November 7, 2017

DILLON CONSULTING

TOWN OF GRIMSBY

TRANSIT INVESTIGATION STUDY

DRAFT FINAL REPORT

Submitted to:
Town of Grimsby
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1.0 Introduction

1.1 Study Purpose

Dillon Consulting Limited (Dillon) was retained by the Town of Grimsby to complete a transit investigation study. The purpose of this study is to determine the potential demand and feasibility of operating a local transit service within the Town; and if feasible, develop a transit service design, delivery structure, financial plan and implementation plan.

The study is split into two phases of work. The Phase 1 Interim Report, completed in December 2016, completed the following tasks:

- Identified the current and future transportation needs of the community and the role that local public transit can play in meeting those needs; and
- Assessed at a high level the feasibility of operating a local transit service within Grimsby.

The preliminary conclusion of the Phase 1 Interim Report was that the establishment and operation of a local transit service within Grimsby is viable. This Phase 2 Final Report completes the following tasks:

- Development of a service plan that aligns with the forecasted transit demand and is appropriate for the local context;
- Identification of a preferred service delivery (governance) strategy that can be used to effectively deliver the selected service;
- Determination of potential partnerships and opportunities to coordinate with other transportation service providers; and
- Exploration of funding opportunities and business models to deliver the service and help mitigate some of the financial implications of initiating a transit service.

1.2 Background

The Town of Grimsby is situated in northwest Niagara Region, directly east of Hamilton. Much of the built-up area in Grimsby is to the north of the municipality, on both sides of the QEW. The southern portion of Grimsby (south of the Niagara Escarpment), is primarily rural farmland.

Grimsby's strategic location, at the heart of the Greater Golden Horseshoe, has positioned it well for continued growth. It maintains strong economic and cultural links to Hamilton, St. Catharines, and increasingly, the Greater Toronto Area. This generates a significant amount of demand for travel connections between Grimsby and the Greater Toronto Hamilton Area (GTHA); a fact observable by examining traffic counts on an increasingly congested Queen Elizabeth Way (QEW).

Grimsby is one of the fastest growing municipalities in Niagara Region. Its population has grown from 25,325 to approximately 27,600 between 2011 and 2016 and it is expected to reach a population of

33,300 by 2031. A significant portion of this population growth is expected to be young families and empty nesters relocating to Grimsby from other parts of the GTHA; a segment of the population that seek robust transportation links connecting the Town to the region as a whole.

Employment in Grimsby has also experienced growth, from 8,400 jobs to approximately 9,400 jobs between 2011 and 2016. Employment is projected to continue growing and reach 11,800 jobs by 2031.

1.3 The Business Case for Transit

The business case for transit needs to consider more than the economics of operating a service. All transit systems in North America and the world operate with a deficit. The revenue collected from passengers using transit will not exceed the capital and operating cost of providing the service. Much like schools, parks and recreation facilities and roadway infrastructure, transit must be viewed as an investment in the community. This investment has a number of benefits:

1. Transit provides ***mobility to members of the community*** that do not have access to a private automobile, are unable to drive or choose not to drive. Mobility provides access to places of work, school, retail and health services, keeping members in the community engaged and active. For students, it provides access to after school activities and part-time employment and creates more independence (also reducing time and expense required for parents in driving their children to these activities). For seniors, transit provides opportunities to live in their own homes when they lose their ability to drive, allowing seniors to age at home with greater independence and community involvement and reducing the cost of moving to an assisted living or long-term care facility.

2. Transit ***will support the introduction of the future GO Train service*** to Grimsby. Grimsby staff and Council have spent considerable effort working with Niagara Region to create a business case for the extension of GO Rail service to Grimsby. This effort has resulted in Metrolinx committing to extend the service to Grimsby by 2021 and to St. Catharines and Niagara Falls by 2023. Providing seamless local transit connections to the GO Train service was an important part of the business case. This will also help reduce parking requirements around the GO station (potentially freeing up more land for development), and reducing peak period congestion for near Casablanca and the QEW.

3. Transit ***facilitates economic development and can reduce unemployment*** by providing residents with opportunities to access jobs and higher education opportunities. The 2011 census shows an unemployment rate in Grimsby of 7.5 percent compared to a 6.8 percent provincial average. A barrier for a number of residents to access employment is a lack of affordable transportation. Transit can also help support economic investment in a community by letting future employers know that there is access a desirable workforce that is connected and mobile. This can be a strong economic development tool used to attract employers to the Town.

4. Transit ***supports future plans for sustainable development and intensification***. Grimsby's Official Plan has recognized that transit will play a potential role in shaping the Town's future, especially as it develops stronger economic, social, and cultural links to the GTHA. Intensification and the opportunity to achieve higher densities near the GO Station require access to good local transit services. Transit can also reduce the number of vehicles in each household, allowing Grimsby to reduce parking requirements in areas that have good access to local transit. This offset in parking can be used to support additional density (reducing land requirements for surface parking and the expense of underground parking in high density units). Strategically located density will help protect pressures to develop in protected greenfield and agricultural area and makes better use of existing infrastructure.

5. Transit ***contributes to a higher quality of life, including improved health and community participation rates***. The magnitude of the health challenge in particular is significant. "Conditions such as obesity and diabetes have been rising rapidly, with almost 57,000 new cases of diabetes and 7,006 new cases of heart disease in the GTHA each year. For both of these conditions, about a quarter are preventable through greater physical activity."[1] People that use public transit walk more, which reduces the risks of being overweight and having hypertension, disabilities and heart disease. Transit can also reduce vehicle emissions and their associated environmental and health impacts. From an affordability perspective, transit can increase available household income.

6. Transit can ***reduce household income spent on transportation***. According to the Canadian Automobile Association (CAA), the average annual cost of car ownership is approximately $10,000 per year for a mid-sized vehicle. This does not include the capital costs required to purchase a vehicle. In comparison, the average cost of a month transit pass in Ontario is $78.26 ($939.12 annually). If a family can reduce the number of vehicles in their household by one, this would significantly increase the amount of disposable income available for other needs.

[1] Source: Improving Heath by Design in the Greater Toronto Hamilton Area, May 2014

2.0 Existing and Planned Transit Services

Grimsby has a rich history of public transit. In 1853, the Great Western Railway connected Grimsby to Toronto, Hamilton and Buffalo Railway via the Grand Trunk Railway (with a stop in southern Grimsby at Grassie). The most notable rail service was the Hamilton, Grimsby & Beamsville Electric Railway which ran from 1894 to 1931 and opened up Grimsby as a prime tourist destination. The HGB Electric Railway ran along Main Street. Upon its discontinuance, Grimsby continued to be served by inter-city rail and coach, although options for local travel became more restricted.

When assessing the feasibility of introducing a new local transit service, it is important to understand existing connection opportunities, any competitive services as well as opportunities for integration. Existing and planned transportation services are detailed in the sections below.

2.1 Local Transportation Services

For residents that require transportation services within Grimsby, four options exist. These options are either expensive to be used for everyday travel, or are restricted to a particular demographic or trip purpose.

2.1.1 Taxis and Ridesharing

Grimsby is served by two taxi companies: Central Taxi and Lincoln Limo and Cabs. Central Taxi is dispatched centrally for trips within St. Catharines, Thorold, Niagara-on-the-Lake, Lincoln and West Lincoln in addition to Grimsby. There are a limited number of available taxi vehicles available in Grimsby, therefore, wait times can range from 10 to 30 minutes. Lincoln Limo and Cabs is a smaller operation that offers both taxi and limousine service.

Uber also provides services within Grimsby. This ridesharing service has been officially regulated and legal in Niagara Region as of July 1st, 2016.

2.1.2 Student Transportation

The Niagara Student Transportation Services (NSTS) consortium provides school bus transportation services for the District School Board of Niagara (DSBN) and the Niagara Catholic District School Board (NCDSB) in Grimsby. The mandate of NSTS is to provide safe, efficient and effective transportation services to the students of DSBN and NCDSB. It serves all public schools in Grimsby by planning, managing and administering student transportation services. Only students who live further than 2.5 kilometres from their school are eligible for school bus transportation. A separate service is operated for students with disabilities.

2.1.3 Red Cross Bus

The Canadian Red Cross provides transportation for the frail, elderly and persons with disabilities in the community. Trips can be made for medical, shopping, and social purposes. The service operates, upon request, Monday to Friday between 8:30am to 4:30pm. No service is offered on Sunday or holidays. Bookings must be made in advance of the trip occurring. The fee for each one-way trip is $5.05.

The service offered is designed for those unable to use public transportation or private means. It is provided to the residents of Grimsby through a partnership between the Canadian Red Cross, The Town of Grimsby and the Hamilton Niagara Haldimand Brant LHIN. In order to use the service, clients must be approved for service through an application process prior to accessing service.

2.1.4 Seniors' Residences' Buses

The Evergreen Terrace and Shalom Manor and Gardens senior's residences provide a shuttle service for their residences for pre-planned shopping and recreation trips. Trips are generally offered once or twice weekly. Although the service is beneficial for certain trips, the service has limited availability using a vehicle that is not fully accessible.

2.2 GO Transit

GO Transit currently operates GO Bus Route 12 through Grimsby, which connects the Grimsby GO Bus Carpool lot at Casablanca Boulevard and the South Service Road with Stoney Creek and the Burlington GO Rail station to the west and Beamsville, St. Catharines and Niagara Falls to the east (along the QEW corridor). The bus also provides an opportunity for Grimsby residents to connect to the rest of the GTHA via the GO Rail and GO Bus network (at Burlington GO Station). **Figure 1** illustrates the Route 12 stops and Lakeshore West GO Rail stations.

Currently, there are 18 trips per day on weekdays and 17 trips per day on weekends provided on this route. Service is operated every hour per direction, with Grimsby being served from approximately 5:00am to 12:30am.

Fares are charged based on distance travelled. An adult single-ride trip between Grimsby and Stoney Creek is $6.20 while a trip to St. Catharines would be $7.25. Reduced fares are provided by PRESTO users and concession fares are provided for seniors and students.

Given the higher volume of inter-municipal trips made to/from Grimsby, it will be important to have a seamless connection between any proposed local transit service and this inter-municipal service.

The Province of Ontario, through Metrolinx, has announced its commitment to extend Lakeshore West GO Rail service to Grimsby by 2021. The GO Rail station will be located at the site of the current GO Bus stop, at Casablanca Road and the South Service Road, adjacent to Gateway Niagara. A further extension to St. Catharines and Niagara Falls has been confirmed to be operational by 2023. The proposed service

levels for the GO Rail in Grimsby have not yet been determined. This extension of service should increase ridership on the GO Transit network from Grimsby residents and will increase the importance of local transit.

Figure 1: GO Transit Route 12

2.3 Niagara Region Transit

2.3.1 Conventional Transit

Niagara Region Transit (NRT) provides a pilot inter-municipal conventional transit service within Niagara Region. The pilot program will end in May 2017, at which point in time a decision will need to be made on the Region's future involvement in the delivery of conventional inter-municipal transit services.

The existing network consists of four routes connecting between Niagara Falls, St. Catharines and Welland. In addition, NRT operates two link services, connecting Fort Erie to Niagara Falls and Port Colborne to Welland under a cost-sharing arrangement with both municipalities. NRT does not currently

offer any services west of St. Catharines, and as such, Grimsby, Lincoln, and West Lincoln are not connected to the rest of the inter-municipal transit network.

The City of St. Catharines, City of Welland and City of Niagara Falls (in partnership with the Region of Niagara) are currently assessing the future of inter-municipal transit within the Region as part of an ongoing *Niagara Transit Service Delivery and Governance Review.* A key goal of the study is to recommend modifications to the existing inter-municipal network as well as any proposed extensions to the network. There are two preliminary recommendations that will impact Grimsby:

1. **Grimsby/Beamsville/St. Catharines LINK:** An inter-municipal link service is being recommended to connect Grimsby and Beamsville to St. Catharines. Instead of operating a separate NRT route, the recommendation is to negotiate an agreement with Metrolinx to establish a co-fare agreement with GO Transit that would allow Niagara Region residents to pay the lower Niagara Region Transit fare on the GO Bus Route 12 or future GO Train service for trips between Grimsby, Beamsville and St. Catharines. The GO Bus service provides more opportunity for passengers to access the transit opportunities (seven day a week) than a separately designed NRT service connecting these municipalities would (as the ridership demand would not warrant such as extensive service). From a financial perspective, municipal contributions by Grimsby, Beamsville, and Niagara Region are only provided for the difference between the NRT fare and the GO Transit fare. Other than the fare differential subsidy, there are no operating or capital costs[2].

2. **Smithville/Grimsby LINK:** An inter-municipal link service is being recommended to connect Smithville in West Lincoln to Grimsby (the current GO Bus stop/carpool lot and future GO Rail Station at Casablanca Boulevard). The service is proposed to operate on weekdays and Saturdays with approximately 9 trips per day, connected to meet the GO Bus Route 12 service. There is a potential to provide a stop near the West Niagara Fairgrounds as well as the Southward Community Recreation and Sports Park, which is scheduled to open in 2017. In addition, the service could provide additional connections in urban Grimsby for connections to employment opportunities on the South Service Road or to residents on Main Street West that require access to the GO Bus/future GO Train.

Both service options are preliminary recommendations that were presented to each of the local Councils and the Region in early 2017. The decision to implement each of these inter-municipal services will require a partnership (including financial) between the local municipality it services and the Region (similar to the model used for the Port Colborne LINK and Fort Erie LINK).

[2] Note: Discussions with Metrolinx are preliminary and final discussions may change some of the parameters of this service.

2.3.2 Niagara Specialized Transit

Niagara Specialized Transit provides demand-responsive, curb-to-curb inter-municipal transportation to eligible persons with disabilities. Currently, trips can be made for employment or education purposes, as well as medical appointments. The service operates Monday to Friday between 7:00am and 10:00pm, and Saturday between 8:00am and 4:00pm. No service is offered on Sunday or holidays. Bookings must be made two business days prior to the trip occurring.

This service is helpful for Grimsby residents that have accessibility limitations and need to access other Niagara Region municipalities. NST can also be used to access medical facilities in Hamilton. The fare charged for this service is $62.50 for a one-way trip.

2.4 Intercity Coach and Rail

2.4.1 Megabus

Megabus (Coach Canada) serves Grimsby on its Toronto-Niagara Falls route. Other destinations directly connected to Grimsby include St. Catharines, Welland, and Fort Erie. Some of these trips continue over the border into Buffalo, NY and other destinations in the United States. The bus stop in Grimsby is located the downtown, at Main Street near Christie Street.

As of Fall 2016, eight (8) round trips per day on weekdays and seven (7) round trips per day on weekends are offered to/from Toronto. Service is operated throughout the day, with Grimsby being served from approximately 5:30am to midnight. Additionally, two (2) round trips per day are offered to/from Mississauga.

2.4.2 Greyhound

Greyhound serves Grimsby on its Toronto-Niagara Falls route. Other destinations directly connected to Grimsby include Mississauga and St. Catharines. The bus stop in Grimsby is located in the downtown, at Main Street near Christie Street. As of Fall 2016, only two westbound and one eastbound trip is offered daily.

2.4.3 Intercity Rail

VIA Rail/Amtrak serves Grimsby once daily on its Toronto-New York City route. The train station in Grimsby is located just north of the downtown, on Ontario Street. In Canada, other stops on the route include Toronto, Oakville, Aldershot, St. Catharines, and Niagara Falls. The train serves Grimsby in the eastbound direction in the morning and in the westbound direction in the evening.

2.5 Hamilton Street Railway

Hamilton is a prime destination for Grimsby residents with respect to commuting, access to medical appointments, shopping, and entertainment. As such, the future plans of the Hamilton Street Railway (HSR) were also considered when assessing the feasibility and design of a local transit system in Grimsby.

Currently, Route 55 is the furthest east fixed route transit service offered by the HSR. This route begins at Eastgate Square and connects as far east as the Stoney Creek Municipal Service Centre and Jones Road (~5km from Grimsby), before heading back west through the Stoney Creek Business Park. Areas east of Jones Road are designated as a Trans-Cab zone and have no formal fixed route service. Residents in the Trans-Cab zone are able to call ahead for a pick-up and connect to Route 55 or Route 2 to complete their trips. Trips made entirely within the Trans-Cab zone are not permitted.

Hamilton practices an area rating system where different tax rates are charged to each of the former municipalities that make up Hamilton (e.g. Stoney Creek) based on the level of transit service that is provided. The ability to extend HSR service into east Stoney Creek would require a change in the area rating and therefore an increase in the transit levy in Stoney Creek. This would require approval from Stoney Creek. Currently there are no plans to extend HSR service into east Stoney Creek, which would help facilitate a reasonable connection with a potential local Grimsby transit service.

Hamilton's transportation master plan (which is currently under review) also identified a potential expansion of the B-Line LRT service into Stoney Creek. As shown in **Figure 2**, this service could run from downtown Hamilton to a new terminal on Fifty Road, less than one kilometre from the edge of Grimsby and less than five kilometres from a proposed Grimsby GO Transit station and potential transit hub at the southeast corner of Casablanca Boulevard and the QEW. HSR plans to implement the initial phases of the B-Line by 2024, but the expansion of this line to Fifty Road is not be expected in the next 25 years.

Figure 2: Hamilton Rapid Transit Conceptual Plan

2.6 Growth Patterns

2.6.1 Growth in Grimsby

As illustrated in **Figure 3**, the urban settlement area in Grimsby is bounded by Lake Ontario in the north and the Niagara Escarpment Plan Area to the south. Within the existing urban settlement area there are two locations identified for intensification and several areas identified for greenfield development. Much of the Designated Greenfield Area is located in the western part of Grimsby, near Stoney Creek and along the QEW. These areas are interspersed between existing industrial and low density residential land uses. The two major intensification areas are Downtown Grimsby and along the North Service Road, west of Casablanca Boulevard.

Although the Town is not served by local public transit, it has set up a number of transit supportive policies. According to the Town's Official Plan, the vision for Grimsby is one that has a public transit service anchored on the downtown and the planned future GO Train station at Casablanca Boulevard and the QEW. The plan also speaks to various land use planning policies and infrastructure design that are intended to support this vision. In particular:

- **Growth Management Policy 2.4.14** – "Intensification Areas are to be planned so as to be transit supportive and link intensification opportunities with existing or planned future transit hubs and active transportation routes."
- **Transit Policy 5.6.2.2** – "All Town Arterial roads and Collector Roads should be designed to accommodate a future transit network."
- **Parking General Policy 5.5.2** – "Lands in the southwest quadrant of the Casablanca Boulevard / QEW interchange are an appropriate location for a potential transit hub including commuter parking. The Town will work with the Ministry of Transportation to develop such a facility."

2.6.2 Growth in Hamilton

Grimsby is bordered by the Hamilton suburb of Stoney Creek. Growth in Hamilton, and in particular Stoney Creek, is constrained by the Greenbelt Plan Area and Niagara Escarpment Commission Regulated Area. However, there is still opportunity for significant growth within the existing urban boundary. Much of the land between Fruitland Road in Hamilton and Grimsby is currently farmland or undeveloped (see **Figures 4** and **5**). According to the Hamilton Official Plan (effective 2013), this area is being zoned for:

- Various forms of low density residential in neighbourhoods north of the QEW, such as Trillium, Winona North, and Fifty Point; and
- A mixture of low density residential, medium density residential and commercial south of the QEW. Much of this land is under appeal.

As this area continues to develop (including short-term plans to develop a Costco at Fifty Road and the QEW), there may be pressure to replace the existing Trans-Cab service with an extension of transit. In particular, the Fruitland-Winona Secondary Plan (2013) makes reference to encouraging residential development that complements transit, future transit opportunities along Barton Street, and a potential transportation hub on the CN Railway line at Fifty Road.

