39	58.67	454	9	4,086
59.20	59.30	155	2	310
64.65	64.79	224	1	224
67.05	68.01	1,545	5	7,725

Table 8.7 Property Acquisition Requirements

Location		Length (m)	Width of Required Property (m)	Area of Property acquisition (m^2)
Mile From	Mile To			
31.18	31.50	517	5	2,585
32.16	32.36	313	4	1,252
36.75	37.20	725	2	1,450
37.36	37.70	555	2	1,110
39.80	40.04	394	3	1,182
40.49	40.53	67	10	670
42.01	42.22	338	2	676
44.80	45.31	821	2	1,642
50.43	51.64	1,949	2	3,898
52.00	52.26	422	3	1,266
53.00	53.82	1,325	2	2,650
55.77	56.14	595	17	10,115
59.30	59.77	767	5	3,835

Zoning for the potential acquisition required as part of the widening is mostly agricultural. Further investigations will be required as part of the detailed design to allow for the preparation of property plan information.

8.4.3 Stations and Layover Facility

Georgetown
As both opening day and future service scenarios are attainable within the existing GO property, no further acquisition is proposed for this site.

Topographic surveys are required for the site.

Acton – Hide House

The Acton – Hide House station is currently owned by the Town of Halton Hills. The structure is presently vacant but was previously used for railway facilities. The Town of Halton Hills has already identified to GO an interest in the potential operation of the existing station.

Topographic surveys are required for the site.

Guelph – Downtown VIA
The Kitchener – Downtown VIA station is currently owned and operated by VIA Rail. A co-occupancy agreement would be required to allow for GO Transit to provide service from this station.

Topographic surveys are required for the site.

Breslau – Greenhouse Road
The Breslau – Greenhouse Road station site is approximately 6.2 ha in size and is currently owned by Thomasfield Homes Developments. The developer has already identified an interest in possibly having a GO station located adjacent to the proposed development for the area.

Legal, topographic and geotechnical surveys are required for the site.

Kitchener – Downtown VIA
The Kitchener – Downtown VIA station is currently owned and operated by VIA Rail. A co-occupancy agreement would be required to allow for GO Transit to provide service from this station.

Topographic surveys are required for the site.

Baden – Nafziger Road
The Baden – Nafziger Road layover site is approximately 26.3 ha in size and is currently used for agricultural use and is actively used as crop land.

Legal, topographic and geotechnical surveys are required for the site.

As the project progresses to the detailed design stage, further property assessment to determine fair market value will be required. Once a detailed assessment is completed, the process may proceed to the negotiations/offer stage.

8.5 Construction Phase

The proposed project involves upgrading some sections of existing tracks and construction of new mainline track in identified corridors as well as associated stations and the layover facility. The construction phase of the project involves the following works and activities:

- site preparation including removal of vegetation (where required);
- construction of retaining walls where required;
- grading;
- dewatering of excavations, as required. Dewatering requirements to be determined as part of the geotechnical investigation to be completed as part of the detailed design process,
- upgrading existing service track by changing out ballast, ties and rail;
- constructing new mainline tracks;
- related signal work;
- fencing;
- bridge widenings or twinning;
- new platforms and platform extensions — Georgetown, Acton, Guelph, Breslau and Kitchener;
- new pedestrian tunnel and elevators;

- mini platforms for barrier free accessibility at Georgetown, Acton, Guelph, Breslau and Kitchener;
- layover construction;
- utility protection/relocation (ancillary work);
- construction of drainage works;
- landscaping; and,
- Protection/relocation of existing Bell fibre optics, CN fibre optics and CN signal cables.

The construction activities associated with the proposed improvements encompass long stretches of longitudinal work (track construction, retaining walls, etc.) as well as site-specific activities i.e., station improvements, culvert/bridge widening, etc. Construction traffic will access the corridor via the existing road network. It is not anticipated that private properties will be used as access; however, if the need arises, property owners would be contacted and negotiations would be undertaken if property owners are in agreement.

Most of this track construction work will be completed by a qualified track contractor with track equipment and with little need for access from adjoining property. The civil construction will be completed prior to start up service. The construction of retaining walls will precede excavation or backfill activities, as the location requires. It is anticipated that the actual construction of the retaining wall and excavation or backfill activities will only be behind any one property for a short period of time (a few weeks) and may be broken up over the construction season. However, residents may experience the passage of trucks or trains removing and supplying materials to the construction area for longer durations. Track work and the installation of signals may commence following the completion of retaining structure construction. As schedule is largely dependent upon available funding for the project, the exact timing of these construction activities are subject to change throughout the detailed design stage of the project. The construction work will comply with applicable municipal by-laws.

8.5.1 Track Bed Construction

The guiding principles in designing the earth work are to avoid the use of privately held property wherever possible and to utilize construction techniques that are as unobtrusive to adjacent private residences as practical.

Subject to detailed engineering, it is planned to use earth from cut sections to construct fill sections, thus keeping all earth material on CN property. Any excess soils will be recycled to other construction sites. In the case that contaminated soils are found, MOE will be consulted to determine the appropriate disposal of the material.

The surface of the track bed will be covered with a clean 300 mm layer of compacted sandy gravel. Normal small to medium sized excavating, compacting and hauling equipment is expected to be used on this project. All construction materials and equipment will be transported to the site on the rail line or by truck. Access to the site by truck will be primarily from existing CN/GEXR access roads, CN or GO Transit owned property, municipal or regional roads.