Figure 3: Grimsby Urban Development

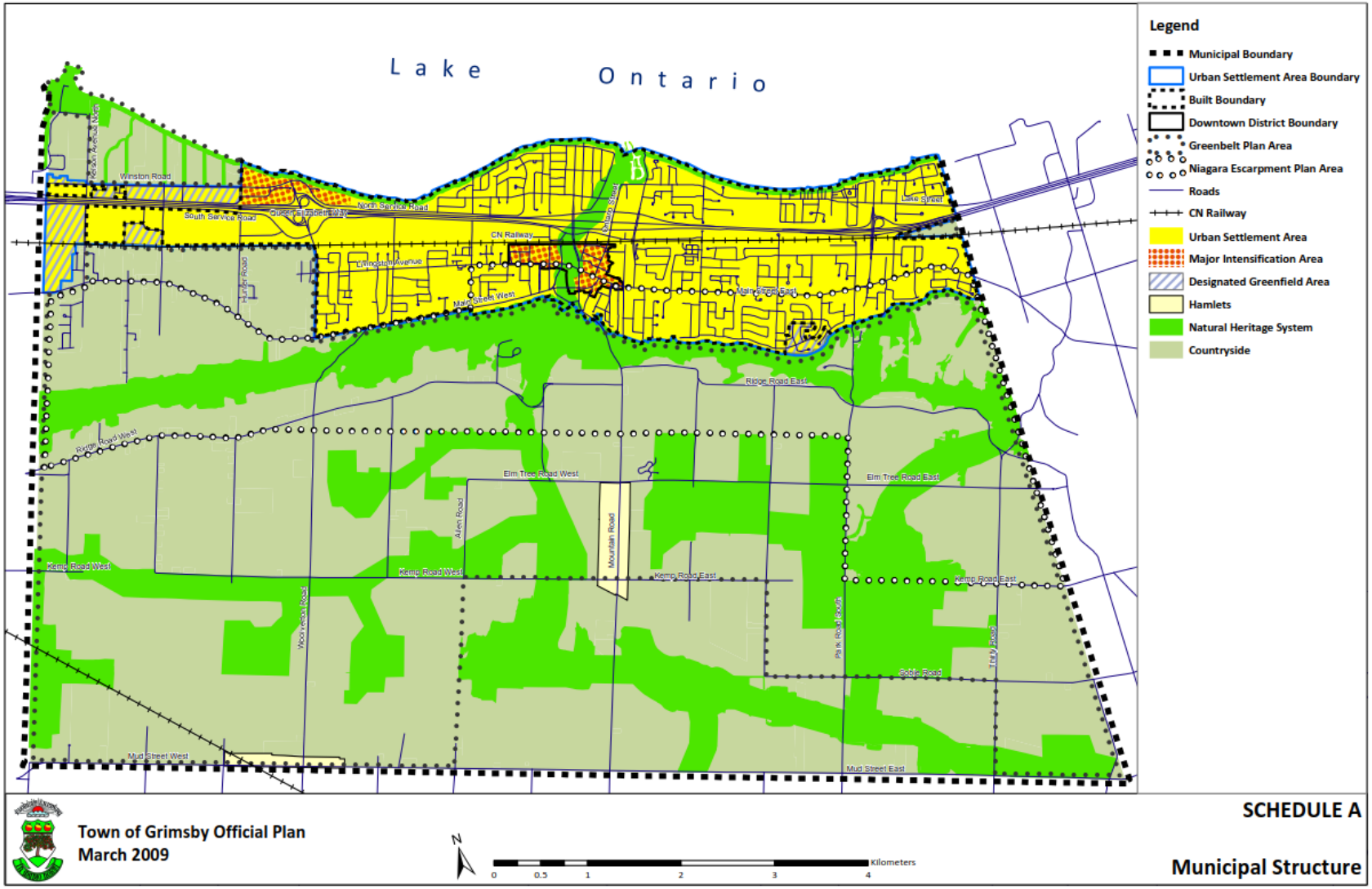


Figure 4: Stoney Creek Land Use Plan

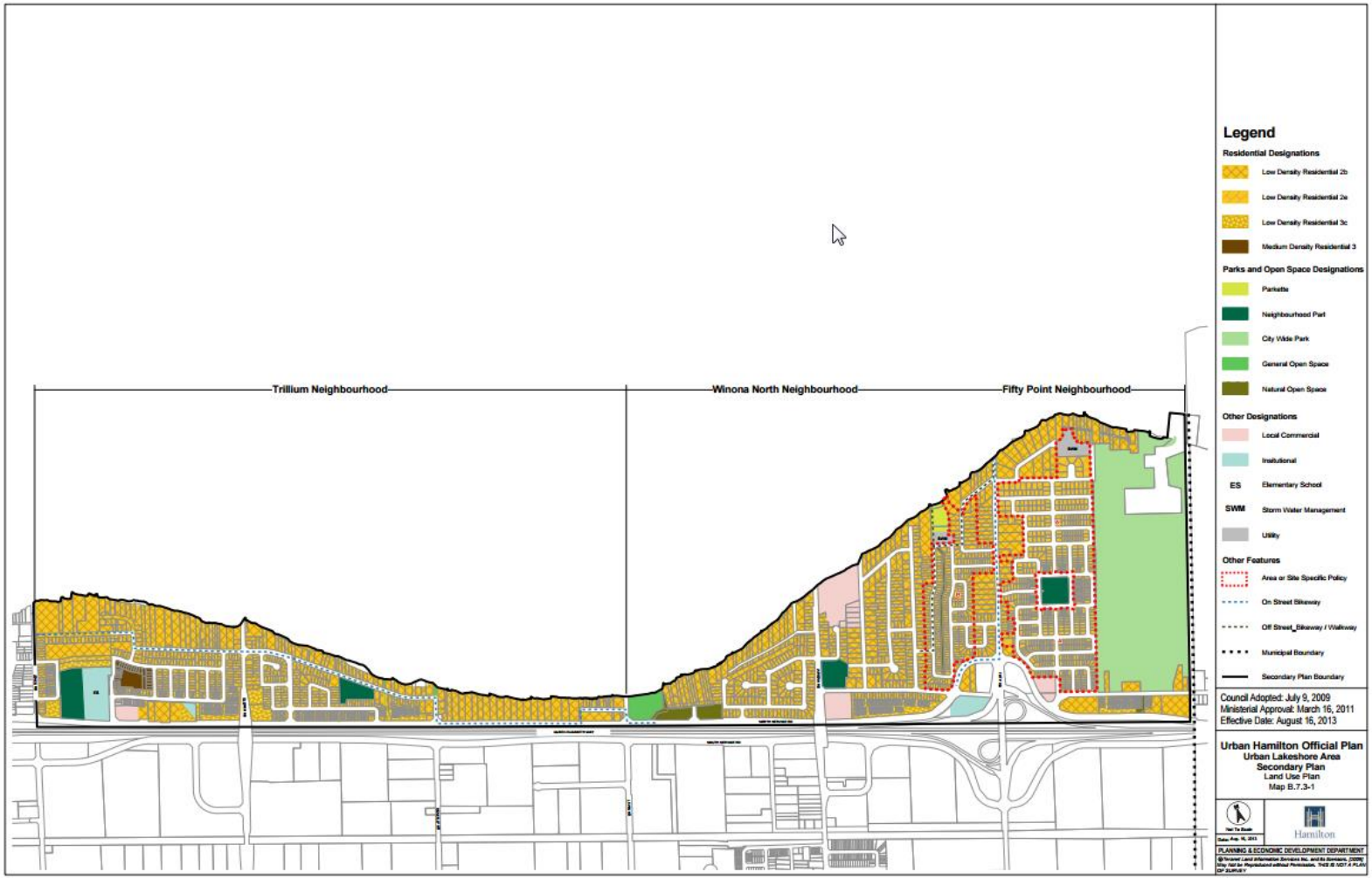
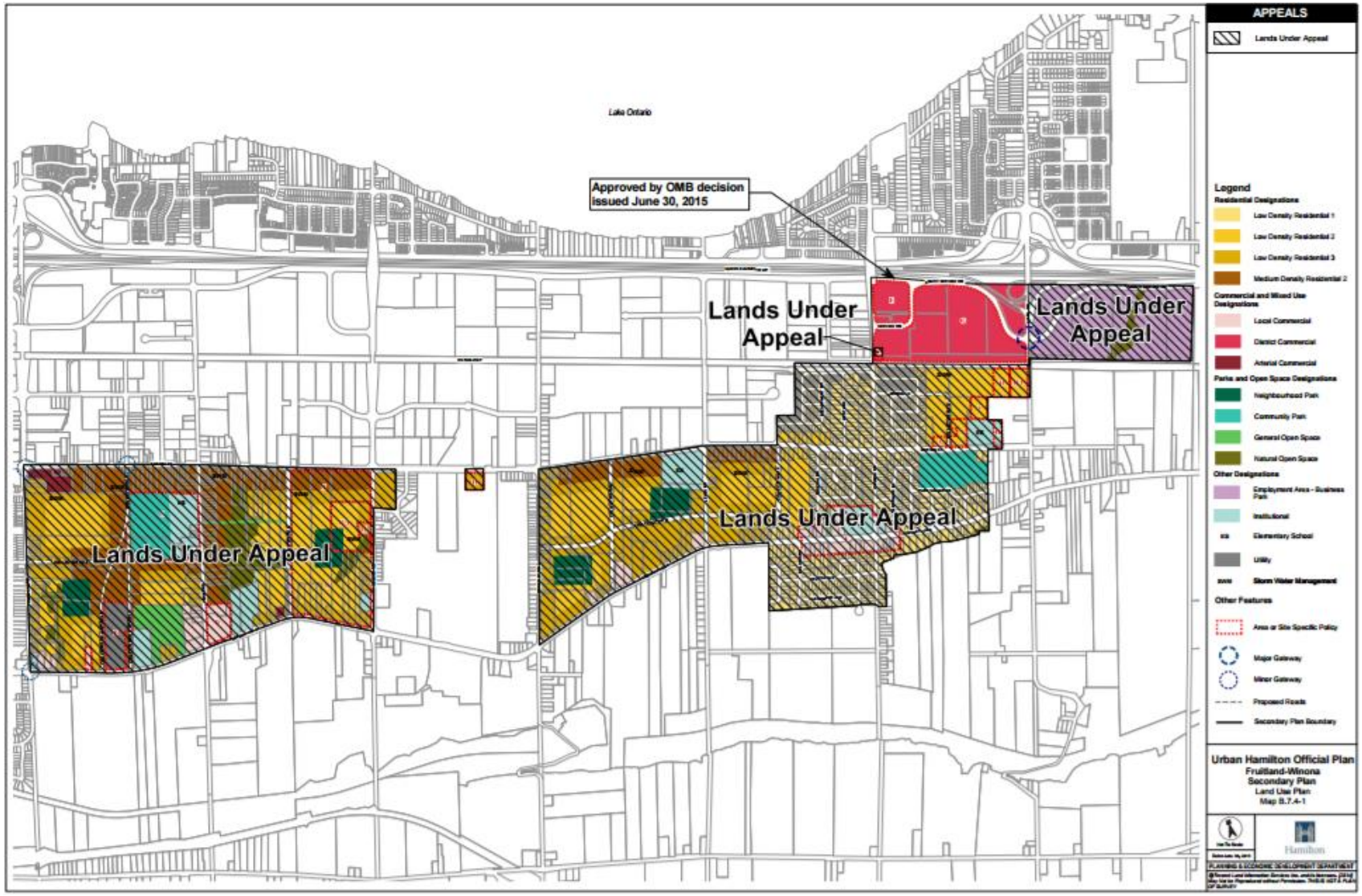


Figure 5: Fruitland-Winona Secondary Plan Development Area



3.0 Community Consultation

An important part of determining the feasibility of a transit service within the Town of Grimsby is to gauge public support and potential usage of such a service. For a new transit service to be successful, it needs to have broad public awareness and acceptance. To that end, a randomly sampled, representative telephone survey was conducted of over 1,000 Grimsby residents. An online survey was also made available for additional commentary from those who were not randomly selected for the telephone survey.

A number of stakeholder interviews were also conducted and an early public information centre was held to determine the public's perception of transit, including their support and any recommendations to design the service. A second public information centre was conducted in January 2017 to present the preliminary findings of the study. The following section outlines the key messages from each of the community engagement activities.

3.1 Telephone Survey

A randomly sampled representative Interactive Voice Recognition (IVR) telephone survey was completed by Environics Research on September 15, 2016 to gauge the support of Grimsby residents for a potential public transit service. The survey was designed by Dillon Consulting, with input from Environics Research and the Town of Grimsby. The target sample size was 400 valid responses to achieve a representative sample; however, the telephone survey experienced significant uptake and 1,199 valid responses were recorded, significantly exceeding the target. The responses were statistically weighted by age and gender to reflect the demographic makeup of Grimsby, according to the 2011 Census. The survey results represent a statistically valid result with a margin of error of plus or minus 2.8 percentage points (at the 95% confidence level).

The following section outlines the key results from the survey.

3.1.1 Overall Support for Transit

More than eight in ten respondents support introducing public transit in Grimsby, including more than six in ten who strongly support it. Only fourteen percent oppose the introduction of public transit in the Town. There is majority support for transit in Grimsby across all population segments, although strong support is particularly high for those who commute. See **Figure 6** for further details.

Although approximately 84% of respondents indicated a certain level of support for the introduction of a local public transit service in Grimsby, a smaller proportion of respondents indicated their willingness to see an increase in municipal property taxes to help fund a new local transit service. Over six in ten (63%) residents indicated that they would support transit if it meant a per household property tax increase of up to $25. This drops to one in four (25%) who would support up to a $50 increase per household in

property tax. Only seven percent indicated that they would support a $100 annual property tax increase per household for transit services. Approximately one-third of respondents indicated that they would only support transit if it meant no increase in their municipal property taxes. This is illustrated in **Figure 7**.

Figure 6: Overall Support for Local Transit in Grimsby

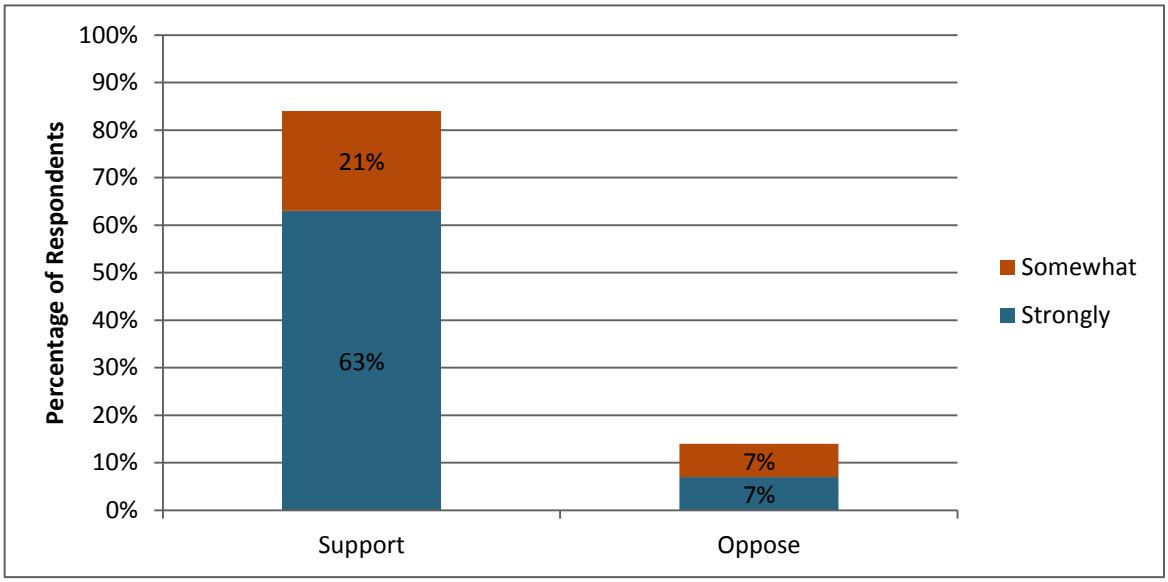
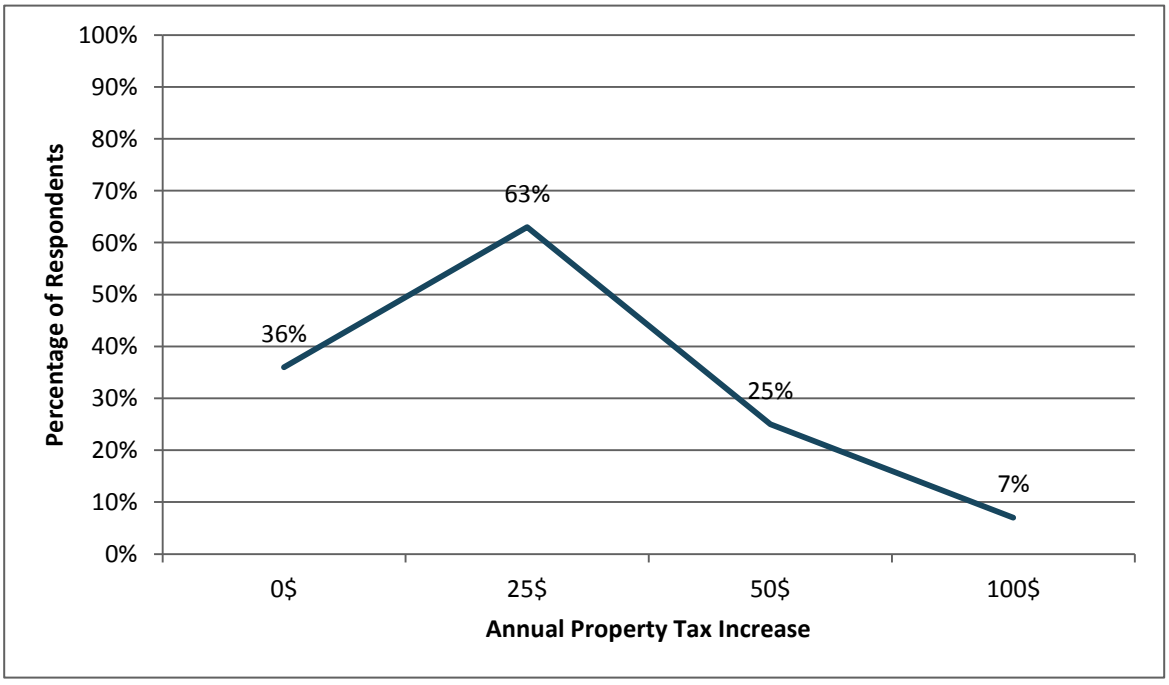


Figure 7: Support for Property Tax Increases to Local Support Transit



3.1.2 Support by Service Type

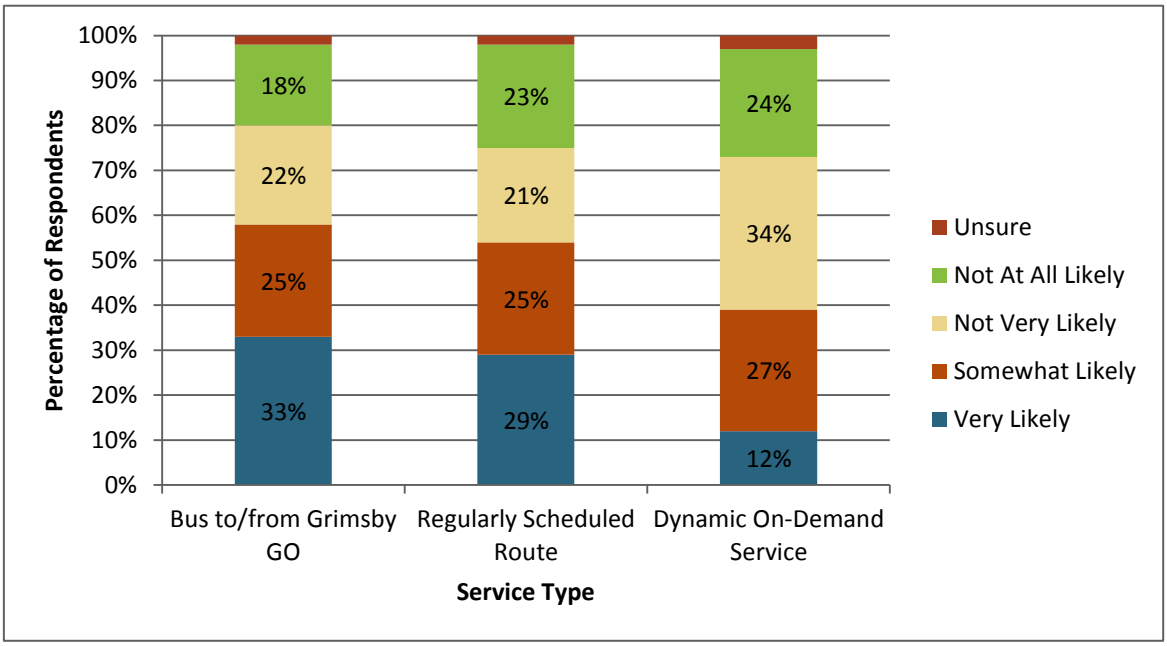
Respondents were asked about the type of service they were most likely to use. This was asked in order to guide the design of a potential transit system through considerations of the elements that would most appeal to the largest portion of the population. Because transit cannot be the solution to 100% of a community's transportation challenges, it was important to understand the type of transit service that would be most beneficial and appealing to Grimsby residents.

Three types of service design were identified. These include:

- A local shuttle-type transit service focused on connecting inter-municipal services at the existing GO Bus stop and future Grimsby GO Station;
- A local fixed-route bus service focused on connecting to local destinations in Grimsby; and
- An on-demand dynamic transit service, requiring advance reservations.

The most popular service type identified was a bus providing access to the Grimsby GO Station when it is built (58% very or somewhat likely). Over half (54%) of respondents indicated that someone in their household is very or somewhat likely to use a weekday fixed-route bus service. A smaller percentage, only four in ten (39%), would likely use a service that requires an advance reservation. The least likely service residents would use is a dynamic transit service that requires advanced reservations. See **Figure 8** for further details.

Figure 8: Transit Usage Likelihood by Service Type



3.1.3 Commuting Patterns

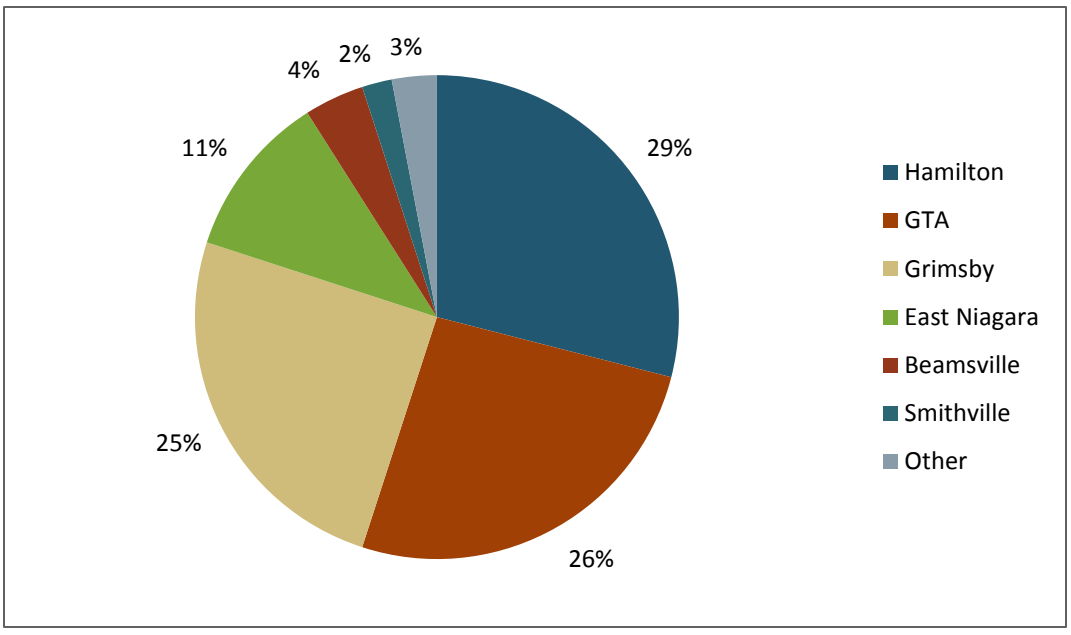
The commuting patterns of Grimsby residents were probed to determine the potential use local transit services. Local transit can be used for two reasons:

1. To access destinations within Grimsby, including local services; and
2. To access inter-municipal transit options such as GO Transit.

Based on the survey results, half (51%) of Grimsby residents commute daily or almost daily. Daily commuting is higher among younger residents (75% aged 16-44) and declines with age. The proportion of non-commuters is highest among seniors (69% aged 65+).

Among daily or almost daily commuters, the most popular destinations are Hamilton (29%), GTA (26%) and Grimsby itself (25%). Of those who travel outside of Grimsby, considerably fewer commute to east Niagara Region (11%) (defined as St. Catharines and other municipalities to the east), Beamsville (4%), Smithville (2%) or another municipality (3%). Combined, commuters heading to the west of Grimsby (Hamilton plus GTA) significantly outnumber those heading to the east of Grimsby (East Niagara plus Beamsville). The GTA is a more popular destination for residents under 65 (27% vs. 15% of seniors). Those who say they typically commute within Grimsby skews to seniors (36%). See **Figure 9** for further details.

Figure 9: Commuting Destination



3.2 Online Survey

An online survey was created to provide an opportunity for residents that were not randomly selected by the IVR telephone survey to comment on the potential introduction of local transit services in Grimsby. The survey was open to responses from September 19, 2016 to November 4, 2016 (47 days) and was available on the municipal web page. Referral cards with links to the survey were provided to various stakeholders met during the consultation process. Print versions of the survey were also distributed at the public open houses.

Overall, 302 responses were collected. While these responses do not represent a statistically significant sample of community opinions (unlike the IVR telephone survey), it provided another opportunity to gauge the community's interest, support, and potential usage of a transit service. The most significant demographic difference noted was that 66% of online survey respondents were women, compared to 52% of IVR telephone survey respondents. **Table 1** compares the responses obtained from the online survey to those obtained from the larger, representative sample of the IVR telephone survey.

The general level support for the establishment of a public transit service in Grimsby from online survey respondents closely mirrors the results from the telephone survey. Similarly, the level of support for property tax increases is similar for respondents of both the online and telephone surveys.

Online survey respondents indicated a higher likelihood of using a transit service connecting to the future GO Rail station than the telephone survey respondents do. The likelihood of using a conventional fixed-route and dynamic on-demand system is approximately equivalent.

The commuting destinations for online and telephone survey respondents varied slightly, with online survey respondents reporting a lower proportion of commuters within Grimsby and a higher proportion of commuters to the east.

Paper surveys were distributed at the open house events, to permit residents not having access to a computer to provide their opinions. A total of 27 paper surveys were completed, and subsequently logged online. The results of the paper surveys have been combined with the online responses.

Table 1: Online and Telephone Survey Results

	Online Survey	Telephone Survey
Overall Support of Transit		
Overall Support	**83%**	**84%**
Strongly Support	*60%*	*63%*
Somewhat Support	*23%*	*21%*
Overall Oppose	**15%**	**14%**
Strongly Oppose	*9%*	*7%*
Somewhat Oppose	*6%*	*7%*
Support for Property Tax Increases to Fund Transit		
No Increase	**40%**	**36%**
Some Increase	**60%**	**63%**
Up to 25$	*60%*	*63%*
Up to 50$	*20%*	*25%*
Up to 75$	*9%*	*7%*
Likelihood (Somewhat or Very) to Use Service, by Type		
Service to Future Grimsby GO Train Station	73%	58%
Conventional Fixed-Route Service	58%	54%
Dynamic On-Demand Service	39%	39%
Commuting Destination		
Grimsby	**17%**	**25%**
West	**57%**	**55%**
Hamilton	*22%*	*29%*
GTA	*35%*	*26%*
East	**22%**	**15%**
East Niagara	*16%*	*11%*
Beamsville	*6%*	*4%*
Other	**4%**	**5%**

3.3 Summary of Survey Results

Overall, the results of the online and telephone survey generally report the same trends. Public support for a new transit service is high, with a significant proportion of respondents indicating that somebody in their household may use the service, especially if it is provided via a conventional fixed-route and to the future GO Train station. Grimsby residents generally would support an increase in their property taxes to help fund the new transit service, although they expect the increase to be moderate in scale. Finally, connections to and from the west (Hamilton and GTA) are to be prioritized, due to the commuting habits of Grimsby residents.

3.4 Focus Groups

A series of focus groups were held as part of the community engagement process to assess the level of support and potential to use local transit in Grimsby. Focus groups were held with representatives of the seniors' community, the student/youth community, and the business community. A fourth focus group is also planned with the Accessibility Advisory Committee.

3.4.1 Seniors Community

The seniors' community focus group was held on September 20, 2016 at the Lincoln Park Retirement Residence in Grimsby. In addition to staff members and residents, representatives from the Shalom Manor & Gardens retirement community were also present. Participants were generally supportive of the idea of a transit service being introduced in the community, noting that it would increase their accessibility and mobility and lessen their reliance on others to get around Grimsby. Some of the common themes that emerged from the meeting were:

- Importance of accessible buses/stops;
- Preference for a fixed-route service for residents without mobility issues;
- Preference for door-to-door service for residents with limited mobility;
- Importance in considering connections to/from Hamilton;
- Main Street and Livingston Avenue as key destinations; and
- Close proximity of stops to retirement facilities.

3.4.2 Business Community

The business community focus group was held on September 20, 2016 at the Grimsby Municipal Centre. Representatives from various developers, particularly in Northwest Grimsby, were joined by a major employer and a representative from the Employment Help Centre. The business community expressed strong support for the establishment of a local transit service in Grimsby. The developers emphasized the importance of a reliable, frequent, and convenient connection linking the area to the north of the QEW and to the west of Casablanca Road to the existing Casablanca GO stop. They stated this link would become even more important with the extension of GO Train service to Grimsby, as a significant proportion of the population in these new residential developments commute to Hamilton and the GTA. The major employer and the representative from the Employment Help Centre expressed their desire to see a transit service with a span of service corresponding to the opening hours of major employment centres, in order to facilitate employee access. Some of the common themes that emerged from the meeting were:

- Importance of connections to/from the Grimsby GO Station to northwest Grimsby;
- Importance of transit service hours matching opening hours of major employers;
- Ability of transit to increase accessibility and facilitate employment opportunities; and
- Potential for partnerships with developers or large employers to implement resident/employee shuttles during low-demand periods.

3.4.3 Student/Youth Community

The student/youth community focus group was held on September 20, 2016 at the Grimsby Municipal Centre. Student and teacher representatives from Grimsby Secondary School and Blessed Trinity Catholic Secondary School were joined by the Town of Grimsby's Recreation Coordinator for the engagement session. The student/youth community expressed significant support for the establishment of a local transit service in Grimsby. Due to their age and lack of vehicle ownership/access, many students do experience limited mobility and must rely on family members and friends to get around town. They expressed that a transit service would increase their independence and mobility, as educational, recreational, and employment opportunities would become much more accessible. They also mentioned that Grimsby has a car culture and many students would still continue to drive, even with the introduction of transit services. Some of the common themes that emerged from the meeting were:

- Potential of service integration/optimization with school bus system;
- Importance of relatively frequent (half-hour) service;
- Importance of connections to/from GO service for educational, entertainment, and employment opportunities in the GTHA and Eastern Niagara Region; and
- Ability of transit to increase accessibility and facilitate after-school employment opportunities within Grimsby.