8.5.2 Retaining Wall Construction

To avoid acquiring property from the adjacent residential and industrial areas, it is proposed that the fill and cut sections be supported by a retaining wall constructed on CN property. Potential wall systems will be selected during detail design and may include concrete walls, reinforced concrete retaining walls, gabion walls, augured soldier piles and lagging. The remaining slopes will be vegetated.

Normal small to medium sized excavating compacting, and hauling equipment is expected to be used. Access to the site by trucks will be primarily from existing CN access roads, municipal streets, regional roads, CN or GO Transit owned property.

The extent and location of the proposed retaining walls as determined in this preliminary design are shown on Figure T-1 to Figure T-39. However, further refinement in the detail design stage of the project, including geotechnical investigations, may decrease the extent of the retaining walls.

8.5.3 Bridge Widening

Bridge widening will be required as part of the future service scenarios and will need to be coordinated with effected municipalities/authorities. Works will attempt to minimize road work at these sites. However, traffic on these roads may be disrupted during construction.

In general, the work will consist of demolition, forming and placing reinforced concrete, steel erection and site restoration. Any wastes generated will be recycled where possible or disposed of in appropriate facilities. Access for construction materials and equipment will be from city or regional streets. Timing of this work will be established in conjunction with the municipal and regional authorities.

8.5.4 Station / Layover Work

Station work will be required at Georgetown, Acton, Guelph, Breslau and Kitchener to accommodate Opening Day Service.

Enhancements to ensure a barrier free environment will also be included in this work. Municipal streets will provide access for construction materials and equipment. The work will consist of demolition, concrete work, fencing, elevator and shelter installation, and paving. Any wastes generated will be recycled where possible or disposed of in appropriate facilities. Normal small to medium sized construction equipment is expected to be used.

The Layover site will include the construction of storage/lead tracks, along with site servicing, fuelling, crew centre, electrical substation, internal service roads, and a landscaped berm and fence on the north side of the site.

The extent of the works required at the stations is shown on Figures ST-1 to ST-15.

8.6 Stormwater Management

8.6.1 Railway

The existing rail corridor drains to adjacent lands or across the corridor in one of the crossing culverts. The corridor is vegetated in areas outside the rail line, with some trees and dense bushes. Construction of an additional mainline track will not increase peak flow within the existing drainage areas. The main drainage impact of the new mainline track is the filling and relocation of existing ditches. As a result, provision is made for relocating and reconstructing ditches on the side of the rail line in areas where a new rail line is constructed. In instances where property is adequate and there are no physical obstacles, it will be recommended simply to re-grade the ditches as required. If property is limited and track bed widening infringes on adjacent properties, property acquisition is proposed for rural areas and retaining walls (i.e., gabion retaining wall, etc.) are proposed for urban areas.

The construction of the second mainline will require, in some instances, existing culverts to be extended or bridges to be extended/augmented to accommodate an additional track. The locations of existing watercourse crossings have been considered along with the preferred alternatives and every instance identified where culverts or bridges need to be modified or extended to accommodate the preferred alternative. These locations are identified in the Table 8.8 below. Culverts will be extended as required, based on site conditions, including depth of fill, and property constraints. Limit of extensions will be determined as part of the detailed design.

Table 8.8 Proposed Culvert Extensions

Location (Mile)	Type	Size	Length (m)	Replacement Method
30.57	Concrete	8' X 10'	5	extend
30.6	Concrete	12' X 8'	5	extend
30.96	Stone Box		15	
31.1	Filled in		15	
31.43	Stone Box	2' X 2'	15	jack and bore
31.59	Stone Box	15' X 20'	15	sleeve largest pipe possible in existing culvert
32.5	Steel	3' Dia	15	jack and bore
32.75	Stone Box	2' X 2'	15	jack and bore
32.8	Stone Box	2' X 2'	15	jack and bore
33.07	Stone Arch	15' X 20'	15	sleeve largest pipe possible in existing culvert
33.55	Steel	3' Dia	15	jack and bore
34.29	Stone Box	4' X 4'	15	sleeve largest pipe possible in existing culvert
34.4	Stone Arch	8' X 10'	15	sleeve largest pipe possible in existing culvert
34.7	Stone Box	2' X 2'	15	jack and bore
34.96			15	
35.88	Stone Arch	6' X 10'	15	sleeve largest pipe possible in existing culvert
36.13	Stone Box	4' x 6'	15	sleeve largest pipe possible in existing culvert
36.39	Stone Box	2' x 4'	30	jack and bore / tunnel equivalent smaller pipes
36.7	Stone Box	3' x 3'	15	jack and bore / tunnel equivalent smaller pipes
37.36	Stone Arch	6' x 12'	15	sleeve largest pipe possible in existing culvert
38.09	Stone Arch	8' x 12'	15	sleeve largest pipe possible in existing culvert
38.29	Stone Box	3' x 3'	15	jack and bore / tunnel equivalent smaller pipes
38.4	Stone Box	2' x 2'	15	jack and bore
38.75	Stone Box	3' x 3'	15	jack and bore / tunnel equivalent smaller pipes
38.84	Steel	2' Dia	15	jack and bore
39.15	Steel	3' Dia	15	jack and bore
39.23	Steel	3' Dia	15	jack and bore
39.41	Stone Box	3' x 2'	30	jack and bore
39.59	Stone Arch	6' x 10'	15	sleeve largest pipe possible in existing culvert
40.63	Stone Box	4' x 4'	15	sleeve largest pipe possible in existing culvert
40.73	Stone Arch	15' x 20'	15	sleeve largest pipe possible in existing culvert
41.15	Stone Box	3' x 6'	30	jack and bore / tunnel equivalent smaller pipes
41.99	Stone Box	3' x 3'	15	jack and bore / tunnel equivalent smaller pipes
42.1	Stone Arch	8' x 10'	15	sleeve largest pipe possible in existing culvert
42.41	Stone Box	4' x 4'	15	sleeve largest pipe possible in existing culvert
42.88	Concrete	4' Dia	5	extend
43.35	Stone Box	3' x 3'	15	jack and bore / tunnel equivalent smaller pipes
43.63	Steel	3' Dia	15	jack and bore
44.26	Steel	3' Dia	15	jack and bore
44.27	Steel	3' Dia	15	jack and bore

Location (Mile)	Type	Size	Length (m)	Replacement Method
44.54	Stone Box	6' x 9'	15	sleeve largest pipe possible in existing culvert
45.01	Stone Box	2' x 2'	15	jack and bore
45.31	Cast Iron	2' Dia	15	jack and bore
46.58	Double Stone Box	3' x 3'	30	jack and bore / tunnel equivalent smaller pipes
46.92	Steel	3' Dia	15	jack and bore
47.29	Stone Box	3' x 6'	30	jack and bore / tunnel equivalent smaller pipes
48.68	Concrete		15	No Changes
49.29			15	
50	Concrete	8' Dia	5	extend
50.51	Stone Arch	3' x 3'	15	jack and bore / tunnel equivalent smaller pipes
50.69	Stone Box	2' x 4'	30	jack and bore / tunnel equivalent smaller pipes
51.15	Steel	3' Dia	15	jack and bore
51.91	Stone Box	2' x 4'	30	jack and bore / tunnel equivalent smaller pipes
52.15	Concrete	2' x 2'	15	jack and bore
52.64	Stone Box	4' x 4'	15	sleeve largest pipe possible in existing culvert
53.34	Stone Box	4' x 6'	15	sleeve largest pipe possible in existing culvert
54.07	Stone Box	3' x 6'	30	jack and bore / tunnel equivalent smaller pipes
54.61	Stone Arch	8' x 10'	15	sleeve largest pipe possible in existing culvert
55.23	Stone Box	6' x 4'	15	sleeve largest pipe possible in existing culvert
56.05	Stone Box	3' x 5'	30	jack and bore / tunnel equivalent smaller pipes
56.71	Stone Box	4' x 3'	15	jack and bore / tunnel equivalent smaller pipes
57.16	Stone Box	3' x 3'	15	jack and bore / tunnel equivalent smaller pipes
57.41	Stone Box	2' x 2'	15	jack and bore
57.65	Stone Box	2' x 4'	30	jack and bore / tunnel equivalent smaller pipes
58.35	Steel	8" Dia	15	jack and bore
63.49	Steel	3' Dia	15	jack and bore
64.01	Steel	3' Dia	15	jack and bore
65.41	Steel	3' Dia	15	jack and bore
65.65	Steel	3' dia	15	jack and bore
65.66	Steel	12'	5	extend
66.04	Steel	3' Dia	15	jack and bore
66.58	Steel	3' Dia	15	jack and bore
66.97	Steel	3' Dia	15	jack and bore
67.3	Steel	7' Dia	5	extend
67.46	Stone Box	4' x 4'	15	sleeve largest pipe possible in existing culvert
68.01	Steel	3' Dia	15	jack and bore
68.52	Cement	1' Dia	15	jack and bore
68.65	Steel	3' Dia	15	jack and bore
69.01			15	
69.43	Stone Box	6' x 6'	15	sleeve largest pipe possible in existing culvert
70.54	Steel	4' Dia	5	extend
70.8	Steel	3' Dia	15	jack and bore
71.03	Steel	3' Dia	15	jack and bore
71.32	Concrete	10' Dia	5	extend
71.51	Steel	16" Dia	15	jack and bore
71.55	Steel	3' Dia	15	jack and bore
71.71	Steel	3' Dia	15	jack and bore
71.86	Steel	3' Dia	15	jack and bore
72.01	Steel	3' Dia	15	jack and bore
72.35	Steel	6' Dia	5	extend

As part of the detailed design stage for the project, further investigation will required to ensure that any proposed lining/replacement of culverts are sufficiently sized to convey desired storm events.

Table 8.9 Proposed Bridge Widening

Location (Mile)	Structure	Crossing	Proposed
22.50	Bridge	Credit River	
22.89	Overpass	Maple Ave	no proposed works
23.10	Overpass	Mountainview Rd.	no proposed works
24.09	Overpass	Main St./Highway 7	no proposed works
31.75	Bridge	6th Line	widen abutments and 8m span
32.59	Overpass	5th Line Rd.	widen 10 m span
38.16	Bridge	Town Line Rd.	
40.25	Overpass	6th Line Rd.	no proposed works
41.05	Bridge	Eramosa River	widen abutments, piers and 100m span