3.4.4 Joint Accessibility Advisory Committee

A focus group with the Joint Accessibility Advisory Committee was held on December 12, 2016 at the Grimsby Municipal Centre. The committee expressed significant support for the establishment of a local transit service in Grimsby. There are few travel options for persons with disabilities in Grimsby. The Region provides an inter-municipal specialized transit service, but it cannot be used for trips within Grimsby. The Red Cross provides an accessible service but fare is expensive. Taxis provide some mobility, but these are also expensive and vehicles are not accessible. The implementation of an accessible local transit service would provide mobility options for persons with disabilities to travel within Grimsby. Some of the common themes that emerged from the meeting were:

- Need for the service to be accessible and follow AODA guidelines;
- Need to for accessible stops to encourage use by persons with disabilities;
- The importance of the service to enhance independence of persons with disabilities;
- Need for the service to be affordable to customers;
- Importance to provide connections to inter-municipal services.

3.5 Public Information Centre #1

A Public Information Centre was held on September 20th, 2016 at the Grimsby Municipal Centre. Two time slots were provided; the first occurred between 3:00pm and 5:00pm and the second occurred between 6:30pm and 8:30pm. The event was advertised on the Town's website and on its Facebook and

Twitter social media profiles. The purpose of the open houses was to introduce the project, explain the transit investigation study process, gather feedback about community preferences, and preface the next steps. In total, over 30 members of the community at large attended the sessions and provided their feedback.

Attendees were asked to place dots onto the map at locations they would like to see served by transit. As can be seen in **Figure 10**, the vast majority of the origins and destinations identified are located along the Livingston Avenue/Main Street corridor, with important clusters at the GO station, the retail shopping area on South Service Road, Downtown, and the West Lincoln Memorial Hospital. Comparatively few dots were placed north of the QEW.

Figure 10: Local Transit Destinations

Attendees were also asked to provide their preference on how a potential local transit service could be designed. Given the financial constraints that most municipalities face when operating a transit service, difficult choices need to be made on the level and type of service that will benefit residents. Attendees were asked to identify their preference on a series of choices that need to be made when designing a transit system (as seen in **Figure 11**). The choices include:

1. Speed versus Accessibility: Would you prefer a service that is designed for:
   a. *Direct Travel*: Direct and frequent routes along major roads with few deviations onto local streets. Could result in longer walks to bus stops to access this service. *OR*;

b. *Shorter Walking Distance*: Transit stops closer to my home and/or final destination. This means providing more bus stops, which makes the average walking distance shorter but can result in longer travel time on the bus.

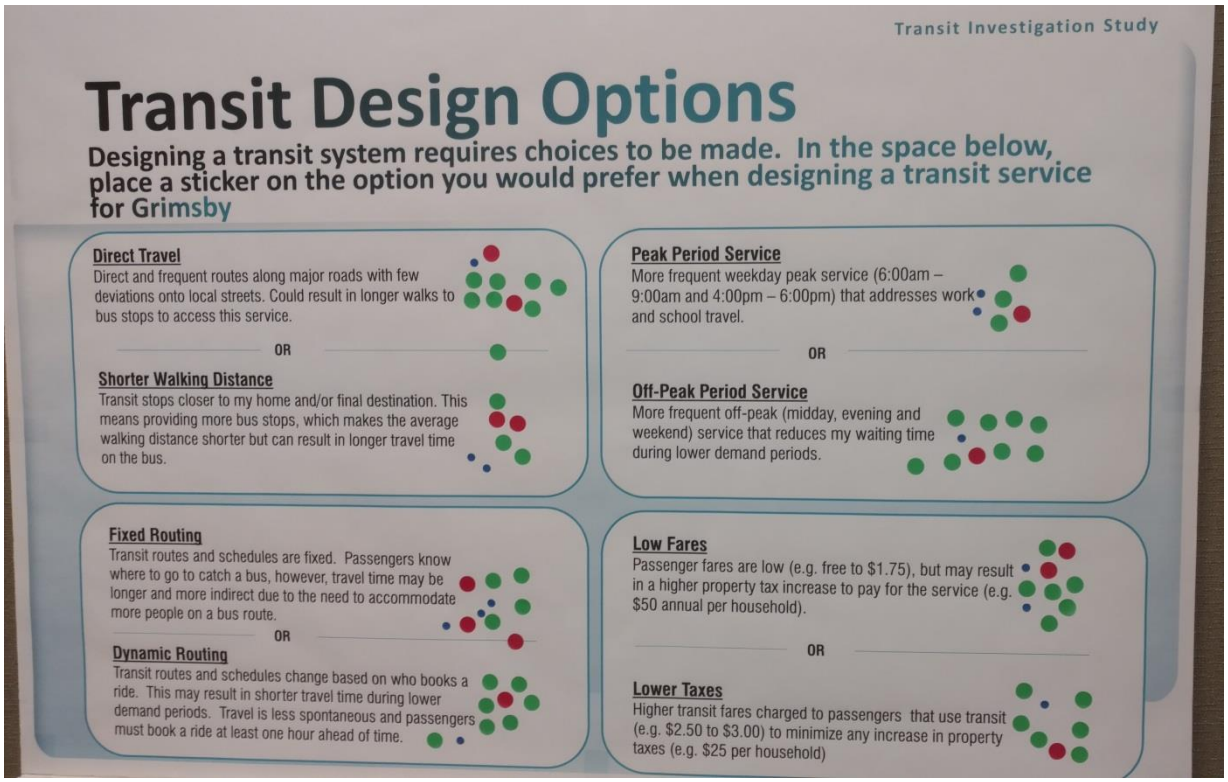
2. Hours of Service: Would you prefer a service that is designed to provide more:
   a. *Peak Period Service*: More frequent weekday peak service (6:00 a.m. – 9:00 a.m. and 4:00 p.m. – 6:00 p.m.) that addresses work and school travel. *OR*;
   b. *Off-Peak Period Service*: More frequent off-peak (midday, evening and weekend) service that reduces waiting time during lower demand periods.

3. Route Design: Would you prefer a route that is:
   a. *Fixed Route*: Transit routes and schedules are fixed. Passengers knows where to go to catch a bus, however, travel time may be longer and more indirect due to the need to accommodate more people on a bus route. *OR*;
   b. *Dynamic Route*: Transit routes and schedules change based on who books a ride. This may result in shorter travel time during lower demand periods. Travel is less spontaneous and passengers must book a ride at least an hour in advance.

4. Higher Fares or Higher Taxes: Would you prefer the system be mainly supported by:
   a. *Lower Fares*: Passenger fares are low (e.g. free to $1.75), but may result in a higher property tax increase to pay for the service (e.g. $50 annually per household). *OR*;
   b. *Lower Taxes*: Higher transit fares charged to passengers that use transit (e.g. $2.50 to $3.00), to minimize any property tax increase to pay for the service (e.g. $25 annually per household).

The responses for each question were fairly equal, with no preferred choice emerging from the participants. This suggests that a potential transit service needs to be designed in such a way as to cater to a broad segment of the population. The only clear preferred choice emerging was that better off-peak service is preferred over more frequent peak period service.

Figure 11: Transit Design Options



3.6 Public Information Centre #2

A second public information centre was held on January 30th, 2017 at the Grimsby Municipal Centre. The session occurred between 5:00pm and 8:00pm. The event was advertised on the Town's website and on its Facebook and Twitter social media profiles. The purpose of the public information centre was to present the preliminary findings of the feasibility study, including the proposed route and service structure and high level costs of providing a public transit service. Most importantly, it provided the public an opportunity to provide feedback about the proposed route structure, service strategy, and implementation plan. In total, over 50 members of the community at large attended the session and provided their feedback.

Although the randomly sampled telephone survey of Grimsby residents identified significant support for the introduction of a local transit service, the individuals that attended the second public information centre were more evenly split in their support for transit. This is not a surprise that individuals that attend public information centres tend to have strong opinions on a subject: either strongly in support of or strongly against a topic of interest. Approximately half the attendees present expressed their support for and excitement about the establishment of a transit system. Many residents noted that they look forward to using a transit system, and that it is a clear sign of their municipal tax dollars

providing them with a useful service. They also noted the importance of transit in providing mobility to residents, particularly those without access to a private vehicle and to a growing senior's population.

In addition to support, a number of community members raised certain objections and had alternative suggestions for the project team. The major concerns expressed by the group that was not in support of transit included the high cost of the service, the belief the service would not be used, or the belief that the service would attract higher population growth in Grimsby (where these residents moved to Grimsby for the small town feel).

There were also a number of participants that supported local transit, but did not support a concept of large buses travelling through the community. Their vision of transit was to utilize smaller vehicles or a more "Uber-like" service where individual vehicles would pick passengers up at their home and take them to their final destination. This concept was explored as part of the feasibility study, but not recommended for a number of reasons (see **Section 5.1**).

Some of the common themes raised by attendees, along with the project team's response to them, are documented in **Table 2**. A number of the common themes raised by members of the community have been considered in the Phase 2 development of the route structure, the service strategy, and the implementation plan.

Table 2: Common Public Information Centre #2 Comment Themes

Common Questions, Comments or Suggestions	Response
Consider using smaller size buses to reduce capital and operating costs.	The preliminary recommendations presented in the Public Information Centre suggested use of low-floor 30ft transit buses. The cost of these buses range from $400,000 to $500,000. Based on public feedback and a further review, a decision was made to recommend the use of low-floor mini-buses. These fully-accessible buses have a seated capacity ranging between 15 and 25 passengers, and are anticipated to accommodate expected transit demand in the short-term, given proposed service levels. Low floor minibuses cost approximately $230,000 per unit, which will reduce the overall start-up costs for Grimsby compared to traditional 30-foot transit vehicles.
Could the municipality lease the buses from a private contractor, instead of purchasing these high-cost capital assets? Wouldn't this reduce system costs?	Although the outright purchase of buses by the municipality will entail higher capital costs, purchasing buses and leasing them to a private contractor have a number of advantages. This includes reduced operating costs (contractor will charge a lower operating rate if using municipally-owned buses, shorter contract duration, increased competition when bidding on an RFP, and the ability to recoup some costs through Development Charges. Additionally, capital purchases (including vehicles) have and increased potential to attract funding grants from upper levels of government. Provincial or federal support for operating funding is often more difficult to obtain.

Common Questions, Comments or Suggestions	Response
Make sure that all parts of the Town of Grimsby are served by any transit network.	The proposed transit network will see 73% of Grimsby residents and 69% of Grimsby jobs within a five-minute walk of a bus stop. Transit service is focused on the areas with higher density in order to increase the potential for ridership and enhance the system's financial viability. Expanding the service to some of the more rural areas of the Town would not be cost effective and would increase overall municipal investment. Service expansion to these less dense areas could be potentially explored once the system is running, potentially using on-demand dynamic transit solutions.
Will the proposed transit system be fully accessible?	Under the Accessibility for Ontarians with Disabilities Act (AODA) legislation, the Town must ensure that its conventional transit service is fully accessible and does not discriminate against access from persons with disabilities. This includes the purchase of fully accessible vehicles, the use of automated stop announcements, etc. It is recommended that as the system is established, Grimsby begin looking at making more bus stops accessible, which involve putting in place a concreate bus pad connected to a sidewalk that can accommodate approved mobility devices.
The cost of providing transit is too high. The Town and its residents cannot afford to fund transit.	The community consultations and surveys undertaken indicate a willingness of the majority of Grimsby residents to pay increased municipal taxes to fund a transit service. Transit will improve the quality of life of residents, increase access to employment, and provide an affordable transportation alternative for those who cannot or choose not to drive. The recommended service plan has been designed to offer a fair balance between good levels of transit service and reasonable municipal operating expenses.
Could the Town subsidize a door-to-door on demand service, instead of a conventional transit system, to provide good service and save money?	Grimsby's linear layout lends itself well to a conventional fixed-route transit network. Based on projected transit ridership, operating costs for a subsidized door-to-door service would exceed those of a fixed-route network. Dynamic transit may be a future solution used to service low-demand areas or time periods.

4.0 Peer Review

Operational and financial analyses of transit systems in several peer communities were conducted to help provide insight into how a conventional transit system could function in Grimsby. Peer communities were selected based on their similar population size to Grimsby and having a small, functioning transit system. The peer communities included in the review were:

Extended GTA
- Bradford West Gwillimbury
- Orangeville

Northern Ontario
- Midland
- Wasaga Beach
- Owen Sound
- Elliot Lake

Eastern Ontario
- Cobourg
- Port Hope
- Quinte West
- Brockville

South-Western Ontario
- Port Colborne

The information presented was taken from the *2015 Ontario Urban Transit Fact Book* and yields some general conclusions regarding basic service characteristic, transit utilization, and financial performance. Each municipality is unique and there are many factors which account for the differences noted below.

4.1 Basic Service Characteristics

Table 3 provides a review of system characteristics in the peer group, including service area population, number of bus routes, fleet size, hours of service, frequency of buses (headway), and inter-municipal connections. Noteworthy findings include:

- The peer systems operate between 1 and 4 fixed local routes, with some also operating link routes to nearby communities. No direct correlation was observed between the size of the service area population and the number of routes in service.
- Fleet sizes for the peer systems range between 2 and 6 buses. It should be noted that the fleet size does not reflect the number of buses in operation at one time. Transit systems require spare bus(es) for redundancy (i.e. to prevent disruptions to service in the event that a bus breaks down). Some municipalities contract out their service and do not own the vehicles.
- Weekday service is typically offered between 6:00am and 6:00pm. Nine of the eleven peer systems also operate a Saturday service while only two offer service on Sunday (i.e. Wasaga Beach and Cobourg). Weekend service is typically reduced in comparison to weekday service.
- All systems operate on clock face headways. The most common headway is 60 minutes, although some of the larger communities offer 30 minute headways. In general, bus frequency does not change by time of day; however, it sometimes varies by route.

Table 3: 2015 Peer Group - Amount of Service

Town	Service Area Population	Fixed Bus Routes	Fleet Size	Hours of Service	Typical Headway	Inter-Municipal Connections
Grimsby	25,325	0	0	N/A	N/A	GO Bus
Extended GTA						
Bradford/ West Gwillimbury	34,860	2	3	Mon-Fri: 6:45-17:02 Sat: No service Sun: No service	35-60 min	GO Train/Bus
Orangeville	29,400	3	4	Mon-Fri: 7:15-18:15 Sat: 7:15-18:15 Sun: No service	30 min	GO Bus
Northern Ontario						
Midland	12,500	2 + 1 link	3	Mon-Fri: 6:30-17:45 Sat: 8:30-16:45 Sun: No service	60 min	Penetanguishene
Wasaga Beach	18,615	2 + 1 link	3	Mon-Fri: 7:00-21:00 Sat: 7:00-21:00 Sun: 7:00-19:00	60-90 min	Collingwood-WB
Owen Sound	22,000	4	6	Mon-Fri: 6:30-18:00 Sat: 9:00-16:00 Sun: No service	30 min	
Elliot Lake	11,348	4	2	Mon-Wed: 7:00-18:00 Thur-Fri: 7:00-21:00 Sat: 7:00-18:00 Sun: No service	60 min	
Eastern Ontario						
Cobourg	10,741	2 + 1 link	4	Mon-Fri: 6:15-19:45 Sat: 8:15-18:45 Sun: 8:45-15:45	60 min	Cobourg-PH Shuttle
Port Hope	12,350	1 + 1 link	3	Mon-Fri: 7:00-20:00 Sat: 9:00-16:00 Sun: No service	60 min	Cobourg-PH Shuttle
Quinte West (Trenton)	19,500	4	5	Mon-Fri: 6:00-19:30 Sat: 9:00-16:30 Sun: No service	60 min	Brighton to Trenton Weekday Bus
Brockville	21,870	3	5	Mon-Fri: 6:45-21:00 Sat: 8:45-18:15 Sun: No service	60 min	
Southwestern Ontario						
Port Colborne	18,600	2 + link	2	Mon-Fri: 7:00-18:00 Sat: No service Sun: No service	60 min	NRT

4.2 Service Utilization

Service utilization is a measure of the overall effectiveness of the transit service. It is measured based on passengers per revenue vehicle hour (effectiveness of service) and passengers per capita (market penetration).

Table 4 summarizes the service utilization in 2015 for the peer group. Noteworthy findings include:

- Average annual ridership in the peer group was approximately 75,000 trips in 2015. No trend was observed between service area population and annual ridership.
- The average revenue vehicle hours of the peer reviewed systems was approximately 7,500 hours in 2015. Systems with higher annual revenue vehicle hours experienced more ridership.
- The average utilization of the service (effectiveness) of the peer systems is 10 boards per revenue hour of service in 2015. No correlation was observed between revenue vehicle hours and annual passenger trips per revenue vehicle hour. Typically higher densities service by transit results in a more effective service.
- The average number of passenger trips per capita was 4.24 in 2015. Based on Grimsby's population, this would equate slightly over 100,000 annual rides.

Table 4: 2015 Peer Group - Service Utilization

Transit System	Annual Ridership	Annual Revenue Vehicle Hours	Passenger Trips/ Revenue Vehicle Hour	Annual Passenger Trips / Capita
Extended GTA				
Bradford/West Gwillimbury	25,541	5,457	4.7	0.73
Orangeville	112,709	9,999	11.3	3.83
Northern Ontario				
Midland	48,750	3,150	15.5	3.90
Wasaga Beach	72,553	9,984	7.3	3.90
Owen Sound	195,693	13,325	14.7	8.90
Elliot Lake	94,033	7,602	12.4	8.29
Eastern Ontario				
Cobourg	103,443	8,692	11.9	9.63
Port Hope	56,902	7,228	7.9	4.61
Quinte West (Trenton)	54,997	11,186	4.9	2.82
Brockville	106,363	10,847	9.8	4.86
Southwestern Ontario				
Port Colborne	26,417	2,520	10.5	1.42
Average	***74,783***	***7,499***	***10.0***	***4.24***

4.3 Financial Performance

Table 5 provides a summary of the financial performance of the transit systems in the peer group. Noteworthy findings include:

- The average adult cash fare was $2.30 in 2015. The average of the average fares was $1.58 in 2015. This is largely influenced by the discount provided for transit passes as well as for different age categories (e.g. seniors and students).
- The average operating cost per hour was $66.44 in 2015. For a system the size of Grimsby, the average operating cost could range between $55 and $80 per hour.
- The average municipal operating cost per capita was $14.19 in 2015. This represents the cost borne by the municipality and does not include any provincial or federal contributions. Based on Grimsby's population, this would equate to an annual operating cost of about $400,000.
- The average revenue/cost ratio of the peer group systems was 24%.

Table 5: 2015 Peer Group - Financial Performance

Transit System	Adult Cash Fare	Average Fare	Hourly Operating Cost	Municipal Operating Contribution/ Capita	Revenue / Cost Ratio
	Extended GTA				
Bradford/West Gwillimbury	$3.00	$1.63	$77.40	$11.36	10%
Orangeville	$2.00	$1.36	$65.57	$7.32	25%
	Northern Ontario				
Midland	$2.00	$1.32	$74.61	$13.22	30%
Wasaga Beach	$2.00	$1.75	$55.34	$15.12	23%
Owen Sound	$2.75	$1.56	$81.95	$25.13	29%
Elliot Lake	$2.50	$1.80	$61.39	$15.18	37%
	Eastern Ontario				
Cobourg	$2.00	$1.39	$69.23	$33.05	25%
Port Hope	$2.00	$1.62	$55.46	$12.86	23%
Quinte West (Trenton)	$2.00	$1.21	$46.54	$5.64	13%
Brockville	$2.25	$1.83	$64.85	$20.41	28%
	Southwestern Ontario				
Port Colborne	$2.75	$2.18	$78.51	$8.14	20%
Average	***$2.30***	***$1.58***	***$66.44***	***$14.19***	***24%***

The target revenue to cost (R/C) ratio is a decision that needs to be made by each municipality. Grimsby will have to decide its desired service levels, municipal operating contributions, as well as passenger fares, which together will shape the R/C ratio. Typically, smaller systems have lower R/C ratios since routes are not as productive as larger municipalities that service higher density locations. A target between 20 and 30 percent R/C ratio is appropriate for a municipality of Grimsby's size. It should be noted that if Grimsby decides to invest in the establishment of a transit system to provide more mobility to its residents, it will likely not meet this target in the short-term. This is because new service costs are immediate, whereas increases in ridership (and revenue) resulting from any improvements may take several years to be fully realized.

5.0 Transit Network Design

5.1 Service Concept Evaluation

One of the first steps in the overall route design was to identify the most appropriate service structure that would best meet the needs of passengers and reduce net operating and capital costs to the tax payer. Two service options were assessed:

1. Fixed Route Transit
2. Dynamic Transit

Fixed-route transit is the most common form of transit seen across Canada. In this model, a bus operates on a fixed route and schedule each day, with stops situated near key origins and destinations throughout the City. The advantage of fixed routes is the ability to carry large volumes of passengers and the ability to control costs (since the route structure and frequency is fixed, there is certainty in the capital and operating costs required to provide the service). The disadvantage is that fixed routes are less flexible to accommodate individual passenger demands. Because the route and schedule is fixed, passengers may need to wait longer periods for a bus or transfer, or will have an indirect route that does not travel directly to a passenger's destination. This can reduce the attractiveness of transit for a number of residents.

Dynamic transit is a new model for transit service delivery which allows customers to use a mobile app to book, track and pay for a shared-ride, demand responsive service. Unlike fixed-route transit, which requires customers to make travel decisions based on pre-defined transit routes and schedules, dynamic transit allows transit schedules and routes to be more responsive to individual customer needs. Customers that need a trip simply book a ride before their desired pick-up time and a vehicle will be at a scheduled pick-up point to take them to their destination or a timed transfer point with another transit route. The service model is a departure from fixed-route transit and is typically used in areas or periods of low transit demand (as a productivity measure). Additionally, dynamic transit can provide a more customized level of service for system passengers.

A pilot project in the Town of Innisfil was launched in May 2017, using Uber as a form of dynamic public transit. Innisfil is a municipality of approximately 37,000 residents with a number of communities spread over approximately 262 square kilometres. Innisfil has never had a transit system, and has decided to launch Innisfil Transit using Uber as its exclusive partner in order to provide what it believes to be an effective transit service at a lower cost. As the first such municipality-wide endeavour in Canada, it is interesting to note lessons from Innisfil's experience and evaluate the applicability of a similar service design model in Grimsby.

In Grimsby, both service models were assessed at a high level to determine the appropriate service structure that should be designed. The following criteria were used to assess each service concept.

5.1.1.1 Suitability of Land Use and Road Network Design

Fixed route transit services are largely ineffective in low density areas with circuitous roadway patterns. This type of land use limits the population within close proximity of a route and requires the route to deviate from a straight-line path to be within walking distance of a minimum number of passengers to be sustainable. As a result, travel times are typically long and the route is not attractive. Grimsby is a long linear municipality with two major east-west corridors that cover the majority of residents and employees. This is well suited for fixed route design as the majority of destinations are located on a fixed route and there is minimal need for the route to deviate from the most direct path. The challenge with fixed route design in Grimsby is the ability to connect the north and the south ends, since the route design would be naturally oriented to flow east-west. This may require a long travel time for residents in the northern neighbourhoods that want to connect to destinations in the south. This impact can be minimized by providing multiple transfer points between the north and south corridors to minimize travel time.

The use of dynamic transit service would not be more suitable for east-west travel, but would minimize travel time for passenger travelling north-south between the municipalities. Dynamic transit would also be more suitable if the town would prefer to service the low density areas along the escarpment.

In Innisfil, the dispersed nature of the urban communities within the municipality make fixed-route transit less effective, due to the low concentration of destinations. Even with the smaller vehicles operated as part of the Uber/Innisfil Transit partnership, the sharing of rides is difficult to achieve. Preliminary data from the first three and a half months of Innisfil Transit operation shows that only 10% of rides are being shared by passengers.

5.1.1.2 Availability of Service Providers

Fixed route transit could be contracted out to a private sector service operator or provided by the municipality by forming a municipal transit department and hiring drivers, supervisors, mechanics, etc. In this scenario, operators are paid an hourly wage to provide service based on a defined schedule. Based on the size of Grimsby, it is anticipated that 5-6 drivers would need to be hired to provide an adequate service.

Dynamic transit can either be delivered by a bus operator (operating flexible routes based on service demand) or contracted out to a local taxi provider or with a ridesharing service such as Uber. If it is operated by a private bus contractor, drivers are paid an hourly wage to operate service. In this instance, there is no financial benefit to operating Dynamic transit service unless the demand is low and the Dynamic transit service has the ability to replace a fixed route bus. Since Grimsby has a relatively small geographic area, this would not be the case.

Cost savings occur in areas of low ridership where a non-dedicated vehicle can be used to deliver the service. This could include a local taxi company or a ridesharing service such as Uber. Since the driver is performing other trips, they can be compensated by the trip instead of by the hour. In low ridership areas/periods, the Town would only pay for service when a trip is being delivered. This is beneficial when ridership demand is low (e.g. less than 3-5 trips per hour). Once ridership exceeds this threshold, it is more cost effective to operate a larger capacity vehicle with a driver that is paid by the hour.

The challenge in Grimsby is that there are few non-dedicated operators available to operate this type of service. Taxis in Grimsby are generally unavailable and there are few ridesharing drivers (e.g. Uber) to ensure trip requests can be accommodated. This will limit the ability to find a suitable partner to operate the service or increase the number of trip denials to customers (if they cannot be accommodated on the service).