Location (Mile)	Structure	Crossing	Proposed
44.79	Overpass	Jones Baseline	no proposed works
45.50	Bridge	Private Road, Stream	widen abutments and 9m span
46.45	Bridge	Watson Pkwy	widen piers and 40m span
46.91	Bridge	Cityview Dr.	
47.57	Bridge	Victoria St.	widen abutments, piers and 40m span
47.90	Bridge	Stevenson St.	
48.50	Bridge	Speed River, Wellington St., Arthur St., CP Goderich Sub.	widen 150m span
48.79	Bridge	Wyndham St.	
48.94	Bridge	Wilson St.	
48.98	Bridge	Norfolk St.	
50.37	Bridge	Hanlon Expy.	
50.45	Bridge	Paisley Rd.	
51.30	Bridge	Imperial Rd.	widen piers and 46m span
51.80	Bridge	Elmira Rd.	widen piers and 46m span
56.14	Bridge	Shantz Station Rd.	widen 9m span
58.02	Overpass	Breslau Fountain Street	no proposed works
58.70	Bridge	Grand River	widen abutments, piers and 126m span
59.03	Bridge	Victoria St.	widen piers and 70m span
61.11	Overpass	River Bridge Pedestrian Bridge	no proposed works
61.44	Bridge	Conestoga Pkwy.	
62.44	Overpass	Margaret Ave.	no proposed works
63.80	Bridge	Former Grand River Railway	widen abutments and replace 6m span
63.85	Bridge	Belmont Ave.	widen abutments and 20.5m span
64.29	Bridge	Westmount Rd. W	widen abutments and 27.5m span
65.13	Overpass	Fischer-Halman Rd.	no proposed works
66.17	Overpass	Ira Needles Blvd.	no proposed works

8.6.2 Georgetown

The proposed station works at the Georgetown station consists of replacing the existing layover facility with additional platforms and parking areas. Site imperviousness will not be affected and existing drainage patterns will be maintained.

8.6.3 Acton – Hide House

The existing Hide House site is divided into four drainage areas. Area 1 is the northern limit of the parking area and rail corridor that drains overland to the east. Area 2 is the majority of the existing parking lot; it is self-contained and is drained via an existing on-site collection system connected to existing municipal storm sewers on Eastern Avenue. Area 3 is the Hide House building which may have a service connection to a storm sewer, however the pitch roof areas visible on all sides are not served by a gutter and downspout system and sheet flow to adjacent areas. Area 4 is north and east of the station and drains east along the rail corridor to a valley system. As much of areas 1, 2 and 3 should be graded to drain to the parking area as possible and controls provided to mitigate any increased peak flow from the development. Due to the generally impervious nature of the existing site, there will be only a minor increase in site runoff due to the proposed platforms.

8.6.4 Guelph – Downtown VIA

As a reconstruction of an existing station, the proposed GO Guelph station is not expected to increase the impervious area. The rail embankment is the local high point with runoff from the site being collected in existing City storm sewers on Carden Street to the north and Farquhar and Neeve Streets to the south. Area 1 generally denotes the limit of the future Guelph transit hub and consists of portions of Carden Street to be closed, the existing Greyhound Bus Terminal and portions of VIA lands that must be purchased as part of the transit hub site development in 2010. Area 2 includes the remaining VIA lands and the future north platform and is expected to continue to drain to the existing municipal infrastructure to the north. Area 3 is the future south platform and is expected to continue to drain to the existing municipal infrastructure to the south. Area 4 is the existing Neeve Street parking lot and future City of Guelph multi-storey parking facility and will continue to drain to Farquhar and Neeve Streets to the south.

8.6.5 Breslau – Greenhouse Road

The site is a greenfield development and is generally split by a ridge running east-west. The western portion noted as Area 1 drains to a box culvert beneath the rails in the centre of the site and Area 2 drains to the wetland to the north. The existing drainage boundaries are generally the result of drainage works previously completed as part of the former Seagram buildings which have since been removed from the site. The landowner, Thomasfield Homes, has indicated that their preference would be to retain an existing tree stand in the north corner of Area 1, leading to an off-site catchment contributing to Area 1. The site grades will need to be raised to direct runoff from Area 2 to the stormwater management pond in Area 1. Thomasfield Homes has also indicated that the proposed stormwater management facility should be

constructed such that it can be integrated with a larger facility in the same location as part of the future development to the north.

8.6.6 Kitchener – Downtown VIA

As a reconstruction of an existing station, the proposed GO VIA station in not expected to increase the impervious area. The site drainage will continue to flow overland to existing municipal sewers on Ahrens Street and Weber Street. Drainage constraints and facilities for the future GO station to be integrated and identified in conjunction with development of the future transit hub station location.

8.6.7 Baden – Nafziger Road

The site is a greenfield development consisting of a layover facility and potential future station spanning three drainage areas. Area 1 is the western limit of the site and drains west to a roadside ditch flowing south along Nafziger Road. Area 2 occupies the centre portion of the site and drains north to an existing culvert under the rail corridor. The majority of the layover facilities are within Areas 1 and 2. Area 3 is the eastern portion of the site and drains south and east to an existing watercourse that generally flows south. The future station is entirely within Area 3 and the stormwater management needs of the station can be addressed by a pond facility discharging to the existing outlet. Areas 2 and 3 are constrained by the rail corridor to the north, the natural ridgeline at Area 3 to the east, a woodlot to the south and Nafziger Road to the west. A preliminary review suggests that relatively large stormwater detention structures will be required for the layover facility. This will be addressed during detailed design.

8.7 Operations/Maintenance Phase

The upgraded rail corridor initially provides for the proposed GO Transit am/pm peak service and the proposed additional VIA trains. GEXR's current freight operations is expected to remain unchanged for the foreseeable future. In the longer term, increased levels of GO commuter services are proposed to occur as ridership increases. Ultimately, the double track corridor from Georgetown to Kitchener will be required to support a bi-directional "full service" scenario.

Once constructed, the new line will be owned by CN and operated by GEXR (subject to lease agreement renewal in 2011). In addtion to the CTC system which controls the movement of trains, it is proposed to install a new radio based communication system along the subject rail corridor. This communication system will improve communication between all train crews (VIA, GO, GEXR and CN) and the central dispatch control centre. GO Transit will be responsible for about 30 percent of the traffic within the CN Guelph corridor.