Uber has addressed the issue of driver availability in Innisfil by offering an incentive of $100 for new drivers who sign up for the service and provide at least 10 rides. The result of this incentive is that almost 930 unique drivers have provided rides for Innisfil Transit. However, despite this high number, it is not possible to guarantee driver/vehicle availability at all times. For example, there have been driver availability issues during the morning peak period, leading to customer frustration and long wait times. Due to the nature of drivers operating as independent contractors on their own schedules, it is difficult to guarantee the availability of service at all times.

5.1.1.3 Equity and Ease of Use

Fixed-route transit services are available to all members of the community to use that are within a reasonable walking distance to a transit stop. They require a passenger to understand a schedule and access the bus at a fixed route stop where they pay the driver for the fare.

Dynamic transit services require the use of a smart phone to book and pay for a trip. Approximately 66% of Canada's population owns a smartphone, which limit the ability for a number of residents to use the service. To mitigate this, a booking agent would need to be hired to answer phones and book transit trips to residents that do not have a smartphone. This adds an extra cost and area of complexity to booking a trip and knowing when the ride is available.

Innisfil has implemented a phone registration as described above to facilitate access to Innisfil Transit for passengers without a smart phone. To date, the service has experienced limited uptake, with only 15 people booking their trip using this service. There are additional limitations imposed by the municipality's office operating hours, with passengers booking a trip by phone only being able to do so between the hours of 8:30am and 4:30pm. For passengers without credit cards, Uber gift cards are available for purchase at Innisfil Town Hall. The value of the card is loaded onto the passenger's Uber account and fares are directly debited from there.

5.1.1.4 Passenger Fares

Fixed-route transit fares are generally flat fares. The passenger knows in advance what the fare is, and multiple options (cash, tickets, and passes) are available to pay the fare depending on their level of use. It is assumed that for a conventional fixed-route transit system in Grimsby, the average fare would be approximately $1.50. This is in line with the peer average of $1.58 and accounts for higher cash fares and lower concession fares. Concession fares allow for discounted travel for various demographics (seniors, students, etc.) and frequent system users. This helps address affordability for people on fixed incomes and encourages frequent use through fare pricing.

In Innisfil, the fare charged depends on the passenger's origin and/or destination. If travelling to or from four specific destinations (community centre, Yonge Street GO Bus stops, Innisfil Heights employment area, Barrie South GO station), the passenger pays a flat fare of $3, $4 or $5, with the municipality subsidizing the remainder of the Uber fare. For other destinations within the municipality, the Town provides a $5 subsidy off the Uber fare with the passenger paying the remainder. As such, there is no set fare for the vast majority of trips taken on Innisfil Transit. Although the door-to-door service is more convenient than traditional transit service, the cost to the passenger can be significantly higher.

In addition to the likely higher fares associated with dynamic transit, it is not possible to offer concession fares for seniors, students, children, or frequent users under the Uber model. This added financial burden may discourage certain passenger groups from using the service.

5.1.1.5 Operating Costs

Dynamic transit services make sense when the demand for service is low. The fixed-route service design recommended in Section 5.5 is estimated to achieve 6 boardings per revenue vehicle hour during the pilot project phase and over 10 boardings per revenue vehicle hour in Year 5. A typical dynamic transit service would only carry approximately 3-5 boardings per hour, requiring the use of more drivers and more vehicles to accommodate the demand.

The estimated operating cost per hour of revenue service is between $60 and $90 for the proposed fixed route option. The service plan and ridership forecast noted in Section 9.1 was used to estimate service hours, ridership and revenue under a fixed route scenario for a year 1 pilot service and a more established fixed route service.

For dynamic transit, the Uber model operated in Innisfil was used as a basis to estimate net operating costs. In this instance, the operator charges the full fare for the trip and the municipality will discount the fare to something that resembles more of a transit fare (e.g. $1.50). The average cost of an Uber ride in Grimsby ranges from approximately $10 to $16. For the purposes of estimating costs, $12 per trip was used as the average, with 90% of rides being single-occupant trips in the first year of service (the same proportion as in Innisfil). Although the proportion of shared rides will likely increase by Year 5, the expansion of the service area into Stoney Creek will put an upward pressure on average cost. As a

result, the two factors are assumed to cancel out and the average dynamic transit cost per trip has been maintained at $12 in Year 5.

To calculate costs, the same ridership estimates as the pilot project phase and the medium-term Year 5 fixed route service was used at an average fare of $1.50.

Table 6 compares the estimated net cost of the two models. For the fixed route model, the cost estimates are based on the contractor supplying the vehicle for service. This means that there are no capital costs for vehicles, which allows for a more direct comparison.

As illustrated, the costs are comparable in the short-term during the pilot project phase but the conventional transit network represents a significant cost savings as ridership increases over the medium-term. In Year 5, with a higher ridership projection, the cost of dynamic transit service increases over the fixed route model. This is primarily due to the limited ridesharing opportunities that occur with typical Uber partnerships.

However, there are a number of grants and funding sources available that may offset the majority of capital costs for an initial bus start-up.

Table 6: Estimated Net Operating Cost of Fixed Route versus Uber Model

Scenario / Year	Fixed Route Transit*	Dynamic Transit (Uber Model)**
Year 1 Pilot Net Operating Cost *Two-bus option*	$410,000 - $590,000	$420,000
Year 5 Net Operating Cost	$775,000 - $1,225,000	$1,575,000

**Fixed route transit net costs vary during the pilot project phase in Year 1 and 5 based on the range in potential contractor rates. It is assumed that fares are charged in Year 1. In Year 5, the range is also due to potential partnerships with the Town of Lincoln and Hamilton Street Railway.*

***The net operating costs for dynamic transit assume a passenger fare of $1.50 and a passenger demand equivalent to that of a fixed route system. If higher ridership materializes, net costs will increase further.*

5.1.1.6 Cost Certainty

For fixed route services, operating costs are planned ahead of time based on Council approved hours of service. Fluctuation of the municipal subsidy occurs based on ridership (revenue), which is only anticipated to represent approximately 18-24% of operating costs. This allows Councils to more accurately budget for the provision of transit services without significant overruns. For dynamic transit, costs are incurred for each trip rather than for each hour of service. If ridership exceeds expectations, costs have the potential to escalate beyond projected budgets. As an example, the Town of Innisfil has allocated $125,000 to operate Innisfil Transit in 2018. However, if current ridership trends persist, it is

likely that the total operating subsidy of the service will be approximately $250,000. If ridership growth continues to accelerate, this sum will increase even further. There is no viable way to cap operating contributions due to an inability to limit the number passenger trips taken.

5.1.1.7 Summary

Based on the analysis conducted above, the implementation of a fixed-route transit service is recommended in the short- to medium-term in Grimsby. This was primarily due to the:

- Simplicity of the service design;
- Suitability of the road and land use pattern to support fixed-route service;
- Ability to provides concessions for passenger fares';
- Predictability of operating costs; and
- Lower operating costs.

There are two areas that dynamic transit may be suitable for Grimsby. The first is the potential to service low density areas along the escarpment where the density is not high enough to support a fixed route service. This may be something that could be considered the future. The second is as an option to service low demand periods, such as the potential introduction of Sunday service or extension of late night service. This is a service delivery model that the Town should continue to explore once a viable transit service is in place.

5.2 Service Hour Requirements

The peer review of 11 transit systems conducted in **Section 4.0** of this report was used to estimate the approximate number of service hours that would be appropriate for Grimsby and forms a starting point for the overall service design. **Table 7** below illustrates the average number of revenue service hours per capita and the service level characteristics provided in each of the peer systems.

Table 7: 2015 Peer Group - Amount of Service

Town	Service Area Population	Service Hours	Service Hours per Capita	Hours of Service	Typical Headway
Extended GTA					
Bradford/ West Gwillimbury	34,860	5,457	0.16	Mon-Fri: 6:45-17:02 Sat: No service Sun: No service	35-60 min
Orangeville	29,400	9,999	0.34	Mon-Fri: 7:15-18:15 Sat: 7:15-18:15 Sun: No service	30 min
Northern Ontario					
Midland	12,500	3,150	0.25	Mon-Fri: 6:30-17:45 Sat: 8:30-16:45 Sun: No service	60 min
Wasaga Beach	18,615	9,984	0.54	Mon-Fri: 7:00-21:00 Sat: 7:00-21:00 Sun: 7:00-19:00	60-90 min
Owen Sound	22,000	13,325	0.61	Mon-Fri: 6:30-18:00 Sat: 9:00-16:00 Sun: No service	30 min
Elliot Lake	11,348	7,602	0.67	Mon-Wed: 7:00-18:00 Thur-Fri: 7:00-21:00 Sat: 7:00-18:00 Sun: No service	60 min
Eastern Ontario					
Cobourg	10,741	8,692	0.81	Mon-Fri: 6:15-19:45 Sat: 8:15-18:45 Sun: 8:45-15:45	60 min
Port Hope	12,350	7,228	0.59	Mon-Fri: 7:00-20:00 Sat: 9:00-16:00 Sun: No service	60 min
Quinte West (Trenton)	19,500	11,186	0.57	Mon-Fri: 6:00-19:30 Sat: 9:00-16:30 Sun: No service	60 min
Brockville	21,870	10,847	0.50	Mon-Fri: 6:45-21:00 Sat: 8:45-18:15 Sun: No service	60 min
Southwestern Ontario					
Port Colborne	18,600	2,520	0.14	Mon-Fri: 7:00-18:00 Sat: No service Sun: No service	60 min
Average	19,039	8,181	0.42	Mon-Fri: 6:00-18:00 Sat: 8:00-18:00 Sun: No service	60 min

As illustrated above, the amount of service provided in each of the peer systems ranges from 0.14 revenue service hours per capita (Port Colborne) to 0.81 revenue service hours per capita (Cobourg). The average amount of service provided is 0.42 revenue service hours per capita.

This factor was used to estimate the amount of service that is typical of a system the size of Grimsby. Based on this factor, Grimsby should plan a system that provides approximately 11,600 revenue vehicle hours (based on an estimated 2016 total population of 27,600). As the population grows, consideration should be made to increasing the amount of service provided.

Generally, the peer review indicated that municipalities the size of Grimsby provide transit service on weekdays between 6:00am and 6:00pm. With the GO Bus/Train connection, operating the service later into the evening may be important for Grimsby to attract additional ridership. Typical frequencies range from 30 to 60 minutes headways during the peaks and hourly headways during the off-peaks.

Nine of the eleven peer systems also operate a Saturday service while only two offer service on Sunday (i.e., Wasaga Beach and Cobourg). Weekend service is typically reduced in comparison to weekday service (hourly service with a reduced span of service). None of the peer systems offer transit service on holidays.

Using the peer review as a guide, a proposed transit network was designed to confirm the approximate number of service hours that would be reasonable for Grimsby.

5.3 Route Design Principles

Public transit serves different segments of the population, with various user groups having different priorities and expectations of the system. When designing a route network, the trade-offs between coverage, travel time, accessibility, passenger convenience, and cost effectiveness/cost recovery must all be considered. This includes different expectations from future transit customers as well as the general tax payer. Although the end result will never fully satisfy all members of the community, the primary aim is to design a customer-friendly system that is flexible enough to respond to the travel needs of the majority of residents and minimizes the investment from the municipal tax payer.

The primary goal of transit in smaller communities such as Grimsby is to provide those without a private automobile with access to a reasonable and affordable transportation choice. This is due to the challenges of competing with private automobile travel where there are few disincentives to driving (free parking and minimal traffic congestion). For this reason, transit must be designed to promote accessibility and mobility (providing coverage and accessibility), while not ignoring travel characteristics that could convince residents to reduce their household vehicles or take their vehicle less (speed and convenience).

Generally, the establishment of a central hub or transfer location is encouraged as a key component of transit network. Transit hubs act both as a major destination and a central transfer point. In Grimsby, the Casablanca GO Bus stop / future GO Station is a natural transit hub, due to the connections with GO Transit's inter-regional transit network and proximity to retail and higher density development. This hub will function as the primary link between Grimsby and Greater Toronto and Hamilton Area, as well as the rest of Niagara Region. Its importance to the community will be further increased with the extension of the GO Train service to Grimsby in 2021. As a result, it is recommended that any transit network in Grimsby begin by focusing on the Casablanca GO hub.

Local buses on different routes would be scheduled to arrive and depart the Casablanca hub at approximately the same times, in order to permit connections both between local routes and between local routes and GO Transit. This will minimize transfer time and increase convenience for passengers.

5.4 Destinations

Public transit in smaller communities is more commonly used by residents that do not drive or have access to a vehicle. As such, there tends to be an overrepresentation of youth and seniors amongst all transit users. This makes destinations such as schools and seniors residences high priority locations for transit service. With the introduction of GO Train service, there is also likely to be a growing number of residents that will use the transit service to access inter-municipal transit opportunities. This will occur if parking availability at the GO Station is limited and if the service provided is convenient and integrated with GO Train schedules.

Figure 12 illustrates the locations of these destinations that should be connected (where feasible) by a local transit service design. **Table 8** summarizes the approximate size of each of the schools, seniors' residences, and community centres in Grimsby.

Figure 12: Locations of Schools, Seniors' Residences and Community Centres in Grimsby

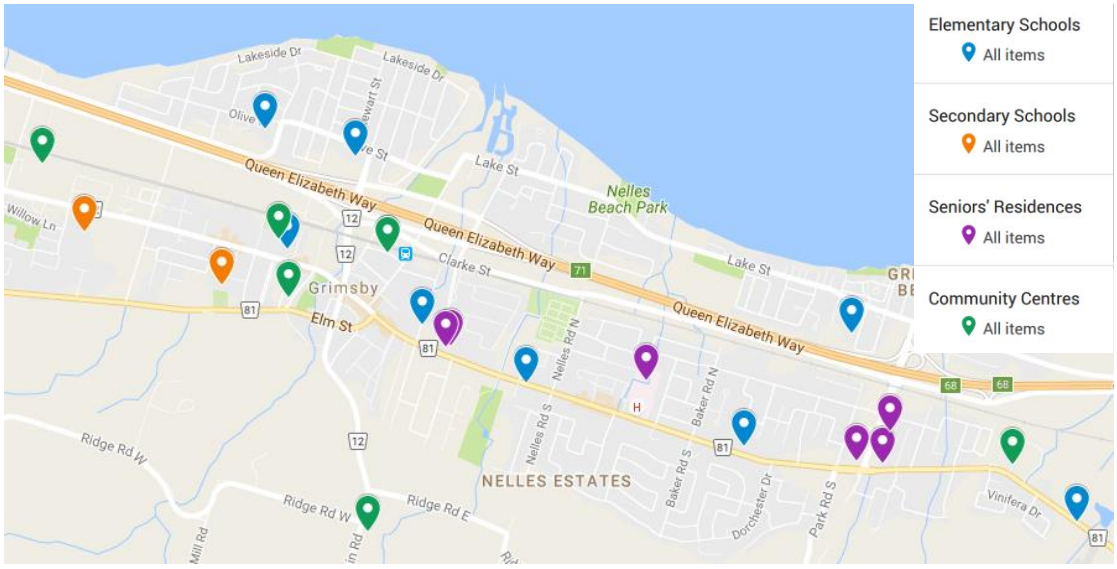
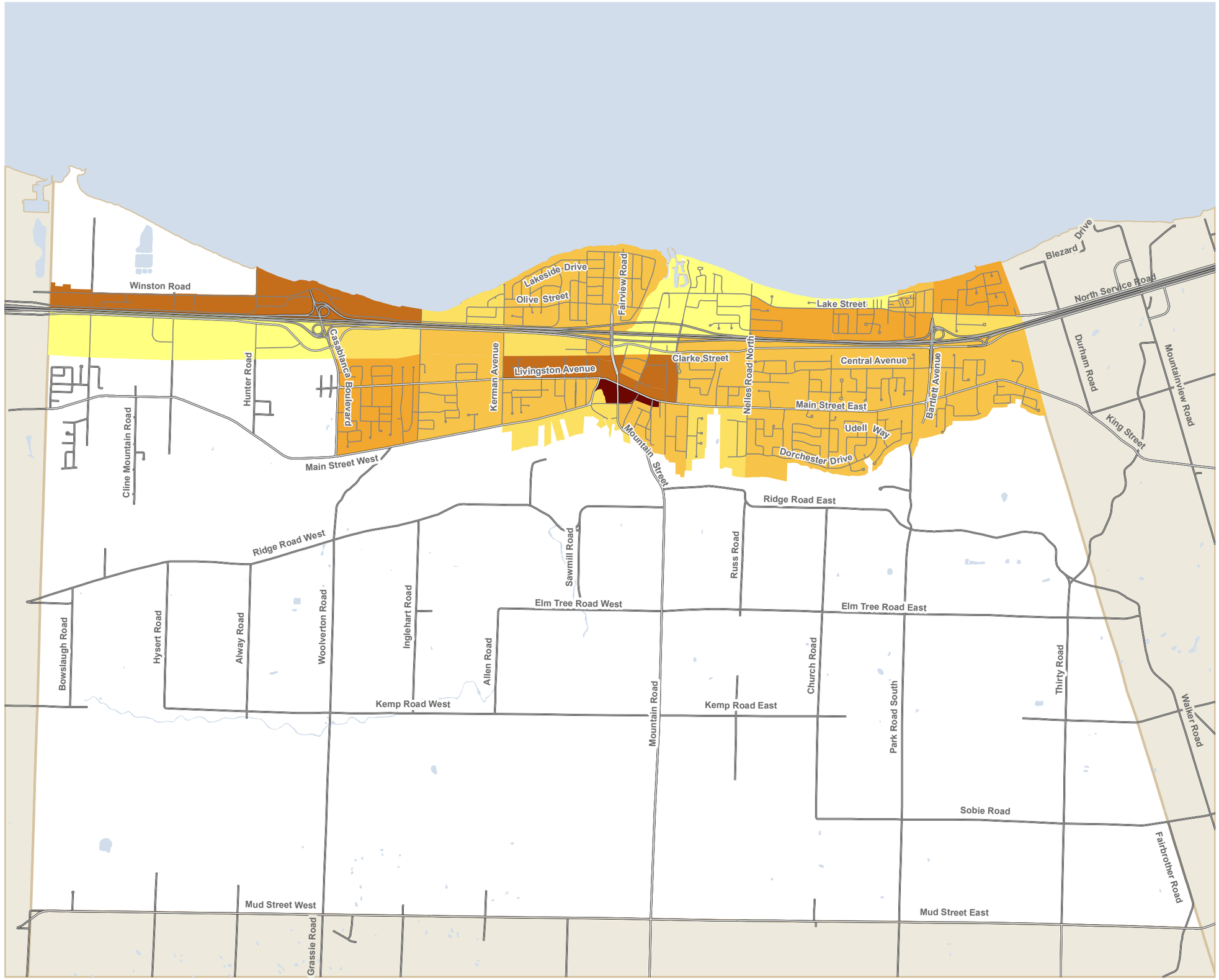


Table 8: Size and Location of Grimsby Destinations

Destination	Address	Size
Secondary Schools*		**Students**
Grimsby Secondary	5 Boulton Ave, Grimsby	1,000
Blessed Trinity Catholic Secondary School	145 Livingston Ave, Grimsby	1,000
Beamsville District Secondary School	4317 Central Ave, Beamsville	Unavailable
South Lincoln High School	260 Canborough St, Smithville	350
Seniors' Residences		**Units**
Lincoln Park Retirement Residence	265 Main St E, Grimsby	70
Maplecrest Village Retirement Community	85 Main St E, Grimsby	70
Evergreen Terrace Retirement Home	275 Main St E, Grimsby	98
Shalom Manor & Gardens Retirement Home	12 Bartlett Ave, Grimsby	36
Deer Park Villa and Suites Nursing Home	150 Central Ave, Grimsby	26
Kilean Lodge Nursing Home	83 Main St E, Grimsby	50
Community Centres		
YMCA Niagara West	325 Main St E, Grimsby	N/A
Grimsby Livingston Activity Centre	18 Livingston Ave, Grimsby	N/A
Grimsby Peach King Centre	162 Livingston Ave, Grimsby	N/A
Grimsby Lions Community Pool	1 Elm St, Grimsby	N/A
Mountain Ridge Community Centre	105 Mountain Rd, Grimsby	N/A
Art Gallery	18 Carnegie Ln, Grimsby	N/A
Library	18 Carnegie Ln, Grimsby	N/A
Museum	6 Murray St, Grimsby	N/A

**Note: The Niagara Public School Board is undertaking an accommodation review of its high schools. One option is to replace the high schools in Grimsby, Beamsville, and Smithville with one new school. The existing location of this school has not yet been identified, however, a potential location could be along Main Street east between Grimsby and Beamsville.*

The vast majority of Grimsby's urban area is located to the north of the Niagara Escarpment. As a result, a potential transit service should be focused on this area, as it can reasonably be expected to attract the most ridership. The urban part of Grimsby is itself divided by the QEW, a six-lane freeway that cuts across the Town in an east-west direction. The main residential, employment, commercial, and employment areas, along with institutional, educational, and cultural facilities are located on the south side of the QEW. **Figure 13** illustrates the combined population and employment density in the urban portion of the Town of Grimsby.



TOWN OF GRIMSBY
TRANSIT INVESTIGATION STUDY

EXISTING POPULATION AND EMPLOYMENT DENSITY
FIGURE 13

- TOWN OF GRIMSBY
- OTHER MUNICIPALITIES
- PROVINCIAL HIGHWAY
- REGIONAL ROAD
- MUNICIPAL ROAD

2016 Density

- 0 - 10.0 RESIDENTS AND JOBS / HECTARES
- 10.1 - 20.0 RESIDENTS AND JOBS / HECTARES
- 20.1 - 30.0 RESIDENTS AND JOBS / HECTARES
- 30.1 - 40.0 RESIDENTS AND JOBS / HECTARES
- 40.1 - 50.0 RESIDENTS AND JOBS / HECTARES
- 50.1 - 60.0 RESIDENTS AND JOBS / HECTARES
- 60.1 - 70.0 RESIDENTS AND JOBS / HECTARES

0 0.25 0.5 1 km

SCALE 1:37,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY TOWN OF GRIMSBY, NIAGARA REGION, MNR AND ESRI

MAP CREATED BY: SMB
MAP CHECKED BY: DK
MAP PROJECTION: NAD 1983 UTM Zone 17N

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Grimsby Density 2016.mxd

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STATUS: DRAFT
2016-12-02

5.5 Network Design

5.5.1 Pilot Service (Year 1)

5.5.1.1 Two-Bus Option

A limited pilot service is recommended to test the feasibility and uptake of a new transit service in Grimsby. The pilot should strike a balance between establishing a base transit network that adequately serves residents and businesses, while minimizing capital and operating costs (and thus risk).

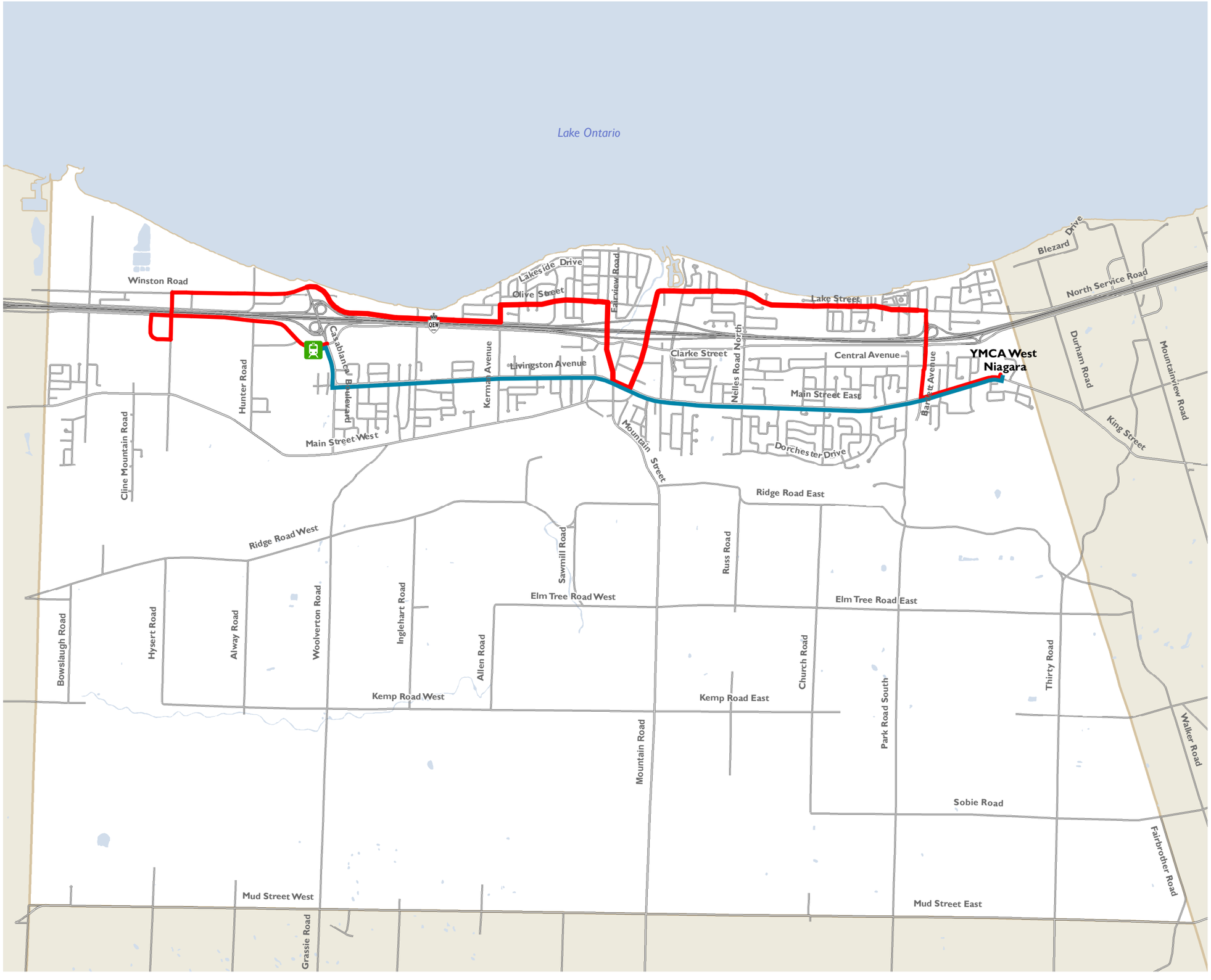
Two interlined routes are proposed for the transit system's pilot phase. The primary system hub would be the Casablanca GO hub, with both routes feeding into this point in order to provide connections to and from GO Bus service. A secondary hub is recommended at the YMCA on the eastern edge of Grimsby.