The expansion will accommodate four trains for the morning peak period, returning in the evening peak. The total train movements to/from Georgetown and the Kitchener area will increase from zero to eight trains per day for Opening Day and possibly eight to 16 for future servicing, dependent upon ridership demands and potential off peak service between Guelph and Kitchener.

The infrastructure provided under both Opening Day and Future scenarios for this project provides residual capacity to accommodate increased freight and passenger demands.

8.8 Cost Estimate

The cost estimate to implement rail improvements, stations and the train layover facility in order to accommodate the Day 1 GO rail extension of service between Georgetown to Kitchener is $124.9 million (plus $28.5 million VIA Rail contribution). For full service upgrades, the cost is an additional $396.1 million. The future cost of $40.8 million for the train layover includes the additional of Progressive Maintenance (PM) bays. The following table summarizes the Day 1 and full service costs for the rail improvements, stations and layover facility.

	Opening Day		**Future****
	GO Transit	VIA Rail	
Rail Improvements	$61,700,000	$28,500,000	$318,100,000
Stations	$43,300,000		$36,700,000
Train Layover	$19,900,000		$40,800,000
Total	$124,900,000	$28,500,000	$396,100,000

{Note: the costs shown in the above and in Appendix E are preliminary reflecting the level of detail completed as part of the ESR. **Cost sharing between GO, CN, GEXR, VIA and local municipalities for Future scenario, yet to be determined.}

A copy of the itemized cost estimate for rail corridor improvements, stations and layover facilities is provided in Appendix E.

VIA Rail retained UMA to do an assessment of the rail infrastructure improvements needed on the Guelph S/D from Silver Junction to London, a distance of about 90 miles. A working draft of this assessment has been completed including the associated costs for many or the recommended improvements. VIA Rail currently operates six trains per day (three in each direction) and it is proposing to operate an additional six trains per day of a total of 12 trains per day. Because GO Transit is proposing to expand its service from Georgetown to Kitchener, there is an opportunity for GO to share in the cost of certain improvements that will be beneficial to both GO and VIA Rail. For example, installation of CTC, upgrading of the track structure and public road crossings is considered critical work required to improve the level of safety and efficiency for train movements as well as a reduction in transit times on this corridor. Consequently, it is recommended that once the EA for the GO Transit Kitchener to Georgetown Rail Expansion Project, and the appropriate funds made available, GO Transit and VIA Rail negotiate a cost sharing arrangement for the proposed improvements.

9.0 Environmental Effects and Mitigation Measures

The proposed project includes rail improvements (predominantly within the existing ROW), station improvements at Georgetown, and new stations at Acton Hide House, Guelph Downtown, Kitchener Downtown and Kitchener Greenhouse Road and a layover facility at Nafziger Road. In general, the proposed project is generally located on previously disturbed lands with the exception of the Nafziger Road site which is located on land currently used for agriculture.

Major construction activities include the additional and upgraded track, station works and a layover facility. Track construction generally includes site preparation grading, drainage and culvert bridge construction/replacement. Station works include grading, drainage, stormwater management, building construction/refurbishment, site servicing and site access roads. Works associated with the layover facility generally includes grading, drainage, stormwater management, construction of substation and crew centre, installation of fueling tank, site servicing and site access roads. Effects associated with construction activities are discussed below.

No effects are anticipated with regard to the operation of the mainline. Effects associated with operation/maintenance of the station(s) and layover facility are discussed in the following sections.

9.1 Vegetation, Wildlife/Habitat

Effect

a) Loss of vegetation/habitat loss. Segments of study corridor run through the Niagara Escarpment Plan Area (Natural and Protection Areas designation). However, the project is primarily proposed in previously disturbed areas where limited vegetation/habitat exists. Early-successional communities are expected to re-establish following construction. No impact to Species At Risk, or their associated habitats, are anticipated. Wildlife present in the area includes species that are tolerant of urban environments and anthropogenic conditions and disturbances. No effects to the woodland located adjacent to the layover facility are anticipated. No effects to designated species are anticipated. Potential encroachment into the Breslau PSW due to widening of the access road associated with the Greenhouse Road GO station.

Mitigation

a) Minimize disturbance to existing vegetation. The movement of equipment and machinery should be kept to the construction side of the ROW and environmentally sound practices will be followed. Disturbed areas should be stabilized and revegetated upon project completion and restored to a pre-disturbed state where practical. Topsoil should be stockpiled separately and used for restoration to facilitate natural regeneration of native species. Proposed twinning of mainline track will be done in accordance with Section 2.15 of the Niagara Escarpment Plan.

In order to remain compliance with the *Migratory Birds Convention Act*, vegetation removal may not take place between April 15 and July 31. Vegetation removal could take place within these times if a recent nesting survey is completed by a qualified terrestrial biologist and no active nests are observed in the work area.

Additional mitigation with regard to surface water/hydrology and soils and sedimentation is provided in Section 9.2.

If required, specific mitigation measures with regard to the Breslau PSW will be developed in consultation with MNR during detailed design. Mitigation will aim to maintain to ecological and hydrological functions of this feature.

Should the proponent encounter a species at risk at any time during the project, they should contact Environment Canada – Ontario Region, for advice on how to proceed.

9.2 Surface Water/Hydrology and Soils and Sedimentation

Effect

a) Potential for sediments to enter watercourse as a result of the following project activities:

- site clearing;
- stockpiling;
- cut/fill activities;
- excavation (including potential to encounter contaminated materials);
- construction (including soil compaction);
- storm water management; and,
- operation of the project.

b) Potential for localized water quality impacts as a result of spills.

c) Potential impacts to hydrology of watercourse and conveyance capacity.

Mitigation

a) GO Transit is required to comply with the *Ontario Water Resources Act* with respect to the quality of water discharging into natural receivers.

The footprint of disturbed area will be minimized as much as possible, for example, vegetated buffers will be left in place adjacent to watercourses/waterbodies to the maximum extent possible.

An erosion and sediment control plan will be developed. Implementation of the erosion and sediment control measures will conform to recognized standard specifications such as Ontario Provincial Standards Specification.

Stockpiled material will be stored at a safe distance from the waterway to ensure that no deleterious substances enter the water.

Sediment and erosion control measures (silt curtains, silt fence, temporary sedimentation basins) will be installed and will be maintained during the work phase and until the site has been stabilized. Control measures should be inspected daily to ensure they are functioning and are maintained as required. If control measures are not functioning properly, no further work will occur until the problem is resolved.

Any temporary mitigation measures will be installed prior to the commencement of any site clearing, grubbing, excavation, filling or grading works and will be inspected and maintained on a regular basis, prior to and after runoff events.

Wet weather restrictions will be applied during site preparation and excavation.

b) All equipment fuelling and maintenance will be done at a safe distance from the water to ensure that no deleterious substances enter the waterway.

The contractor will be required to develop spill prevention and contingency plans for construction and operational phases of the project. Personnel will be trained in how to apply the plans and the plans will be reviewed to strengthen their effectiveness and ensure continuous improvement. Spills will be immediately contained and cleaned up in accordance with provincial regulatory requirements and the contingency plan. A hydrocarbon spill response kit will be on site at all times during the work. Spills will be reported to the Ontario Spills Action Center at 1-800-268-6060.

c) Impacts to hydrology will be reviewed on a case-by-case basis during the detailed design phase of the project. Improvements can be made where possible and necessary, noting the operational constraints involving closure of the line to fully replace large stone culverts.

9.3 Groundwater

Effect
a) Potential for localized groundwater quality impacts as a result of spills.

b) Potential for temporary and/or permanent dewatering.

Mitigation
a) Refuelling of equipment and fuel storage should be conducted in designated areas with spill protection.

b) Appropriate mitigation measures relating to dewatering will be determined at the detailed design phase of the project based on geotechnical investigations.

9.4 Fish and Fish Habitat

Effect
a) Potential water quality impairments (sediment loading; fuels and lubricants from machinery). No in-water works are anticipated. No impact to Species At Risk anticipated.

Mitigation
a) Compliance with the *Ontario Water Resources Act* will be maintained with respect to the quality of water discharging into natural receivers. Sediment and erosion control measures (such as silt fence barriers, turbidity curtains etc) will be installed and maintained during the work phase and until the site has been stabilized. Control measures will be inspected daily to ensure they are functioning and are maintained as required. If control measures are not functioning properly, no further work will occur until the problem is resolved. All temporary erosion and sediment control measures will be installed in accordance with recognized provincial standards. Extra silt fence/turbidity curtain will be on site, should additional sediment control be required.

Minimize any in-water operation of heavy equipment and minimize operation of the same on the banks of the watercourse. All equipment fueling and maintenance will be done a safe distance from the edge of the water to ensure that no deleterious substances enter the water.

Any stockpiled material will be stored and stabilized away from the watercourse. All materials and equipment used for the purpose of site preparation and project completion should be operated and stored in a manner that prevents any deleterious substance (e.g. petroleum products, silt, etc.) from entering the water.

CA/DFO will need to be consulted during detailed design with regard to potential HADD determination and *Fisheries Act* requirements. In-water construction restraints may apply.

All disturbed areas of the work site should be stabilized immediately and re-vegetated as soon as conditions allow.

9.5 Socio-Economic

The train layover facility would add to the Township of Wilmot tax roll; the facility would generate new employment in terms of operating/maintenance staff (For opening day GO would need 11 new staff, and the PM bays when constructed will add another 10 employees); and long term it would facilitate the establishment of a GO Station in Baden. The intention is to provide sufficient land within the Nafziger Road Layover site to accommodate a future park and ride terminal station.

In general, GO's experience has been that house values increase in areas where GO service is introduced.

9.6 Land Use

Effect
The project is compatible with the existing land uses and in keeping provincial and municipal land use policies which generally encourage increased ridership over auto dependency and the enhancement of public transit services. The proposed improvements to existing infrastructure

will enhance GO train commuter service, thus addressing latent demand and providing for increased demand in the future.

Some small parcels of land will be required for track improvements and layover site.

Mitigation
During the detailed design phase of the project, properties will be assessed to determine fair market value.

9.7 Archaeology /Heritage

Effect
a) There is a potential to expose items of archaeological interest; however, the project is primarily proposed in previously disturbed areas. Archaeological Service Inc. conducted a Stage 1 Archaeological Assessment for the proposed alternative station sites and alternative layover sites (see Appendix C5). The results of the Stage 1 Archaeological Assessment show that there is no potential for archaeological resources at the Georgetown GO Station and the Kitchener- Downtown GO station site. The GO station sites in Acton - Hide House, Guelph - Downtown and Breslau – Greenhouse Road, and the Nafziger Road layover site have the potential for archaeological resources due to the presence of undisturbed land on a portion of the site property.

b) Potential impact to cultural and built heritage features. ASI conducted a Cultural and Built Heritage Assessment for the proposed alternative station sites and alternative layover sites (see Appendix C5). The results of the assessment show that there are some Late 19th Century / Early 20th Century cultural heritage features and historic roadscapes located in, at or in the vicinity of the preferred station sites. The train station buildings at the Georgetown GO Station, and the downtown sites in Guelph and Kitchener are designated under the *Railway Station Protection Act*.