Route 1 would serve areas south of the Queen Elizabeth Way, along the Main Street and Livingston Avenue corridor. A number of important destinations would be served by this route, including the main retail, education, medical, and recreational facilities in Grimsby. Route 1 would connect the Casablanca GO hub to the Niagara West YMCA. Route 1 would operate at 60-minute headways between 6:30 am and 7:30 pm, Monday to Friday. No weekend service is recommended during the pilot project phase.

Route 2 would primarily serve areas north of the Queen Elizabeth Way, along the Winston Road, North Service Road, Olive Street, Lake Street, and Bartlett Road corridors. Route 2 would 'dip' down into Downtown Grimsby, in order to provide direct connections to the shopping and institutional destinations for north-side residents. A number of important destinations would be served by this route, including the fast-growing northwest Grimsby area, the established Grimsby Beach area, and a number of businesses on the South Service Road, to the west of the Casablanca GO hub. Route 2 would connect the Casablanca GO hub to the Niagara West YMCA on the eastern edge of Grimsby. Similar to Route 1, Route 2 would operate at 60-minute headways between 6:30 am and 7:30 pm, Monday to Friday. No weekend service is recommended during the pilot project phase.

The buses on the two routes would be interlined, allowing for transfer-free travel throughout Grimsby. Each bus would operate on either a clockwise or counter-clockwise direction. Upon reaching either the Casablanca GO hub or the Niagara West YMCA, a Route 1 bus would become a Route 2 bus, and vice versa, continuing in the same general direction (clockwise or counter-clockwise). This route structure will eliminate the need to transfer buses and maintain two-way service along all corridors served.

Figure 14 illustrates the recommended pilot project transit network in Grimsby.



TOWN OF GRIMSBY
TRANSIT INVESTIGATION STUDY

YEAR 1 TWO-BUS PILOT SERVICE ROUTE NETWORK
FIGURE 14

- PROPOSED ROUTE 1
- PROPOSED ROUTE 2
- 400 METRE WALKING DISTANCE
- GO STATION
- PROVINCIAL HIGHWAY
- REGIONAL ROAD
- MUNICIPAL ROAD
- TOWN OF GRIMSBY
- OTHER MUNICIPALITIES

0 0.25 0.5 1 km

SCALE 1:37,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY TOWN OF GRIMSBY, NIAGARA REGION, MNR AND ESRI

MAP CREATED BY: SMB
MAP CHECKED BY: DK
MAP PROJECTION: NAD 1983 UTM Zone 17N

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Year 1 Pilot Service Route Map.mxd

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2017-10-30

5.5.1.2 One-Bus Option

To further reduce the operating costs of the pilot project phase, while still introducing a base level of transit service in Grimsby, a one-bus option may also be implemented. The one-bus option would represent a minimum level of service that would provide mobility options to residents who do not have other means to get around. However, the limited level of service provided by the one-bus option would likely result in limited ridership from residents without alternative transportation choices.

The one-bus transit network can be structured in one of the two following ways:

1. **60 minute, two-way service along the Livingston/Main corridor.**
   This option would provide a 60-minute service to the Livingston Avenue and Main Street corridor, the area with the highest concentration of trip generators and transit destinations. In addition to the areas served by Route 1, the one-bus pilot phase transit network would extend to the Northwest Grimsby area, along Winston Road. The route would connect the intersection of Winston Road and Lakelawn Road to the Niagara West YMCA, via Winston Road, North Service Road, Casablanca Boulevard, the Grimsby GO Bus stop, Livingston Avenue, and Main Street. This service option would provide two-way service along the Livingston/Main corridor and serve the high-density Northwest Grimsby neighbourhood. However, there would be no service in areas north of the Queen Elizabeth Way and east of Casablanca Boulevard, leaving approximately 10,000 residents out of the route's walking catchment area.

2. **60 minute, one-way service along Route 1 and Route 2.**
   This option would provide service along Route 1 and Route 2, as described in the two-bus option. However, the service would be provided in a single-direction loop. This network option provides service to areas both north and south of the Queen Elizabeth Way; however, the one-way nature of the loop means that travel times may be significantly longer for some passengers.

Both options would use the single bus to operate at 60-minute headways between 6:30 am and 7:30 pm, Monday to Friday. No weekend service is recommended during the pilot project phase.

If Council elects to begin with a single-route option, it is anticipated that 4-6 boardings per revenue vehicle hour could be achieved, increasing only when service levels are improved.

5.5.2 Short-Term Network (Year 3)

The short-term plan builds on the base transit network established during the pilot project phase. If the projected demand materializes during the pilot phase and there is a demonstrated need for the service, gradual improvements are recommended. The short-term network makes small tweaks to ensure continued ridership growth and improved passenger convenience.

Route 1 would be improved to operate at a half-hour headway during the morning and evening peak periods, thus providing increased service along the Main Street and Livingston Avenue corridor. Its eastern end would also be modified, with the route extended to the Beamsville GO stop. If the Town of Lincoln wishes to enter into a cost-sharing agreement with the Town of Grimsby, the Route 1 Beamsville extension would traverse the length of Beamsville from north to south, terminating at the Albright Centre.

Route 2 would operate at the same level of service and along the same general routing as during the pilot phase. Route 2 would connect the Casablanca GO hub to the Niagara West YMCA on the eastern edge of Grimsby, where connections would be available to Route 1.

It is possible that Route 2 may not be able to complete a one-way trip between the Casablanca GO hub and the Niagara West YMCA (13.5 kilometres) in 30 minutes, thus compromising the hourly headway. If that is the case, the downtown 'dip' along Christie Street, Main Street, and Ontario Street should be eliminated, with through service being provided along Olive Street instead. To determine the feasibility of this deviation, the contracted service operator be requested to test the timing of the route to ensure it is operationally feasible to consistently complete the route in 30 minutes per direction. Run time data from the pilot project should help with this determination. It is recommended that Route 2 continue to run at 60-minute headways in the short-term (Year 3) network.

Due to the changes proposed for Route 1, buses will no longer be interlined. As a result, passengers wishing to transfer between the two routes will need to change vehicles at the Casablanca GO hub, the Niagara West YMCA, or in Downtown Grimsby (if Route 2 continues to 'dip' down).

Figure 15 illustrates the recommended short-term transit network (Year 3) in Grimsby.

TOWN OF GRIMSBY
TRANSIT INVESTIGATION STUDY

RECOMMENDED SHORT-TERM (YEAR 3) TRANSIT NETWORK
FIGURE 15

- ROUTE 1 (GRIMSBY GO-BEAMSVILLE GO VIA DOWNTOWN)
- ROUTE 1 BEAMSVILLE PEAK PERIOD EXTENSION
- ROUTE 2 (GRIMSBY GO-YMCA VIA WINSTON AND GRIMSBY BEACH)
- 400 METRE WALKING DISTANCE
- GO STATION
- PROVINCIAL HIGHWAY
- REGIONAL ROAD
- MUNICIPAL ROAD
- TOWN OF GRIMSBY
- OTHER MUNICIPALITIES

0 0.25 0.5 1 km

SCALE 1:42,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY TOWN OF GRIMSBY, NIAGARA REGION, MNR AND ESRI

MAP CREATED BY: SMB
MAP CHECKED BY: DK
MAP PROJECTION: NAD 1983 UTM Zone 17N

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Year 1 Route Map.mxd

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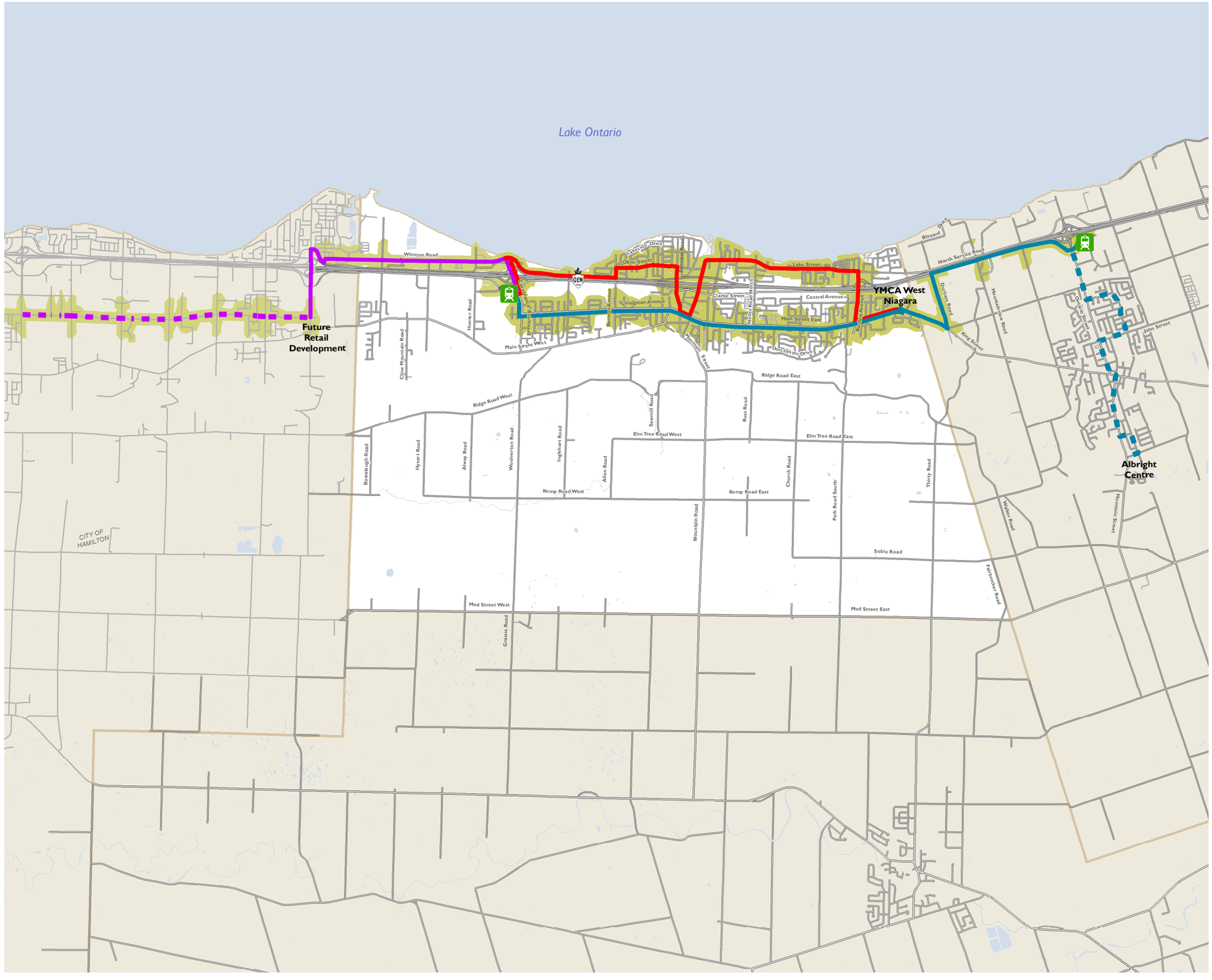
2017-01-26

5.5.3 Medium-Term Network (Year 5)

The medium-term plan for the growth of transit in Grimsby builds on the network established in the pilot phase (Year 1) and the short term (Year 3). Specifically, hours of operation are expanded system-wide and service levels are increased for the denser northwest Grimsby area. The establishment of Route 3 is proposed to connect to Hamilton via the Winston Road neighbourhood, if the Hamilton Street Railway expands its fixed-route service to a large planned retail development at Fifty Road. Consequently, Route 2 would be truncated to serve areas to the east of Casablanca Boulevard only and the downtown extension would be re-established (if severed in Year 3) to provide another transfer opportunity with Route 1. **Figure 16** shows the recommended medium-term transit network in Grimsby.

It should also be noted that the introduction of Route 3 and any additional service improvements should be triggered by minimum ridership performance targets being met. Most transit systems develop service standards and performance measures to guide service design and monitor performance. This is recommended as a future step for Grimsby. Generally, the introduction of a new route or expansion of service levels should be not completed until the system or route in question achieves a minimum of 15 boardings per revenue vehicle hour. While the Medium-term plan offers a proposed expansion plan, this should not be completed without appropriate monitoring of system performance based on acceptable standards being achieved.

The following provides additional details of each of the proposed routes for the pilot service as well as the short and medium term, along with corresponding service levels.



TOWN OF GRIMSBY
TRANSIT INVESTIGATION STUDY

RECOMMENDED MEDIUM-TERM (YEAR 5) TRANSIT NETWORK
FIGURE 16

- PROPOSED ROUTE 1
- PROPOSED ROUTE 1 BEAMSVILLE EXTENSION
- PROPOSED ROUTE 2
- PROPOSED ROUTE 3
- POTENTIAL FUTURE HSR ROUTE 55 EXTENSION
- 400 METRE WALKING DISTANCE
- GO STATION
- PROVINCIAL HIGHWAY
- REGIONAL ROAD
- MUNICIPAL ROAD
- TOWN OF GRIMSBY
- OTHER MUNICIPALITIES

0 0.25 0.5 1 km

SCALE 1:65,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY TOWN OF GRIMSBY, NIAGARA REGION, MNR AND ESRI

MAP CREATED BY: SMB
MAP CHECKED BY: DK
MAP PROJECTION: NAD 1983 UTM Zone 17N

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Year 5 Route Map.mxd

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2017-03-06

5.5.4 Route 1

Round Trip Route Length:	15 kilometres (pilot phase); 24 kilometres (Year 3-5)
Round Trip Time:	60 minutes
Peak Hour Headway:	60 minutes (pilot phase); 30 minutes (Year 3-5)
Peak Period Bus Requirement:	1 bus (pilot phase); 2 buses (Year 3-5)
Off-Peak Headway:	60 minutes
Off-Peak Bus Requirement:	1 bus

Due to its natural geography, Grimsby has a very linear urban layout. Its developed area extends for approximately 8 kilometres in an east-west direction, while only reaching a maximum of 2 kilometres in a north-south direction. As a result, there is only one primary corridor across the entirety of the town (Livingston Avenue-Main Street East) that generally encompasses the majority of the largest expected trip generators. The only large trip generators that are not located directly on this corridor are:

- Casablanca GO hub (future GO Rail station);
- Medium/high-density residential developments north of QEW, west of Casablanca Boulevard.

A route serving the Livingston/Main corridor has been designed starting at the Casablanca GO hub as its western terminus. Heading eastbound, the route would continue south on Casablanca Boulevard, east on Livingston Avenue/Main Street before arriving at the YMCA Niagara West. This would be the end of Route 1 during the pilot project phase. Due to interlining, a Route 1 bus would continue as a Route 2 bus and vice-versa.

In the short-term (Year 3) and medium-term network (Year 5), Route 1 would be extended further eastward. From the Niagara West YMCA, Route 1 would continue east along Main Street East, north on Durham Road, and east on South Service Road before arriving at the Beamsville GO Bus stop/Ontario Street carpool lot in the Town of Lincoln. Route 1 would serve the following key destinations:

- Casablanca GO hub (future GO Train station);
- Niagara Gateway;
- Real Canadian Superstore/Rona;
- Grimsby Peach King Centre;
- Town of Grimsby Municipal Centre;
- Blessed Trinity Catholic Secondary School;
- Grimsby Secondary School;
- Grimsby Square (including Canadian Tire, Sobeys, Shoppers Drug Mart);
- Village Inn Centre (including Food Basics);
- Downtown Grimsby;
- Orchardview Village Square;
- Grimsby Mews (including Dollarama, Shoppers Drug Mart);

- West Lincoln Memorial Hospital;
- Bartlett Avenue retirement facilities (inc. Lincoln Park, Evergreen Terrace, Shalom Manor & Gardens);
- YMCA Niagara West *(end of Route 1 in pilot phase)*;
- Potential future consolidated West Niagara High School; and
- Beamsville GO Bus stop.

As shown in **Figure 17**, this route would be located within a 5-minute walking distance (400 metres) of approximately 9,000 residents and 3,000 jobs. This is a significant catchment area for a community of Grimsby's size, as it captures a large portion of the residential and employment areas. Five minutes is generally considered the threshold of how far most people are willing to walk to a bus stop.

The route provides direct, two-way travel along a major corridor with direct access to most important trip generators, while being within a reasonable walking distance of the vast majority of Grimsby residents that live south of the QEW. This route along the Livingston Avenue/Main Street East corridor would be the spine of any transit network in Grimsby. Additionally, it connects to both the Grimsby and the Beamsville GO Bus stops. Due to its short length, the portion of the route in the Town of Lincoln does not increase operating costs or bus purchase requirements and permits for better connection opportunities with GO Transit for destinations in eastern Niagara Region, including St. Catharines, Niagara Falls, and Welland. The connection to the Beamsville GO Bus stop provides a second opportunity for Grimsby residents to connect to GO Bus services. Since GO Bus services operate at irregular schedules, it is impossible for the local transit route to provide on-time connections to both eastbound (towards St. Catharines) and westbound (towards Hamilton) GO Buses. The connection to two GO Bus stops (at Casablanca and Beamsville) increases the potential of providing a reasonable connection to inter-municipal services while minimizing travel and waiting time. This should increase the attractiveness of Route 1 for connections to GO Bus services.

It is recommended that this route initially operate on a 60-minute headway during the pilot project phase, in order to provide a base level of service while minimizing operating costs. Service would be provided by a single bus Monday to Friday only, between 6:30 am and 7:30pm.

In the short-term (Year 3) and medium-term (Year 5) transit network, a 30-minute headway is recommended for Route 1 during weekday peak periods (6:30am to 9:00am and 3:00pm to 6:30pm). During weekday off-peak hours (9:00am to 3:00pm and 6:30pm to 7:30pm) and on Saturdays (8:30am to 6:30pm), a 60-minute headway is recommended. During peak hours, two buses would be required to provide the service, while only one bus would be required during the midday, evening and Saturday periods. In the medium term (within five years), it is recommended that service be extended to 9:30pm on weekdays and 8:30pm on Saturdays. Service at 30-minute headways during peak periods and 60-minute headways off-peaks would continue to be maintained. The service extension in the medium term would be dependent on minimum boardings per revenue vehicle hour being achieved.

TOWN OF GRIMSBY
TRANSIT INVESTIGATION STUDY

ROUTE 1 CATCHMENT AREA (400m WALKING DISTANCE)
FIGURE 17

- PROPOSED ROUTE 1
- 400 METRE WALKING DISTANCE
- GRIMSBY GO STATION
- PROVINCIAL HIGHWAY
- REGIONAL ROAD
- MUNICIPAL ROAD
- TOWN OF GRIMSBY
- OTHER MUNICIPALITIES

Niagara Transportation Growth Model	2016	2021
Approximate Population within 400m	8,901	9,183
Approximate Employment within 400m	2,822	2,868

0 0.25 0.5 1 km

SCALE 1:37,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY TOWN OF GRIMSBY, NIAGARA REGION, MNR AND ESRI

MAP CREATED BY: SMB
MAP CHECKED BY: DK
MAP PROJECTION: NAD 1983 UTM Zone 17N

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Proposed Route.mxd

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PROJECT: 164216

STATUS: DRAFT

2017-03-06

5.5.5 Route 1 Beamsville Extension (Year 3-5 Only)

Round Trip Route Length:	35 kilometres (includes portion within Town of Grimsby)
Round Trip Time:	90 minutes (includes portion within Town of Grimsby)
Peak Hour Headway:	30 minutes (includes portion within Town of Grimsby)
Peak Period Bus Requirement:	3 buses (includes portion within Town of Grimsby)
Off-Peak Headway:	no off-peak service proposed
Off-Peak Bus Requirement:	N/A

The community of Beamsville, located in the Town of Lincoln, is less than 3 kilometres east of the Town of Grimsby's border. Beamsville has a population of approximately 12,000 residents, and like Grimsby, is experiencing rapid growth. Similar to Grimsby, it does not currently have a local transit service, although it is also served by GO Transit's Route 12 Bus at the Ontario Street carpool lot.

Beamsville is currently not included in the confirmed list of stations to be served by the GO Rail Lakeshore West extension that will see service brought to Grimsby by 2021. It has, however, been identified as a potential future station location, although no timeline has been set for this. Before such time as Beamsville receives its own GO Rail station, it will be located within Grimsby's catchment area.

The Town of Lincoln launched a 14-month pilot transit service in November 2017. The one-bus system serves the communities of Beamsville, Vineland, and Jordan with between 3 and 5 trips per day. Extending Grimsby's local transit service to Beamsville would create opportunities for increased ridership, expanded network coverage, and cost-sharing arrangements beneficial to both the Town of Grimsby and the Town of Lincoln. Specifically, extending Route 1 from its proposed eastern terminus at the Beamsville GO Bus stop south through the town would create a unified transit route serving local travel demand within Beamsville as well as inter-municipal travel demand between the two towns. It would also allow Lincoln to adjust their service in Beamsville, focusing on connections to Vineland and Jordan.

From the Beamsville GO Bus stop, the Route 1 Beamsville extension is recommended to head south on Ontario Street, east on Homestead Drive, south on Garden Gate Terrace, west on John Street, south on Ontario Street, east on King Street, south on Mountain Street, east on Douglas Street, south on Hixon Street, and west on Hillside Drive before arriving at the Albright Centre. From there, it would loop around and head back to the Casablanca GO hub, via Downtown Beamsville, the Beamsville GO Bus stop, and Downtown Grimsby along one single integrated route. The Route 1 Beamsville extension would serve the following key destinations:

- Beamsville GO Bus stop (Ontario Street Carpool lot);
- Ontario Street commercial and industrial corridor;
- Sobeys;
- Academy Plaza;

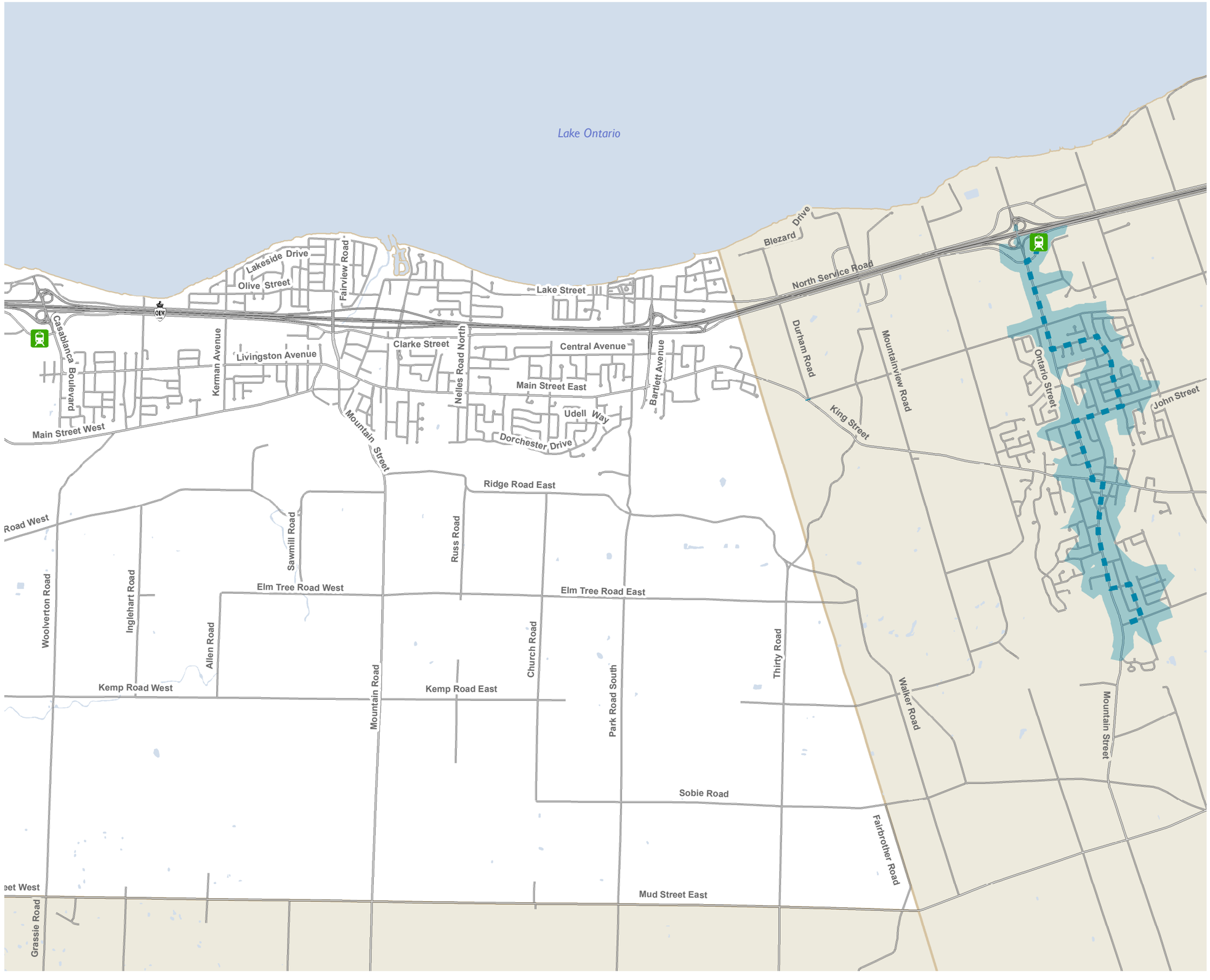
- Golden Gate Terrace residential neighbourhood;
- Lincoln Community Centre;
- Beamsville District Secondary School;
- Fleming Memorial Arena;
- Downtown Beamsville; and
- Albright Centre.