Mitigation
a) Conduct a Stage 2 archaeological assessment during the detailed design phase of the project in accordance with Ministry of Culture standards for all areas of the GO Station sites and layover site exhibiting potential for archaeological resources as illustrated the ASI report.

b) Any proposed transit improvements undertaken between the Georgetown GO Station and Nafziger Road Layover site should be suitably planned in a manner that avoids any identified, above ground, cultural heritage resources. Where any identified, above ground, cultural heritage resources are to be affected by loss or displacement, further research should be undertaken to identify the specific heritage significance of the affected cultural heritage resource and appropriate mitigation measures should be adopted, such as detailed recording where appropriate. In this regard, provincial guidelines should be consulted for advice and further heritage assessment work should be undertaken as necessary. Appropriate mitigation measures should be devised to address any direct or indirect impacts to the Guelph-Downtown and Kitchener-Downtown sites. Any interior or exterior alterations to these existing VIA Rail train stations should be accompanied by detailed heritage impact assessments. Should any of the identified historic roadscapes and remnant entrance drives need to be altered during the course of the project, landscaping with historic plant materials for berms or vegetative screens should be undertaken. Fence rows and hedge rows should be preserved where existing.

9.8 Noise/Vibration

Effect
a) Potential temporary noise/vibration impacts during construction

b) Potential noise/vibration impact during operation

Aercoustics Engineering Ltd. conducted an independent noise and vibration assessment for the rail corridor, alternative station sites and alternative layover sites (see Appendix C2).

Rail Corridor Noise Impacts

Table 9.1 summarizes the noise impacts of GO train traffic throughout the rail corridor during Day 1 Service and Ultimate Service conditions. There are no significant noise impacts during Day 1 Service. However, under the Ultimate Service condition, the urban areas along the rail corridor between Georgetown and Kitchener could experience noise level increases from existing conditions beyond 5 dBA during the daytime (07:00 – 19:00) and night time hours (23:00 – 07:00).

Table 9.1 Summary of Rail Traffic Noise Impact

Rail Corridor Section	Description	Future Sound Level (dBA)[1]				Increase in L_{eq} (dBA)[1]			
		Day 1 Service		Ultimate Service		Day 1 Service		Ultimate Service	
		Day	Night	Day	Night	Day	Night	Day	Night
Mount Pleasant to Georgetown	In-town	72	56	72	57	0	2	0	3
	Country	74	58	75	60	0	1	1	3
Georgetown to Guelph	In-town	59	59	**64**	**61**	2	4	**7**	**6**
	Country	61	61	**65**	63	2	2	**6**	4
Guelph to Kitchener	In-Town	60	61	**64**	**63**	2	3	**6**	**5**
	Country	62	63	**66**	65	2	1	**6**	3
Kitchener to Baden	Country	62	64	64	64	2	2	4	2

Notes: 1-Numbers in bold identify at which locations throughout the corridor exists a potential to mitigate

Preferred GO Station Noise Impacts

Table 9.2 summarizes the noise impacts at the preferred GO Station sites. There are no significant noise impacts at the preferred station sites except for the Acton Hide House station where the future sound level during the commencement of Ultimate Service could be 6 dBA above the existing sound level.

Table 9.2 Summary of Station Noise Impact

Station Location	Distance to Closest Receptor (m)	Future Sound Level (dBA0				Adjusted Noise Impact			
		Day 1 Service		Ultimate Service		Day 1 Service		Ultimate Service	
		Day	Night	Day	Night	Day	Night	Day	Night
Georgetown	55	63	60	63	61	2	0	2	1
Acton Hide House	17	63	64	67	64	2	2	6	2
Guelph Downtown	45	55	54	58	55	0	1	3	2
Breslau-Greenhouse Road	510	35	37	38	37	0	0	0	0
Kitchener Downtown	40	57	59	60	59	1	1	4	1
Kitchener-King Street	80	51	53	54	53	0	1	0	1

Notes: 1. Where the pre-project noise is less than 55 dB L_{eq} as determined by a combination of measurements and predictions, the pre-project noise shall be taken as 55 dB L_{eq} according to the MOE/GO Transit Draft Protocol for Noise and Vibration Assessment

Preferred Layover Facility Noise Impacts

The future sound level increase at the closest receptor located approximately 300 m to the north of the Nafziger Road Layover site is 7 dBA without noise mitigation.

Vibration Impacts

Aercoustics found that the vibration impact throughout the rail corridor is classified as insignificant.

Mitigation

a) Noise control measures will be implemented where required, such as restricted hours of operation and the use of appropriate machinery and mufflers. Any relevant municipal by-laws will be followed.

b) Any receptors along the study corridor within 60 m of the mainline track should include noise mitigation where administratively, technically and economically feasible upon commencement of Ultimate GO Service.

Noise mitigation measures should be evaluated for the Acton Hide House Station site based on administrative, operational, economic and technical feasibility in order to achieve the sound level as close to, or lower than, the rail service objective of 5 dBA.

GO Transit is proposing to construct an acoustical or landscape fence and landscaped berm adjacent to the Nafziger Road Layover yard which would reduce the future sound level impacts at the closest receptor to the north of the site to 48 dBA (sound level increase of 3 dBA) which is below the 55 dBA limit per the MOE/GO Protocol. With noise mitigation, the receptor that would be most impacted would be a house located approximately 500 m south of the site. The future sound level impact at this location is 49 dBA which also below the 55 dBA limit.