As shown in **Figure 18**, the Route 1 Beamsville extension would be located within a 5-minute walking distance (400 metres) of almost 6,000 residents and 2,000 jobs. This is a significant catchment area for a community of Beamsville's size, as it captures a large portion of the residential and employment areas.

The route provides two-way travel along the major north-south corridor with direct access to most important trip generators. Small deviations off of Ontario Street allow the route to come within a five-minute walking distance of approximately 45% of Beamsville residents and 54% of Beamsville jobs. This route along the north-south corridor could constitute the spine of any future transit network expansions in Beamsville. It is anticipated that the Town of Lincoln would continue to provide its own local service to cover off the off-peak period and additional areas of the Town (e.g. Vineland and Jordan).

A cost-sharing agreement between Town of Grimsby and the Town of Lincoln would be necessary to split operating and capital costs. As almost half of the full route's length is in Beamsville, the Town of Lincoln would be responsible for funding a significant portion of the costs associated with the route extension. Additionally, because the route connects two municipalities, there is potential for financial support from the Region of Niagara. Such an arrangement would be beneficial to both municipalities, as both municipalities would benefit from more efficient scheduling allowing it to reduce its operating and capital costs. Additionally, ridership, revenues, system connectivity and customer convenience would be increased with an integrated route compared to two individual systems, increasing the potential to grow ridership and therefore revenue (e.g. Beamsville resident employed in Grimsby and/or Grimsby resident employed in Beamsville).

It is recommended that once both the Town of Lincoln and the Town of Grimsby transit pilots have concluded (Year 3), the Route 1 Beamsville extension would operate on a 30-minute headway during weekday peak periods (6:30am to 9:00am and 3:00pm to 6:30pm). At this point, off-peak service is not envisioned. Instead, during off-peak hours and on weekends, Route 1 would terminate at the Beamsville GO Bus stop, before heading back to Grimsby. During peak hours, a total of three buses (operating costs split between the Town of Grimsby, Town of Lincoln, and potentially the Region of Niagara) would be required to provide the service, while only one bus (operating costs fully covered by the Town of Grimsby) would be required during the midday, evening and Saturday periods. No changes to the service are recommended in the medium term (5 years). Should the Town of Lincoln request additional service be added during off-peak periods, this would be operated by the Town of Lincoln or by the proposed Town of Grimsby transit operator at full cost-recovery.



TOWN OF GRIMSBY
TRANSIT INVESTIGATION STUDY

ROUTE 1 BEAMSVILLE EXTENSION CATCHMENT AREA (400m WALKING DISTANCE)
FIGURE 18

- PROPOSED ROUTE 1 BEAMSVILLE EXTENSION
- 400 METRE WALKING DISTANCE
- GRIMSBY GO STATION
- PROVINCIAL HIGHWAY
- REGIONAL ROAD
- MUNICIPAL ROAD
- TOWN OF GRIMSBY
- OTHER MUNICIPALITIES

Niagara Transportation Growth Model	2016	2021
Approximate Population within 400m	5,519	5,706
Approximate Employment within 400m	1,723	1,817

0 0.25 0.5 1 km

SCALE 1:37,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY TOWN OF GRIMSBY, NIAGARA REGION, MNR AND ESRI

MAP CREATED BY: SMB
MAP CHECKED BY: DK
MAP PROJECTION: NAD 1983 UTM Zone 17N

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Proposed Route 1A.mxd

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PROJECT: 164216
STATUS: DRAFT
2017-03-06

5.5.6 Route 2

Round Trip Route Length:	28 kilometres (pilot phase); 25 kilometres (Year 3); 21 kilometres (Year 5)
Round Trip Time:	60 minutes
Peak Hour Headway:	60 minutes
Peak Period Bus Requirement:	1 bus
Off-Peak Headway:	60 minutes
Off-Peak Bus Requirement:	1 bus

The Route 1 corridor route covers a significant proportion of the major trip generators in Grimsby, but it does not provide full coverage within the Town's urban area. Specifically, areas north of the QEW are not within a reasonable walking distance of the route. In order to provide better coverage throughout the Town, Route 2 has been designed to service the two following residential areas to the north of the QEW:

- **Northwest Grimsby:** This area, located to the north of the QEW and to the west of Casablanca Boulevard, is the site of the most significant development in Grimsby. Urban town homes and several mid-rise buildings will occupy this dense area, leading to a population of approximately 4,000 in 2021. In addition, employment in this area is also forecast to reach almost 1,000 jobs by 2021. This area's proximity to the GO Station will likely mean a significant commuter demographic, which can be well-served by a local transit link to the future GO Station.
- **North Grimsby and Grimsby Beach:** These areas, located in the north-central and north-eastern parts of the Town, have a substantial residential population. However, density is lower and employment is minimal and dispersed.

Route 2 has been designed to connect to Route 1 on either end of its route. Departing from the Casablanca GO hub, Route 2 would extend west on the South Service Road, south on Tops Drive, north on Oakes Road North, east on Winston Road, east on North Service Road, east on Olive Street, north on Ontario Street, east on Lake Street, south on Bartlett Avenue, and east on Main Street East before arriving at the YMCA Niagara West, its eastern terminus.

During the pilot project phase, Route 2 would 'dip' into Downtown Grimsby via Christie Street, Main Street West, and Ontario Street, before continuing its regular routing east on Lake Street. This deviation is made possible by the proposed interlining with Route 1, which allows for a 60 minute combined loop. This routing would provide direct access to retail and employment destinations in downtown Grimsby without requiring a transfer at the Casablanca GO hub or the YMCA transfer point. It would also bring Route 2 riders within closer proximity to Grimsby Secondary School (within a 5 minute walk).

Run time and schedule constraints may prevent the direct Downtown Grimsby connection from being maintained in the short-term (Year 3) network. Its operational feasibility should be verified by the service operator.

Route 2 would serve the following key destinations:

- Casablanca GO hub (future GO Train station);
- Niagara Gateway;
- Real Canadian Superstore/Rona;
- Westbrook Floral;
- John Deere;
- Tops Drive industrial;
- Winston Road community;
- Casablanca Winery Inn & Spa/Super 8;
- Lakemount Worship Centre;
- Downtown Grimsby (*pilot phase and medium-term network, potential as part of short-term Year 3 network*)
- Grimsby Harbour;
- Nelles Beach;
- Grimsby Beach;
- Bartlett Avenue retirement facilities (inc. Lincoln Park, Evergreen Terrace, Shalom Manor & Gardens); and
- YMCA Niagara West.

As shown in **Figure 19**, Route 2 would be located within a 5-minute walking distance (400 metres) of approximately 8,500 residents and 1,500 jobs. While this is only slightly lower than Route 1 population and employment, there are fewer significant destinations along Route 2, which may reduce ridership demand in the short-term until the Northwest Grimsby area approaches full build-out.

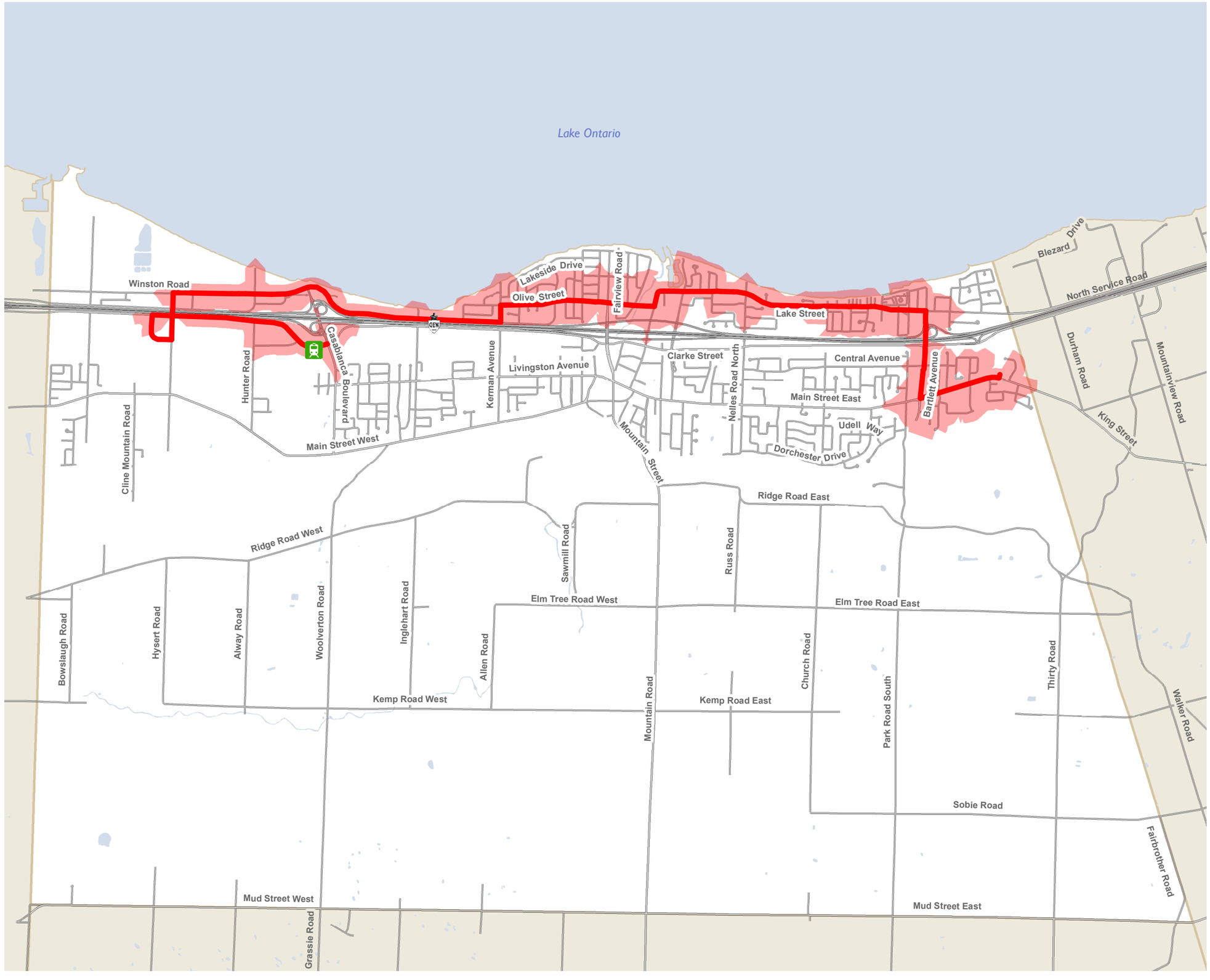
It is recommended that the Route 2 initially operate on a 60-minute headway on weekdays (6:30am to 7:30pm) only. Saturday service (8:30am to 6:30pm) is recommended to be implemented as part of the short-term (Year 3) plan. Only one bus would be required to provide the service at all times. In the medium term (within five years), it is recommended that service be extended to 9:30pm on weekdays and 8:30pm on Saturdays, to match the span of service on other routes.

If the Hamilton Street Railway decides to extend its fixed-route transit service to the intersection of Fifty Road and Barton Street in the medium term (Year 5), it is recommended that Route 2 be modified due to the establishment of Route 3. Route 2 would be shortened to only serve areas east of Casablanca Road, and would no longer be routed along the South Service Road, Tops Drive, Oakes Street North, and

Winston Road. This would provide a more direct route to the GO Station for residents living in North Grimsby and Grimsby Beach.

The time savings achieved by eliminating the north-western portion of Route 2 would be used to re-establish a direct connection from the areas north of the QEW to Downtown Grimsby (if the short-term Year 3 network does not already include it). Route 2 would continue to provide service with 60 minute headways at all times. The modified structure of Route 2, as recommended in the medium-term network plan, is shown in **Figure 20**.

If the Hamilton Street Railway decides not to extend its fixed-route transit service to the intersection of Fifty Road and Barton Street in the medium term, Route 2 would retain its original proposed route structure. However, in order to better serve the growing dense area in northwest Grimsby, it is recommend that Route 2 increase its service offering to operate on a 30-minute headway during weekday peak periods (6:30am to 9:00am and 3:00pm to 6:30pm). During weekday off-peak hours (9:00am to 3:00pm and 6:30pm to 9:30pm) and on Saturdays (8:30am to 8:30pm), a 60-minute headway is continued to be recommended.



TOWN OF GRIMSBY
TRANSIT INVESTIGATION STUDY

ROUTE 2 CATCHMENT AREA (SHORT-TERM NETWORK) (400m WALKING DISTANCE)
FIGURE 19

- PROPOSED ROUTE 2
- 400 METRE WALKING DISTANCE
- GRIMSBY GO STATION
- PROVINCIAL HIGHWAY
- REGIONAL ROAD
- MUNICIPAL ROAD
- TOWN OF GRIMSBY
- OTHER MUNICIPALITIES

Niagara Transportation Growth Model	2016
Approximate Population within 400m	8,625
Approximate Employment within 400m	1,486

0 0.25 0.5 1 km

SCALE 1:37,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY TOWN OF GRIMSBY, NIAGARA REGION, MNR AND ESRI

MAP CREATED BY: SMB
MAP CHECKED BY: DK
MAP PROJECTION: NAD 1983 UTM Zone 17N

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Proposed Route2.mxd

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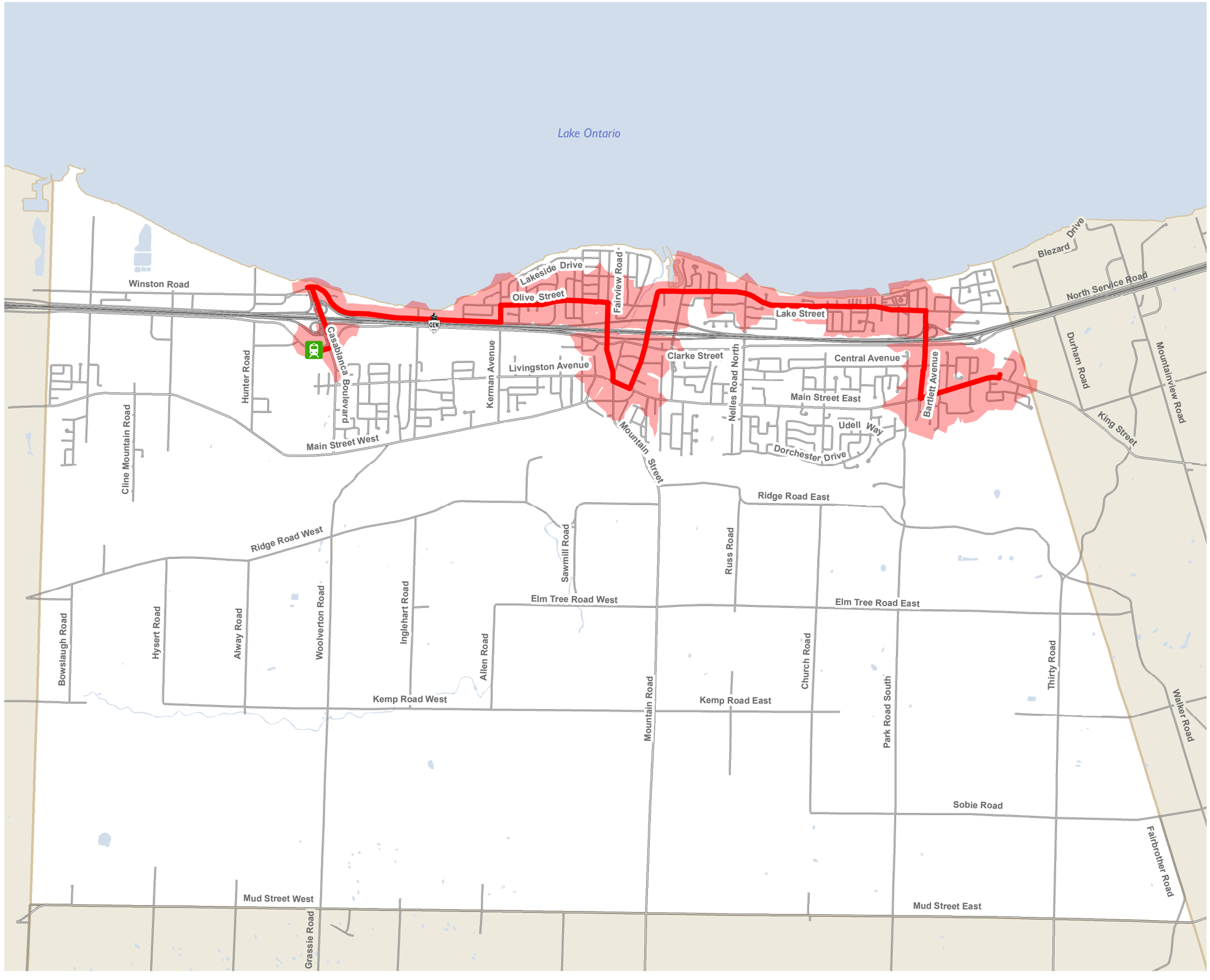
PROJECT: 164216
STATUS: DRAFT
2017-01-26



TOWN OF GRIMSBY
TRANSIT INVESTIGATION STUDY

ROUTE 2 CATCHMENT AREA (MEDIUM-TERM NETWORK) (400m WALKING DISTANCE)
FIGURE 20

- PROPOSED ROUTE 2 (2021)
- 400 METRE WALKING DISTANCE
- GRIMSBY GO STATION
- PROVINCIAL HIGHWAY
- REGIONAL ROAD
- MUNICIPAL ROAD
- TOWN OF GRIMSBY
- OTHER MUNICIPALITIES

Niagara Transportation Growth Model	**2021**
Approximate Population within 400m	7,684
Approximate Employment within 400m	1,992

0 0.25 0.5 1 km

SCALE 1:37,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY TOWN OF GRIMSBY, NIAGARA REGION, MNR AND ESRI

MAP CREATED BY: SMB
MAP CHECKED BY: DK
MAP PROJECTION: NAD 1983 UTM Zone 17N

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Proposed Route2_2021.mxd

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PROJECT: 164216
STATUS: DRAFT
2017-03-06

5.5.7 Route 3 – Hamilton Street Railway (HSR) Integration

Route Trip Route Length (Year 5):	21 kilometres
Round Trip Time:	60 minutes
Peak Hour Headway:	30 minutes
Peak Period Bus Requirement:	2 buses
Off-Peak Headway:	60 minutes
Off-Peak Bus Requirement:	1 bus

Route 3 has been designed in order to offer an increased level of transit service to the dense and growing community in northwest Grimsby, as well as to provide a connection to Hamilton. As Grimsby's larger western neighbour, Hamilton constitutes the most significant commuting destination for town residents (almost 30%, as reported in ***Section 0***). Although GO Transit's Route 12 Bus service currently connects Grimsby to Stoney Creek, the stop is not located at a central location or transit hub. As a result, there is the potential to improve the connection between the cities by extending a local Grimsby transit service route into Hamilton, to better connect to HSR and key destinations.

Route 3 has been designed to connect the Casablanca GO hub lot to a large future retail development at the intersection of Fifty Road and Barton Street in Hamilton. Departing from the Casablanca GO hub, the route would extend north on Casablanca Boulevard, west on North Service Road, west on Winston Road, west on Baseline Road, south on Lockport Way, west on North Service Road, and south on Fifty Road before arriving at the retail development, its western terminus. Route 3 would serve the following key destinations:

- Casablanca GO hub (future GO Train station);
- Niagara Gateway;
- Real Canadian Superstore/Rona;
- Casablanca Winery Inn & Spa/Super 8
- Winston Road community;
- Fifty Point Conservation Area;
- Sun Valley Square; and
- Future Fifty Road/Barton Street retail development.

As shown in **Figure 21**, Route 3 would be located within a 5-minute walking distance (400 metres) of approximately 4,000 residents and 1,000 jobs within the Town of Grimsby's municipal boundaries. These figures are in addition to Hamilton residents and jobs that may constitute part of the route's ridership demand. Specifically, a significant portion of Hamilton residents along the route may find it more convenient to connect to GO Transit at the Casablanca GO hub, rather than at the Centennial Parkway station, a significantly further distance away.

Extending Grimsby's local transit service to Hamilton could create opportunities for increased ridership, expanded network coverage, and cost-sharing arrangements if customers in Hamilton also utilize the

service. However, the establishment of this route is dependent upon an extension of Hamilton Street Railway's fixed-route service to the future Fifty Road and Barton Street retail development, at a minimum. This would allow Grimsby residents to use Route 3 to connect with local HSR services. Should the HSR not extend the route to this location, Route 3 would not viable and it is recommended that Route 2 be retained, with expanded service hours matching those of Route 1.

It is recommended that this route initially operate on a 30-minute headway during weekday peak periods (6:30am to 9:00am and 3:00pm to 6:30pm). During weekday off-peak hours (9:00am to 3:00pm and 6:30pm to 9:30pm) and on Saturdays (8:30am to 8:30pm), a 60-minute headway is recommended. Due to the short length of the route, a single bus can complete two round trips during the course of one hour, resulting in a 30 minute service during the peak periods.

During the off-peak periods, it is not possible to operate at a 60 minute service without significant layover of the bus for 30 minutes each hour. Therefore, it is recommended that Grimsby enter into a service integration agreement with HSR to provide a full integrated route between Eastgate Square in Hamilton to the Grimsby GO Station in Grimsby. This route would take one hour to complete a round trip (half hour per direction).

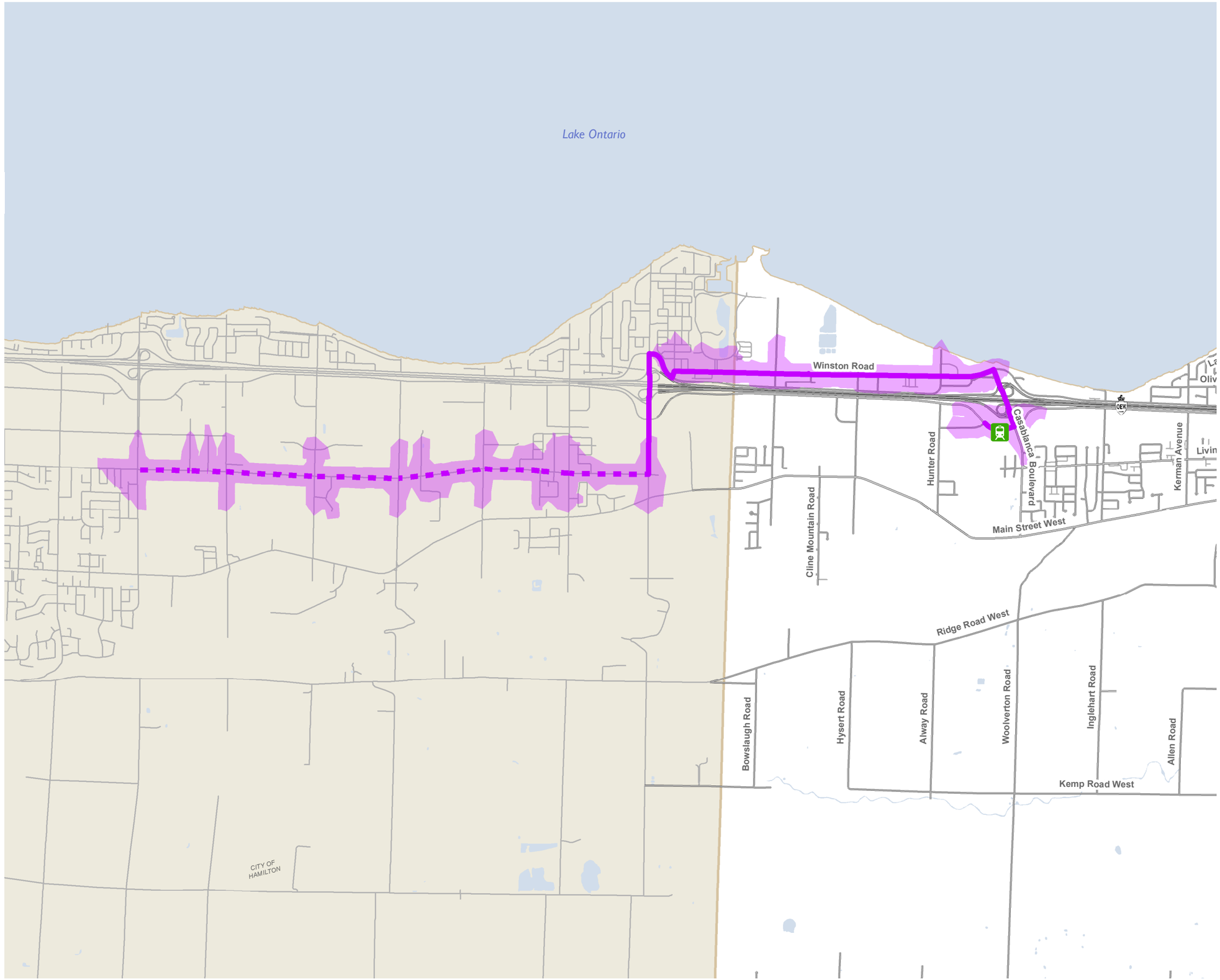
In this scenario, Grimsby would operate every other route during the weekday peak periods between Casablanca GO Station and Eastgate Mall and HSR would operate the alternate route during the same periods. This would equate to a 30 minute headway using one bus by each service provider. Grimsby would keep the fares collected on its bus and HSR would keep the fares collected on their bus.

During the off-peak period, only one bus is required to operate the service. This could either be contracted to HSR or Grimsby to provide the service. An operating cost and fare sharing agreement would need to be in place to allocate costs and revenues between both municipalities.

Integration with HSR would result in several advantages:

- A one-seat ride to Eastgate Square in Hamilton, a major retail destination and transfer hub;
- More flexible scheduling made available in northwest Grimsby, allowing for a frequency reduction to 60-minute headways off-peak to better match projected demand and connection opportunities to other Grimsby routes; and
- Reduced capital costs (one less bus required).

A disadvantage to this arrangement would be that if HSR operated the off peak service, the operating costs paid to HSR would exceed those paid to the Town of Grimsby's private service contractor. Currently, HSR's hourly operating costs are approximately $100 per vehicle hour, compared to an estimated rate of $80 for Grimsby.



TOWN OF GRIMSBY
TRANSIT INVESTIGATION STUDY

ROUTE 3 CATCHMENT AREA (400m WALKING DISTANCE)
FIGURE 21

- PROPOSED ROUTE 3 (2021)
- POTENTIAL FUTURE HSR ROUTE 55 EXTENSION (2021)
- 400 METRE WALKING DISTANCE
- GRIMSBY GO STATION
- PROVINCIAL HIGHWAY
- REGIONAL ROAD
- MUNICIPAL ROAD
- TOWN OF GRIMSBY
- OTHER MUNICIPALITIES

Niagara Transportation Growth Model	2021
Approximate Population within 400m (In Niaraga Region)	3,982
Approximate Employment within 400m (In Niagara Region)	1,154

0 0.25 0.5 1 km SCALE 1:37,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY TOWN OF GRIMSBY, NIAGARA REGION, MNR AND ESRI

MAP CREATED BY: SMB
MAP CHECKED BY: DK
MAP PROJECTION: NAD 1983 UTM Zone 17N

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Proposed Route3.mxd

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PROJECT: 164216
STATUS: DRAFT
2017-03-06

5.5.8 Proposed Inter-Municipal Transit Network

The arrival of GO Rail in Grimsby by 2021 will strengthen the inter-municipal transit network. In addition to GO Transit connections, the proposed local transit network includes recommended connections to the Town of Lincoln and the City of Hamilton, via Route 1 and Route 3, respectively.

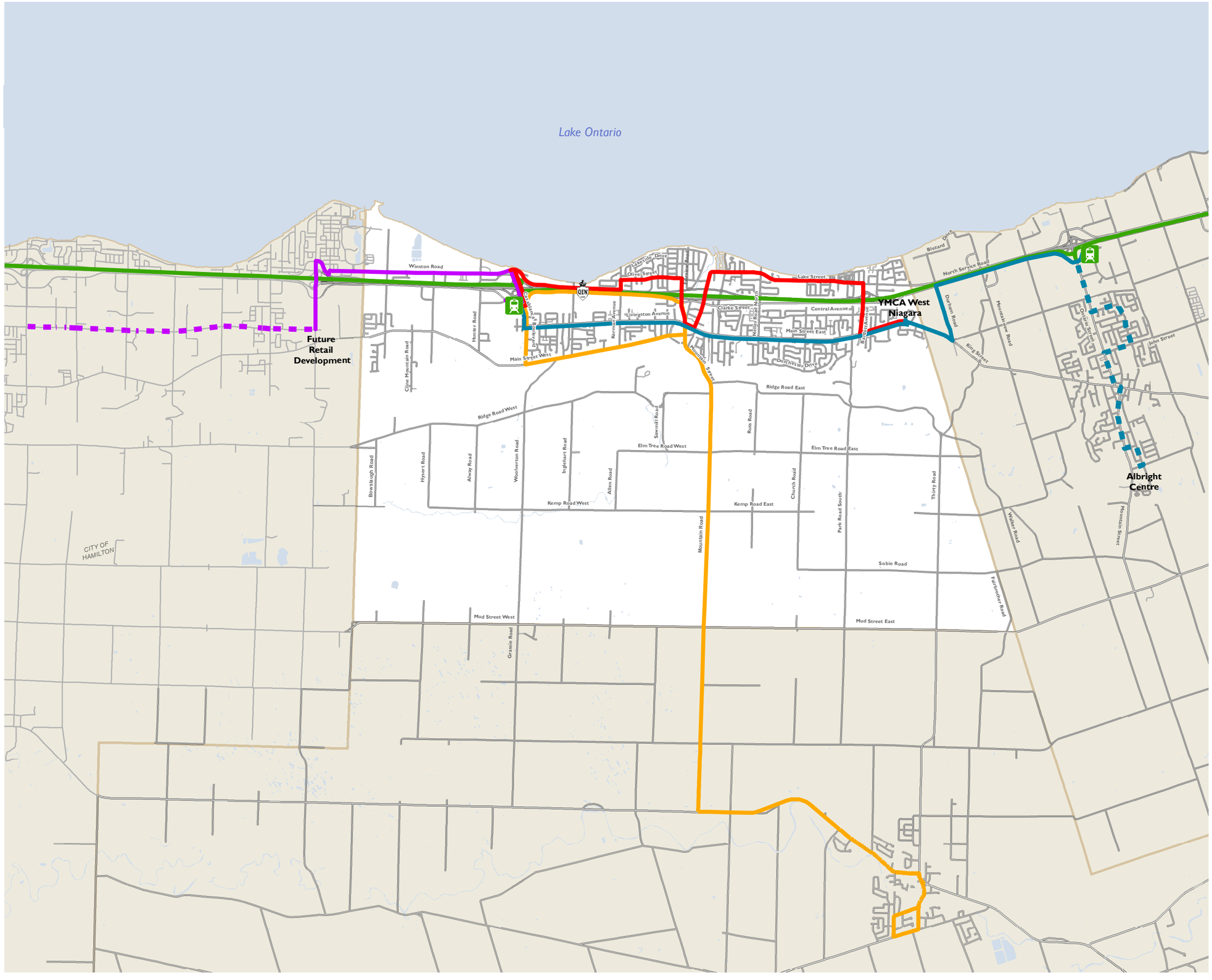
The Region of Niagara also recently completed a Niagara Transit Service and Governance Strategy which recommends the introduction of a number of inter-municipal routes connecting to Grimsby.

The proposed Grimsby/Lincoln Link route is a fare integration agreement with GO Transit which will subsidize residents making an inter-municipal trip entirely within Niagara Region using the GO Bus Route 12 or future Rail corridor. In this proposed recommendation, a Grimsby resident using GO Bus Route 12 to travel to St. Catharines would only need to pay the Regional Transit fare and not the more expense GO fare. This includes transfers onto all local transit systems within Niagara. This strategy helps facilitate travel within Niagara Region using an existing resource, therefore minimizing the operating cost contributions.

The proposed Smithville Link route is the second recommended route that will benefit Grimsby residents. This proposed route provides service between Smithville and the future Casablanca GO Bus stop/rail station. The route is designed to provide some local stops in Grimsby, including a stop near the West Niagara Fairgrounds (approximately a five minute walk from route). Within the urban area of Grimsby, the route is proposed to travel west on Main Street West and north on Casablanca providing an opportunity to pick up some Grimsby residents destined to the GO Bus/Train during the AM peak period. On the outbound direction, starting at the Grimsby GO Bus/Train station, the route is proposed to follow the South Service Road and Niagara Road 12 (which provides access to some large big box format retailers such as the Superstore). During the PM peak period, the route is proposed to be reversed. This provides some additional local transit coverage within Grimsby. The route is recommended to run hourly, Monday to Saturday.

For both routes, an agreement will need to be reached between Niagara Region and the Town of Grimsby and Town of Lincoln (Grimsby/Lincoln Link) and between Niagara Region and the Town of West Lincoln (Smithville Link) before they are implemented.

In the event that both are implemented, the proposed local transit service in Grimsby provides very good connections to these inter-municipal transit opportunities within Niagara Region. The proposed medium-term inter-municipal transit network, highlighting all connections available in Grimsby, is shown in **Figure 22**.



TOWN OF GRIMSBY
TRANSIT INVESTIGATION STUDY

MEDIUM-TERM INTER-MUNICIPAL TRANSIT NETWORK
FIGURE 22

- PROPOSED ROUTE 1
- PROPOSED ROUTE 1 BEAMSVILLE EXTENSION
- PROPOSED ROUTE 2
- PROPOSED ROUTE 3
- POTENTIAL FUTURE HSR ROUTE 55 EXTENSION
- SMITHVILLE LINK
- GRIMSBY / BEAMSVILLE LINK
- GO STATION
- PROVINCIAL HIGHWAY
- REGIONAL ROAD
- MUNICIPAL ROAD
- TOWN OF GRIMSBY
- OTHER MUNICIPALITIES

0 0.25 0.5 1 km

SCALE 1:65,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY TOWN OF GRIMSBY, NIAGARA REGION, MNR AND ESRI

MAP CREATED BY: SMB
MAP CHECKED BY: DK
MAP PROJECTION: NAD 1983 UTM Zone 17N

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Regional Context Year 5 Route Map.mxd

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PROJECT: 164216
STATUS: DRAFT
2017-03-06

5.6 Service Strategy Summary

The daily span of service hours, proposed headways, and annual service hours required to operate the service strategy identified above are illustrated in **Table 9** below.

Table 9: Preliminary Vehicle Hours

Route	Time Frame	Weekday	Headway			Saturday	Headway	Annual Service Hours*	Peak Buses Required**
		Hours of Service	AM/PM Peak	Midday	Evening	Hours of Service	All-Day		
Route 1	Pilot – Year 1 (*two-bus option*)	6:30am-7:30pm	60	60	60	-	-	3,600	1
	Medium Term (Year 5)	6:30am-9:30pm	30	60	60	8:30am-8:30pm	60	5,700 - 6,500	2-3
Route 2	Pilot – Year 1 (*two-bus option*)	6:30am-7:30pm	60	60	60	-	-	3,600	1
	Medium Term (Year 5)	6:30am-9:30pm	60	60	60	8:30am-8:30pm	60	4,800	1
Route 3	Pilot – Year 1 (*two-bus option*)	-	-	-	-	-	-	-	-
	Medium Term (Year 5)	6:30am-9:30pm	30	60	60	8:30am-8:30pm	60	3,200 - 4,800	1
System Total	Pilot – Year 1 (*two-bus option*)							7,200	2
	Pilot – Year 1 (*one-bus option*)							3,600	1
	Short-Term (Year 3)							9,200-10,000	3-4
	Medium Term (Year 5)							13,700-16,100	4-5

**For Route 1, the lower end of the range assumes the Route 1 Beamsville extension is in place (due to more efficient scheduling). For Route 3, the lower end of the range assumes that service integration with HSR (Route 55 extension) is in place (due to more efficient scheduling). **2 buses are required if Route 1 terminates at the Beamsville GO stop. 3 buses are required if the Route 1 Beamsville extension (to Albright Centre) is in place, however, this would be split between Grimsby and Lincoln. The number of buses required does not include spare vehicles.*

The number of service hours developed for this preliminary service plan is less than the 11,600 service hours suggested as part of the peer review in **Section 5.1** of this report in the first year of operation. This is primarily due to the more compact nature of Grimsby. However, the proposed service strategy slightly exceeds this target in the medium term by year five due to the introduction of GO Rail service and the anticipated ridership increase that will arrive with its introduction.

6.0 Demand Forecasting

The potential ridership demand on a proposed Grimsby transit service was forecasted using a variety of methods. Forecasting ridership is more of an art than a science that requires the use of several different techniques to better estimate demand. Three elements composing the overall ridership of a future transit system in Grimsby were evaluated in this assessment:

1. Estimate the total local ridership in Grimsby based on data from comparable municipalities (from the results of the peer survey).
2. Identify the existing and future usage of the GO Bus Route 12 (from the results of the 2011 transportation tomorrow survey), and apply a mode share for residents using local transit to connect arrive at the Casablanca terminal.
3. Estimate route by route ridership based on trip rates applied to route catchment areas.

Each of these elements is discussed in detail below.

6.1 Forecasted Local Transit Demand

The forecast for local transit ridership is based on data available from other Ontario municipalities that operate a similar type of transit service to what is proposed in Grimsby. All municipalities have unique demographic, economic, and geographic characteristics that affect travel patterns, and as such, predicting ridership in a municipality with no existing service is difficult. However, the overall trends can provide reasonable guidelines of what could generally be expected in a municipality the size of Grimsby.

Since few of the peer systems provide local transit connections to inter-municipal transit such as a GO Bus, additional ridership forecasting was completed to understand the number of residents that would use a local transit service to connect to the existing GO Bus.

The 11 peer systems discussed in **Section 4.0** of this report were used to estimate the high-level ridership demand in Grimsby. The pertinent data used to estimate ridership demand in Grimsby is illustrated in **Table 10** below.

Table 10: 2015 Peer Group – Passenger Utilization

Transit System	Annual Ridership	Annual Revenue Vehicle Hours	Passenger Trips/ Revenue Vehicle Hour	Annual Passenger Trips / Capita
Extended GTA				
Bradford/West Gwillimbury	25,541	5,457	4.7	0.73
Orangeville	112,709	9,999	11.3	3.83
Northern Ontario				
Midland	48,750	3,150	15.5	3.90
Wasaga Beach	72,553	9,984	7.3	3.90
Owen Sound	195,693	13,325	14.7	8.90
Elliot Lake	94,033	7,602	12.4	8.29
Eastern Ontario				
Cobourg	103,443	8,692	11.9	9.63
Port Hope	56,902	7,228	7.9	4.61
Quinte West (Trenton)	54,997	11,186	4.9	2.82
Brockville	106,363	10,847	9.8	4.86
Southwestern Ontario				
Port Colborne	26,417	2,520	10.5	1.42
Average	***81,582***	***8,181***	***10.1***	***4.81***

For these systems, the lowest annual boardings per capita occurs in Bradford West Gwillimbury (less than 1 boarding per capita), while the highest is Coburg (almost 10 annual boardings per capita). To put the two systems in context, the Bradford West Gwillimbury service is a new service that does not run after 4:30pm or on weekends. The poor service results in possible connections to only 2 of 12 GO Trains serving the community, and ridership suffers significantly as a result. There are also limited destinations in Bradford West Gwillimbury, with most residents travelling outside of the municipality for work trips.

At the other end of the spectrum, Cobourg Transit has been operating for over 45 years and provides service seven days a week to a relatively dense urban area. Similarly, the transit systems in Owen Sound and Elliot Lake exhibit a higher number of annual boardings per capita. These communities have a high proportion of seniors and are not located within close proximity to another major urban centre (meaning the majority of trips are made within the municipal boundary).

The average number of annual passenger trips per capita for the peer group was 4.81 in 2015. Based on an estimated 2016 population in Grimsby's urban area of 26,000 (as obtained from the Niagara 2031

Transportation Growth Model), this would equate to approximately 125,000 riders per year in Grimsby. After five years, this figure is expected to increase slightly due to population and employment growth.

Using the peer group averages to calculate potential ridership should be used with a degree of caution. There are several factors that play into the decision to use transit and these factors cannot be controlled for at this preliminary stage. The actual ridership that materializes once the service is in place will depend on a number of factors, including:

- Service levels;
- Travel time of the proposed routes relative to driving;
- Proximity of transit stops to major destinations and residential areas;
- Cost of the service;
- The need to transfer and the waiting time between buses;
- The schedule of the transit service relative to when the trip is required;
- Access to a private automobile at the time when a trip is being made;
- System reliability and on-time performance; and
- Customer convenience (shelters, tracking apps, etc.).

6.2 Forecasted Transit Demand to GO Transit

In addition to local transit demand, it is important to understand the existing GO Bus (and future GO Rail) ridership to/from Grimsby and estimate the number of passengers that would use a transit connection to the service.

The Transportation Tomorrow Survey is a comprehensive regional travel pattern survey, undertaken every five years in the Greater Golden Horseshoe. Although data collection is currently ongoing for the 2016 edition, the results will not be available until 2017. As a result, the results from the 2011 survey were used.

According to the 2011 survey results, less than two (2) percent of all respondents in Grimsby used transit (GO Bus or GO Rail) as their mode of transportation during peak travel periods. Of these, approximately half boarded the GO Bus directly from Grimsby while the other half drove to an existing GO Train Station (generally Burlington, Aldershot, or West Harbour) before continuing their trips onwards by train.

As provided by GO Transit, in 2016, approximately 60 daily passengers currently board a GO Bus at the Grimsby Casablanca GO Bus stop on an average weekday. Weekend ridership is slightly lower, at about 45 passengers daily. Assuming no change in travel habits from 2011, it is estimated that an additional 60 passengers currently drive to another GO Train Station on an average weekday.

The confirmed extension of GO Rail service to Grimsby by 2021 should increase these daily passenger figures, as it will eliminate the incentive for Grimsby residents to drive to another station on the Lakeshore West Line. As such, it is assumed that ridership at the future Grimsby GO station will consist of the existing bus ridership, with the following growth factors applied:

- 100% increase to account for all trips that currently involve driving to/from other GO Rail stations (as approximately half of current GO Transit trips from Grimsby involve driving to another station before boarding the train);
- 20% increase to account for new ridership generated by more attractive train service as compared to bus service; and
- 7% increase to account for population and employment growth in Grimsby from 2016 to 2021.

Using the above factors as a basis for estimating future GO Rail ridership at the Grimsby GO Station, it is expected that approximately 150 passengers (300 combined boardings/alightings) will use the facility daily with the introduction of GO Train service in 2021. It should be noted that these projections are contingent on an attractive level of service being provided by Metrolinx, consisting of at least four peak period trains per direction. At the time of writing this report, information was not available on the service levels being proposed by Metrolinx.

Of this figure, the percentage of passengers accessing the station was estimated based on data from other GO Transit train stations in the Greater Golden Horseshoe. According to the 2015 GO Rail Passenger Survey, approximately 10% of GO Rail passengers access the GO Rail service using a local transit connection. This is based on an average of GO Rail stations where no transit connections exist at all (e.g. Acton station, Lincolnville), as well stations with a very high level of transit service (e.g. Oakville and Brampton). Local transit mode share to each of these GO Stations varies significantly depending on the availability and attractiveness of the local transit connection, as well as parking and congestion constraints.

While the GO Rail station in Grimsby will be a focus of transit service within the community, the existing GO Bus stop will likely not have a high level of local transit access. There are also no parking issues or traffic concerns near the GO Bus stop that provides a disincentive to automobile use. As a result, a 6% system-wide local transit mode share for the GO Bus stop access and egress is assumed to be appropriate in the short term, increasing to 10% by Year 5 with the introduction of GO Rail service. As shown in **Table 11**, overall annual ridership to and from the GO station is expected to be approximately 2,000 upon implementation of a local transit service, rising to approximately 8,000 when GO Rail is extended to Grimsby.

Table 11: Estimated Ridership to/from GO Station

Grimsby GO Station Daily Ridership	Year 1	Year 5
Grimsby GO Passengers	60	150
Grimsby GO Boardings/Alightings	120	300
Local Transit Mode Share to/from GO	6%	10%
Local Transit Trips To/From GO	7	30
Annual Transit Trips To/From GO	**2,000**	**8,000**

*2016 figure denotes estimated ridership if local transit service were in place

6.3 Forecasted Overall Transit Demand

Ridership was also estimated based on the catchment area of each route; that is, the number of people living within a five-minute walk of each route. From the peer review, the average annual number of boardings per capita of 4.81 was factored into a rate specifically applying to people living within the catchment area of a transit route. It was assumed that on average, 70% the peer municipalities' populations live within walking distance of a transit route. Modifying the base trip rate to account for only the population located within the transit catchment area yields approximately 6 trips per person per year. One additional trip per capita per year was added for residents within the catchment areas of Route 1 and Route 3, to account for the higher densities and large number of non-residential trip generators along these routes.

The effects of improved service were factored into the route-specific ridership forecasts. Specifically, the ridership elasticity relative to service improvements (frequencies) were calculated based on industry accepted standards. This resulted in 30% higher ridership for routes offering 30-minute frequencies during the peak periods. Overall, the improved levels of service on Route 1 (in Year 3 and Year 5) and Route 3 (in Year 5) had the effect of increasing ridership by 18%. The lack of Saturday service during the pilot phase has the effect of decreasing ridership by 9%.

The ridership demand to and from the GO station was also included in the route-by-route ridership breakdown. Ridership associated with the GO station was allocated to each route proportionally by catchment area populations. Route 3 received a slightly higher percentage of GO-related ridership than the other routes due to its proximity to the station and the more commuter-oriented nature of its current and future residents.

The overall estimate of transit ridership, broken down by route and by horizon year, is shown in **Table 12** for the pilot service on **Table 13** for Year 3 and 5. For the one-bus option during the pilot project phase, it is estimated that only 20,000 to 25,000 annual boardings is expected to materialize.

Table 12: Pilot Project Phase Estimated System Ridership (Year 1) – Two Bus Option

Route	Per Capita Annual Boardings	Pilot Project Phase (Year 1)			
		Catchment Area Population	System Maturity	Service Level Adjustment	Annual Ridership
Route 1	7	8,901	40%	-9%	25,000
Route 2	6	8,625	40%	-9%	15,000
System Total					**40,000**

The estimated potential transit demand will likely not materialize within the pilot phase of the transit service. While the introduction of transit service (supply) is immediate, it takes time for people's travel behaviour (demand) to change. Generally, ridership requires a period of a few years to build up after the introduction of a new service. It is assumed that during the pilot phase of the transit service, only 40% of transit demand would materialize as ridership.

By Year 3, it is assumed that the system will have reached 75% maturity, with 100% of the estimated transit demand materializing as ridership in Year 5. It is only once steady state conditions are achieved that the service can be fairly assessed.

Table 13: Estimated System Ridership (Year 3 and Year 5)

Route	Per Capita Annual Boardings	Short-Term (Year 3)				Medium-Term (Year 5)			
		Catchment Area Population	System Maturity	Service Level Adjustment	Annual Ridership	Catchment Area Population	System Maturity	Service Level Adjustment	Annual Ridership
Route 1	7	8,901	75%	18%	45,000	9,183	100%	18%	75,000
Route 2	6	8,625	75%	0%	30,000	7,684	100%	0%	40,000
Route 3	7	-	-	-	-	3,982	100%	18%	35,000
System Total					**75,000**				**150,000**

The above ridership forecasts do not include any travel demand in the Town of Lincoln or the City of Hamilton. It is possible that increased connections to neighbouring municipalities would increase the per capita annual transit trip rate in Grimsby, although to maintain conservative assumptions, this has not been accounted for in the ridership projections.

7.0 Service Delivery

When evaluating the most appropriate service delivery model for public transit service in municipalities the size of Grimsby, a number of factors need to be taken into consideration. The population of approximately 25,000 indicates that the transit operation will be small, with a fleet of less than six vehicles required to meet local travel requirements.

There are three basic operating models for transit that the Town of Grimsby can consider. These include:

Option 1: Municipally-owned and operated system.

Option 2: Privately contracted system.

Option 3: Contracting operations to HSR through a service agreement.

What differs in each arrangement is the level of:

- Municipal control and responsibility; and
- Municipal investment (both capital and operating) and program cost effectiveness.

The sections below describe each service delivery model. This is followed by an evaluation and a recommendation for Grimsby moving forward.

7.1 Option 1 – Municipally-Owned and Operated System

In this scenario, Grimsby would both own its own transit fleet and employ staff to manage, operate and maintain the service. For a municipality the size of Grimsby, the most likely public scenario would be to have transit functions form a part of an existing municipal department (i.e. Infrastructure and Public Works Department). In this model, the municipal department (through a Transit Manager or Coordinator) would have direct responsibility for the planning, finance, personnel, transportation operation and maintenance, complaint investigation, reporting to the Director and Council, budget preparation and marketing activities.

The vehicles could be maintained at an existing municipal services yard along with the balance of the municipal fleet (e.g. snow plows), provided that any hoists or pits are able to accommodate buses. Indoor storage is preferred along with daily cleaning and servicing.

The fare box chosen should be compatible with PRESTO, as a growing number of transit users in Grimsby would connect to/from GO Transit services at the Casablanca station. As part of an ongoing study examining the provision of service delivery and governance of transit in Niagara Region, a recommendation has been made to solicit proposals for a region-wide fare card. A provision for

compatibility between a Grimsby Transit fare medium and the future Niagara Region Transit fare medium should be made. Cash collection and security would have to be stringently accounted for in the garage as well as security for other fare media that has a value. Contracts with vendors and distribution of fare media outlets would have to be arranged.

There are several advantages to setting up a municipally owned and operated system:

- Permits comprehensive planning of all aspects of the transportation and transit system (including greater coordination of transit and land use planning).
- Fosters a high level of political responsiveness to the development and implementation of transit policy and standards.
- Increases the accountability of the municipality to achieve its overall social, environmental and economic goals and objectives (because of the direct control over the staff and personnel that manage and operate the system).
- Tends to be more customer-driven than privately contracted systems, including driver training, and amount of service provided.
- Provides greater control over the use, condition and maintenance of transit vehicles.