9.9 Air Quality

Effect

a) Potential air quality impacts during construction

Effects to air quality resulting from construction activities along the corridor, at station(s) and the layover facility are extremely localized, short term in duration and controlled by good construction practices, local legislation and manufacturing design. Emissions which are associated with construction activities are dust and typical emissions from construction equipment.

b) Potential air quality impacts during operation

Ortech Environmental conducted an independent air quality assessment for the rail corridor, alternative station sites and alternative layover sites (see Appendix C1). The air quality impacts of were assessed using the estimated emissions of the locomotives and the passenger vehicles and conservative air dispersion modeling. Maximum concentrations of the three contaminants; NO_2, CO and particulate were determined at distances from 2 metres to 110 metres from the centre of the train virtual sources. This range of distances accounts for receptors at the station platforms, the parking lots and off-site at surrounding residential communities and along the rail line.

The maximum calculated concentrations from the air dispersion modeling are summarized in Table 9.3 for the three contaminants at the receptors of interest.

Table 9.3 Air Dispersion Modelling Results

	Maximum 30-minute Concentrations (µg/m3)		
Location/Activity	Nitrogen Dioxide	Carbon Monoxide	Particulate
Stations-Enter, Stop and Exit			
- On Platform	22	69	<0.1
- Parking Lot	23	98	<0.1
- 40 m off-site	14	36	<0.1
- 110 m off-site	11	24	<0.1
Layovers			
- Property Line	27	17	3
- 40 m off-site	22	14	3
- 110 m off-site	15	7	2
Along Rail Line			
- Fence Line	16	2	0.5

	Maximum 30-minute Concentrations (µg/m3)		
Location/Activity	**Nitrogen Dioxide**	**Carbon Monoxide**	**Particulate**
- 40 m off-site	15	1	0.4
- 110 m off-site	11	1	0.3
MOE Air Quality Standards	500	6,000	100

These calculated maximum contaminant concentrations at the receptors of interest are well below the MOE air quality standards for nitrogen dioxide, carbon monoxide and particulate.

The cumulative impacts of these very low levels on the existing good air quality would be insignificant.

Mitigation
a) Vehicles/machinery and equipment should be in good repair, equipped with emission controls, as applicable, and operated within regulatory requirements. The Contractor will also be required to implement dust suppression measures to reduce the potential for airborne particulate matter resulting from construction activities. This should be in the form of water applications on exposed soils.

b) No air quality mitigation required for operations.

9.10 Human Health and Safety

Effect
a) Potential safety hazard from construction activities, heavy equipment and increased construction traffic.

b) Potential safety hazard from train traffic on mainline track and operation of layover facilities.

c) Potential for impact to human health from air emissions.

Mitigation
a) The contactor will be required to implement a Health and Safety Plan (OHSA 1990).

9.11 Transportation Infrastructure

Effect
a) Modifications at-grade crossings

b) Temporary effects associated with construction traffic

Mitigation
a) Project will improve safety at-grade crossings. Construction operations will include roadwork and fencing. Work will be done in such a manner as to minimize disruption to the adjacent residential neighbourhood. Work will be done during the daytime and noise and dust emissions will be controlled. Contract specifications will ensure that all equipment and vehicles are compliant with noise and air emission standards for applicable equipment.

b) Contractor will be required to develop and implement a Traffic Management Plan in coordination with region(s)/municipality(ies)

10.0 Future Commitments

It is important that the environmental mitigation measures be monitored before, during and after the construction phase. This is necessary to ensure that the environmental protection measures identified during this EA, and as required by the various approving authorities, be implemented as intended.

10.1 Pre-Construction Monitoring/Inspection

The following activities should occur before construction:

- Inspection in the field of all sediment and erosion control measures such as silt fences;
- Installation and inspection of any tree preservation measures including hoarding around drip line of trees near construction areas;
- Landscape plans, setbacks and river valley slope protection measures; and,
- An on-site review with the contractor of his installed environmental protection measures before construction begins. The importance of maintaining these measures can be stressed with the contractor during the pre-construction field review.

10.2 Monitoring/Inspection During Construction

During the construction phase the following monitoring activities are required:

- Maintenance and fuelling of construction equipment well away (i.e. 30m +) from any creeks, streams, rivers, marshes, wetlands or drainage courses;
- Stockpiling of fill, granulars, topsoil and other materials away from drainage courses in allocated storage areas. These materials should be enveloped by silt control fence or other measures as appropriate to control sediment and erosion; and,
- Maintain limited and controlled access of construction equipment in and around environmentally sensitive areas such as watercourses, marshes, setback areas and other naturalized areas.

Construction activities will be monitored by an on-site Environmental Specialist to ensure that the Contractor's Plans and the contract constraints and provisions are adhered to and in order to recommend remedial action in the event of an unforeseen situation.

A Community Liaison Officer will be available during the construction period.

10.3 Post-Construction Monitoring/Inspection

During the period following construction, monitoring of the environmental mitigation measures should continue to ensure that they are functioning as intended. Some of the post-construction monitoring activities should include:

- A review of the storm water management controls to ensure that they are operating properly.
- Maintenance of the sediment and erosion control measures during the period immediately following construction until vegetative restoration and ground cover has established.
- During the contractor's maintenance period, all new vegetation and natural restoration must continue to be watered and monitored.
- All temporary culverts will be removed.
- All disturbed areas will be re-graded and re-seeded as required.
- Surplus materials left over from construction will be removed off-site.
- All waste materials will be removed and sent to appropriate waste facilities.

11.0 References

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