The disadvantages of this model for Grimsby are that:

- The Town of Grimsby would need to hire a full range of staff with the expertise necessary to operate a transit system (including a transit manager, maintenance staff and transit operators). A complement of five to seven full time and one to two part drivers would be required with a full-time transit manager and maintenance, servicing and administration staff.
- Operating costs tend to be higher than if the service was contracted out due to the typically higher salaries and less flexible working environments associated with unionized transit staff.
- The Town would need to commit to the purchase of 5 to 6 transit vehicles which can range from $200,000 to $500,000 each, with a life expectancy between 6 and 15 years. Maintenance equipment and parts would also need to be purchased and a maintenance facility would need to be built if there is no room in the existing maintenance yard to accommodate buses.
- The upfront cost of setting up a system can be expensive and the service might be difficult to terminate if the Town decided that the costs required to operate the system exceed the benefits, and decided to scale back, cancel, or contract out the service.

7.2 Option 2 - Privately Contracted System

In smaller municipal jurisdictions, transit services are often contracted out, with a municipal employee designated as Transit Coordinator and tasked with the responsibility of managing the contract. In this model, the municipality is in control of what service is to be provided and how it is to be financed. The service contract sets out rules, regulations and policies that the private operator shall comply with, including standards for equipment, operation and maintenance, level of service, qualifications of the driver, fares, etc. The level of detail provided in the contract can vary from municipality to municipality,

and is dependent on how much responsibility the municipality wants to take on and the desire for a private contractor to agree to the terms and conditions of the contract. Based on the service contract parameters agreed to, the private sector is in control of how the service is delivered.

Several combinations of private sector involvement are available:

1. ***Full involvement (private sector provides buses, equipment, drivers and mechanics)*** - In this model, the cost and duration of the contract would be higher to take into account the capital costs of the buses and the depreciation of the vehicles as the service is operated.
2. ***Partial involvement (municipality owns buses, but private sector operates and maintains)*** - In this model, the contract price would be less, however, the municipality would be required to purchase suitable vehicles for the private sector contractor to operate and maintain.

In most cases of small municipal transit systems, the contract is awarded through a tendering process to the private sector; however, there are some cases where a successful contract has been awarded to a municipality. For example, the Town of Milton initially contracted out the operation and maintenance of its service to Oakville Transit (a neighbouring system). In this situation, Oakville Transit provided fleet, drivers, maintenance, and customer service staff and expertise in transit service delivery.

If the private sector option is selected, once the transit operating strategy is agreed upon, a Request for Proposal (RFP) would be prepared. Grimsby could undertake a pre-qualification (RFQ) step to ensure that only qualified operators receive the RFP. Several key decisions would have to be made. These include:

- **Revenue (in Service) hours or kilometers:** This would establish the basis on which the contractor is paid.
- **Vehicle Type:** This would include vehicle characteristics such as type, age, on board equipment, and seating capacity. A decision would also need to be made whether Grimsby would purchase and supply vehicles or whether the contractor would supply the vehicles.
- **Maintenance/Storage:** Requirements for maintenance of vehicles and storage would need to be identified, as well as who supplies the facility. In the case of Grimsby, it is recommended that the contract identify and supply a facility.
- **Duration of the contract:** This will depend on who owns the vehicles. If Grimsby owns the vehicles, then a three year fixed contract with a one or two year extension option is normal. If the contractor is to supply the vehicles, then a five year fixed contract with two or three year extension options is normal. This may vary with the type of vehicle specified. Extension periods are governed by several performance targets spelled out in the RFP.
- **Revenue sharing and Performance Standards:** Normally all revenue collected is to be provided to the municipality. However some innovative contracts have the municipality setting fares but the contractor retaining revenues as an incentive to maximize customer service and ridership growth. Performance standards need to be set and monitored with provisions for corrective actions as required.

- **Escalation terms:** Frequency and triggers for payment increases, perhaps due to fuel price adjustments.
- **Key Performance Indicators:** In many contracts, key performance indicators are included which set out financial incentives and penalties based on operator performance (e.g. level of customer service, maintenance of vehicles, reliability, etc.).

There are several advantages of entering into a private sector contract:

- Lower costs can be achieved with private sector operation through the process of competition for the contract. This includes both variable costs (i.e. driver costs, vehicle maintenance, etc.) and fixed plant costs (i.e. maintenance and operations of the garage). With more flexibility in how the service is operated, private contractors can typically reduce the amount of unproductive time and thus operate more efficiently. Generally, many private transit operators have use of existing storage and maintenance facilities for other operators (e.g. school bus), which can reduce overall costs.
- Increased innovation can be achieved in operating practices in an effort to meet the targets set in performance based contracts. This allows the private sector to maximize its own profitability while maintaining minimum service levels or maximizing ridership stated in their performance contracts. This includes innovation in operating practices to minimize costs by way of technology, the productive allocation of resources, and pooling of resources.3
- Expertise in the operation of transit services provided by the contractor, particularly if they have contracts in other communities or it is operated by an adjacent public transit operator.

There are several disadvantages to this service delivery model:

- If the Town wishes to benefit from lowered hourly operating costs, it would need to commit to the purchase of 5 to 6 transit vehicles which can range from $200,000 to $500,000 each, with a life expectancy between 6 and 12 years.
- If the Town purchases and supplies its own vehicles, it would typically be bound to a longer contract (i.e. 5 years) (which reduces flexibility).
- Requires a large number of potential bidders to realize the benefits of competition.

7.3 Option 3 - Extension of Hamilton Street Railway Service

Under this arrangement, the appropriate number of Hamilton Street Railway (HSR) vehicles would be assigned to service local routes in Grimsby with back up available from the balance of their fleet. All driver deployment would be done from their roster, in addition to route supervision, staff recruitment and driver training. HSR would likely charge on a route service kilometer basis for all costs (based on their system average fully allocated costs) and credit back any revenue collected on behalf of Grimsby.

[3] Source: OUTA "Competitiveness of Urban Transit: Public Versus Private Operation, Just 1996

The fleet allocated for Grimsby services would be maintained and housed along with the rest of the HSR fleet and buses would be assigned as required to Grimsby routes as if they were any other route in their system.

There are several advantages of this service delivery model:

- HSR provides all fleet and facilities, minimizing capital expenditures and staff time to the Town.
- Any route connecting to Hamilton would include seamless transfers and service integration with the rest of the HSR system.
- Provides use of the PRESTO fare media, which will allow for better integration with GO Transit and other GTHA transit systems.
- Provides use of other transit services such as marketing and communications, which can increase ridership.
- Grimsby benefits from the experience of HSR in operating and maintaining transit services.

There are also several disadvantages of this service delivery model:

- Political arrangement is required between the City of Hamilton and the Town of Grimsby, which may be difficult to achieve when HSR is facing its own transit constraints and focusing on its own priorities.
- HSR's bus garage and maintenance facility is located in Glanbrook, a distance of approximately 33 kilometres from the Casablanca GO station in Grimsby. As a result, vehicles entering and exiting service would face a significant amount of deadheading time, which the Town would have to pay for even though revenue service is not being provided.
- The Town loses some control over the effectiveness of service delivery, the amount and quality of service, and the fare structure as these are all decisions made by HSR (as the service is part of one coordinated network).
- The Town is limited in the type of service delivery structures HSR is willing or capable to operate and the buses used to operate the service (i.e. HSR may not be willing to provide a demand responsive service using smaller buses).
- The cost of the service may be higher than the privately contracted model due to operations in a unionized environment.

7.4 Assessment of Service Operating Structure

Table 12 provides a summary evaluation of different organizational structures to service the needs of the Town of Grimsby. The evaluation criteria listed in each row is ranked by way of "High", "Medium" and "Low" based on the benefit of each service structure to the Town. In the table, "High" indicates that the option has a 'high' benefit to the Town while "Low" indicates that the option has a lower benefit to the Town. For clarity, "High" is represented by three check marks (✓✓✓), "Medium" by two check marks (✓✓) and "Low" by one check mark (✓).

Table 14 – Assessment of Service Operating Structure Options

Organizational Structure	Option 1 – Municipal Department	Option 2 – Private Contract	Option 3 – HSR Contract
Transit Operating Cost	✓✓ May have higher costs in unionized environment	✓✓✓ Private sector contracts for small systems can be lower (particularly where there is strong competition for the contract)	✓ Charged based on full cost recovery, unionized, transit standards; increased costs due to deadheading
Capital Cost (vehicles and support facilities/ infrastructure)	✓ Need to purchase vehicles and maintenance facility	✓✓ Town has the option to purchase vehicle or for the contractor to purchase vehicles. Private contractor owns maintenance facility	✓✓✓ Use HSR vehicles and support infrastructure and facilities
Ease of Implementation	✓ Requires initial set up and new staff	✓✓✓ Set up of contract only (including terms)	✓✓✓ Set up of contract only (including terms)
Municipal Control and Responsibility	✓✓✓ Full control over how the service is provided	✓✓✓ Town sets up parameters, private sector operates	✓✓ Town sets up service design; HSR operates based on their own policies (subject to contract terms)
Ability to Cease Operation	✓ Level of investment and initial set-up would make it difficult to terminate the service	✓✓ Level of investment in transit capital if the municipality supplies vehicles. Five year contracts required if private contractor supplies vehicles.	✓✓ Bound only be the length of the service contract (likely five years if HSR purchases buses).
Total Points	**9**	**13**	**11**
Ranking	**Not Recommended**	**Recommended**	**Not Recommended**

7.5 Summary

Based on the above assessment, it can be concluded that setting up a municipal transit department would not be a preferred option for Grimsby. For small municipalities, it is not common to establish an in-house transit department and operation due to the high capital costs and municipal investment in staffing and resources. There is a lot of expertise available from various private contractors or HSR and this should be taken advantage of. Option 1 is not recommended.

Contracting out a service to HSR (Option 3) is also not recommended in the short-term. The HSR transit facility is located 33 kilometres from Casablanca Blvd and without an HSR fixed route extension to Stoney Creek, the operating costs are anticipated to be too high.

Options 2 results in the most favourable evaluation and is recommended for the Town of Grimsby. Establishing a private sector contract would allow the Town of Grimsby to implement a transit service that it would have significant control over, while minimizing costs and the need to hire internal staff. Of the peer group transit systems analysed, only two (Brockville and Midland) operate their systems as a municipal department (Option 1). Port Colborne contracts out the service to Welland Transit (Option 3), while the remaining 8 systems utilize private contractors to run the service (Option 2).

Within this option, two scenarios were assessed:

1. Municipally owned transit vehicles leased to the contractor to operate and maintain;
2. Contractor owned transit vehicles used for the service contract.

Both options are valid and have advantages and disadvantages which are outlined below:

1. Capital and Operating Cost

While municipally-owned transit vehicles introduces a higher capital cost, it will reduce the operating cost by 10 to 20%. If a private contractor is required to purchase vehicles, the capital costs are recouped by amortizing the vehicle purchase price over the life of the contract.

2. Contract Duration

Contracts with municipally owned vehicles are typically shorter in duration (approximately 3 years plus a provision to extend the contract by 2 years). For contracts with privately-owned vehicles, the minimum contract duration is typically 5 years. This is due to the need to amortize the capital investment made by the contractor to the operating cost. While a 5 year contract is not abnormal, Grimsby may want to flexibility to terminate the contract early if it deems transit to be unaffordable midway through the contract. Therefore, a shorter duration contract is preferable as Grimsby tests the suitability of transit in its community.

3. Funding Sources

Another advantage of the municipality purchasing vehicles is the ability to recoup some of the costs through various grants and funding streams. For example, the Federation of Canadian Municipalities has a new grant called the 'Municipalities for Climate Innovation Program' that provides funding for 80% of up to $1,000,000 in capital for initiatives that will reduce green-house gas (GHG) emissions. This can be used towards the introduction of a new transit service, but can only be used for capital projects.

4. Competition

Contracts with municipally owned fleet tend to increase the number of qualified vendors that are able to bid on the contract. This may have the impact of lowering the overall operating cost of the service.

Recommendation

It is recommended that Grimsby request that the contractor supply buses for the pilot program. This will help reduce capital costs and get the transit system running with minimal delays. Accepting the use of slightly used buses would also help reduce the hourly operating cost and can minimize the term of the contract.

The Town of Lincoln has recently entered into an agreement with a private contractor to operate their pilot service (with a privately-owned vehicle).

At the conclusion of the pilot project phase, the Town of Grimsby will need to make a decision about the continuation of transit service and whether to purchase vehicles or continue to have the contractor supply vehicles.

Prior to extending the contract, the Town should identify potential capital funding opportunities such as the FCM Municipalities for Climate Innovation Program to confirm whether a significant portion of the capital cost can be off-set by other funding programs. If this is the case, a decision should be made for the Town to purchase vehicles and have the contractor store, maintain and operate them. This will lower the hourly operating cost for service.

8.0 Implementation Plan

8.1 Fleet

A number of buses are available on the market for use in a new Grimsby transit system. The following section presents five options for transit fleet vehicles, followed by an evaluation and a recommendation for the Town of Grimsby. The recommendation for vehicle selection is valid regardless of if the vehicle will be owned by the Town or by the private contractor.

8.1.1 40-Foot Bus

Unit Cost: $600,000 - $700,000
Passenger Capacity: 40 – 60
Life Span: 12 – 18 years
Recommended: No

The majority of large transit systems use 40-foot low-floor accessible buses as their primary vehicles. These vehicles have a large passenger capacity and are most suitable for busy, urban routes. The forecasted demand for the short and medium-term implementation of a transit system in Grimsby falls significantly below the capacity of a full-sized 40-foot bus. The elevated unit costs of these vehicles result in significantly increased capital expenditures, which are not justified by ridership considerations. As a result, these vehicles are not recommended for purchase and use in Grimsby.

Figure 23: 40-Foot Bus

8.1.2 30-Foot Bus

Unit Cost: $400,000 - $500,000
Passenger Capacity: 25 – 35
Life Span: 12 – 18 years
Recommended: No

A smaller version of a standard 40-foot bus, mid-sized 30-foot buses are often used on lower-ridership community routes and by smaller transit systems. These buses have a moderate passenger capacity and present a potential cost-savings for municipalities, when compared to full-sized transit vehicles. However, the capital investment can approach half a million dollars, a considerable sum for a transit system in its infancy. In the initial phases of the implementation of its transit system, it is not recommended that the Town of Grimsby purchase or operate these vehicles. However, as the system matures and ridership growth solidifies, 30-foot buses are recommended as a longer term solution to fleet requirements in Grimsby. **Figure 23** illustrates a typical 30-foot bus.

Figure 24: 30-Foot Bus

8.1.3 Low-Floor Mini Bus

Unit Cost: $150,000 - $250,000
Passenger Capacity: 15-25
Life Span: 6 – 8 years
Recommended: Yes

Low-floor mini buses are smaller and less expensive than 30-foot buses. They are often used by smaller transit systems, as airport and hotel shuttles, and by community care agencies. Examples include ARBOCs and Karsan CS. These buses have a moderate passenger capacity and present a significant cost-savings for municipalities, when compared to standard full (40-foot) and medium-sized (30-foot) transit vehicles. The typical service life span of these vehicles ranges from 6-8 years, compared to 12-15 years for 30 and 40 foot buses. In the initial phases of the implementation of its transit system, it is recommended that the Town of Grimsby use these smaller vehicles to operate the service. However, as the system matures and ridership growth solidifies, consideration may be given to modify the fleet to include 30-foot buses to meet ridership and operating requirements over the longer term. **Figure 24** illustrates an example of an ARBOC Low-Floor Mini Bus.

Figure 25: Low-Floor Mini Bus

8.1.4 Heritage Trolley Bus

Unit Cost: $350,000 - $450,000
Passenger Capacity: 25-30
Life Span: 8 – 12 years
Recommended: No

Heritage trolleys are medium-capacity transit vehicles that often mimic historic streetcars. They are frequently used by on tourist-oriented routes and as shuttles at large attractions. A number of different manufacturers produce many variations of historic trolleys, many of which are low floor and fully AODA compliant. These buses have a moderate passenger capacity but do not present a cost-savings for municipalities, when compared to standard medium-sized (30-foot) transit vehicles.

The heritage look of the buses may result in image and messaging concerns, whereby town residents consider the service more of a tourist service than a legitimate transportation option. They are also not common, which may result in more challenges with maintenance and parts delivery. As a result, heritage trolleys are not recommended as the primary vehicle in a future Grimsby transit fleet.

However, there is potential for the Town of Grimsby to purchase up to one heritage trolley vehicle which can be used for both the transit service as well as contracted out as a tour bus on weekends (when local transit is not in operation). This may be a potential revenue source that would off-set some of the capital and operating costs of running a transit system. If it is deemed feasible, the heritage trolley can supplement the recommended Low-floor Mini-Buses along Route 1, the route with the highest ridership. This should be considered in the medium-term as Grimsby considered the expansion options of its fleet to accommodate the introduction of Route 3. **Figure 26** shows a heritage trolley.

Figure 26: Heritage Trolley

8.1.5 Hydrogen Fuel Cell Bus

Unit Cost: approximately $2,000,000
Passenger Capacity: 40-60
Life Span: 5 – 15 years
Recommended: No

Hydrogen fuel cell buses are environmentally friendly high-capacity transit vehicles. They run on hydrogen fuel and do not produce greenhouse gas emmissions. Due to the emerging technology they depend on, they are not yet widespread in the North American transit landscape.

BC Transit purchased a demonstration fleet of 20 vehicles at the cost of $90 million for use in Whistler in advance of the 2010 Vancouver Olympics. The operating costs of these vehicles were approximately 3 times higher than those of conventional diesel-powered vehicles, partly due to the need to ship hydrogen by truck from Quebec. Maintenance costs were also 50% more than those for diesel vehicles, resulting in significant expenditures. After only five years of service, the buses were sold off and the demonstration project cancelled.

While costs have decreased since this pilot, they still have significantly higher operating costs than a conventional diesel powered bus. As a result, it is not recommended that Grimsby purchase or operate hydrogen fuel cell buses. Additionally, specifying the use of this sort of vehicle will likely significantly reduce the number of viable service operators, thus decreasing competition and increasing the operating price charged by the private contractor. However, as hydrogen fuel cell technology continues to evolve, this option may become more viable in the future from a cost perspective. When the Grimsby Transit fleet is due for replacement in the medium to long-term, additional consideration may be made to the purchase and/or use of these vehicles. **Figure 27** shows a hydrogen fuel cell bus.

Figure 27: Hydrogen Fuel Cell Bus

8.1.6 Assessment and Recommendation

Table 15 provides a summary evaluation of different vehicle types assessed above. The evaluation criteria listed in each row is ranked by way of "High", "Medium" and "Low" based on the benefit of each service structure to the Town. In the table, "High" indicates that the option has a 'high' benefit to the Town while "Low" indicates that the option has a lower benefit to the Town. For clarity, "High" is represented by three check marks (✓✓✓), "Medium" by two check marks (✓✓) and "Low" by one check mark (✓).

Table 15 – Assessment of Transit Fleet Options

Organizational Structure	40-Foot Bus	30-Foot Bus	Low Floor Mini Bus	Heritage Trolley	Hydrogen Fuel Cell Bus
Capital Cost	✓	✓✓	✓✓✓	✓✓	✓
Operating Costs	✓✓	✓✓	✓✓✓	✓✓	✓
Suitable Capacity	✓	✓✓	✓✓✓	✓✓	✓
Vehicle Life Span	✓✓✓	✓✓✓	✓✓	✓✓	✓✓
Total Points	6	9	11	7	5
Ranking	Not Recommended	Not Recommended	Recommended	Not Recommended	Not Recommended

8.2 Stop Infrastructure

In order to ensure a passenger-friendly system, stop locations along the transit routes need to be clearly identified. Doing so provides clarity and increases safety for passengers, bus drivers, as well as motorists. Approximately 150 bus stop locations have been identified in the Year 1 transit network. In the Year 5 network, the number of bus stops is expected to grow only slightly by 5-10 additional stops.

In the short-term, only the erection of poles with signs indicating bus stop are recommended. Bus stop signs can also be placed on existing utility poles and other street signs to reduce capital costs during the pilot phase. Due to the potential for changes to the structure of the routes, it is not recommended that bus pads and/or bus shelters be installed immediately upon the establishment of a transit system. As the permanency of the system and the structure of the routes solidify in the medium term, bus pads should be installed to promote accessibility for all passengers (particularly persons with disabilities). This also improves the overall passenger experience, particularly during inclement weather conditions by providing passengers with a hard surface to board/alight transit vehicles. Shelters should also be included at strategic stops. Consideration for the installation of shelters should include locations with elevated passenger volumes, transfer locations, as well as those locations serving schools, seniors' homes, and other important trip generators. Site conditions and geometry must allow for enough space for the construction and installation of concrete bus pads and shelters.

Figure 28 shows guidelines for the dimensions of concrete bus pads. **Figure 29** shows guidelines for the dimensions of bus stop shelters. These dimensions should be considered a minimum standard for the bus stop to be accessible for persons with disabilities.

Figure 28: Concrete Bus Pad Dimensions

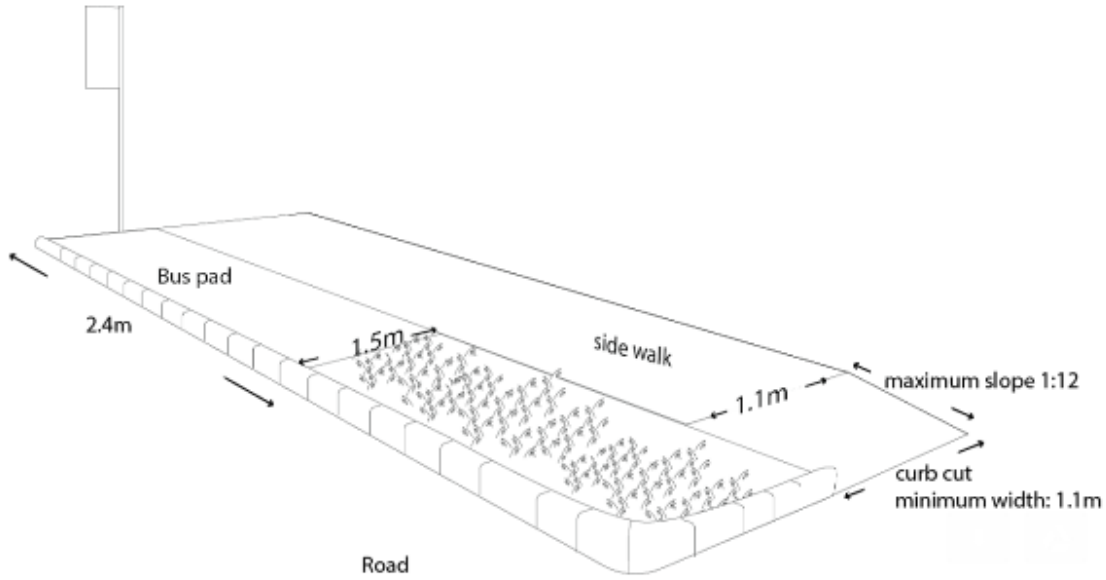
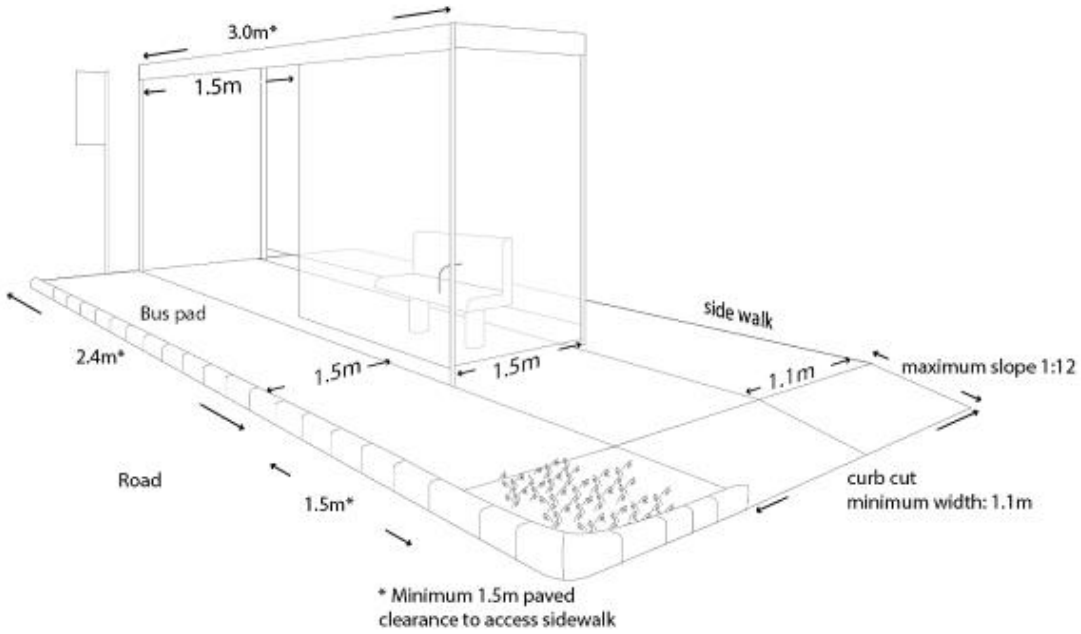


Figure 29: Bus Stop Shelter Dimensions



8.3 Terminal Infrastructure

8.3.1 Casablanca GO Hub

The hub of a future Grimsby transit network is envisioned to be at the Casablanca GO station. In the short-term, the existing GO Bus stop and park-and-ride will serve Route 1 and Route 2, in addition to both directions of GO Transit's Route 12 Bus (Burlington-Niagara Falls). In the medium and long term, the hub of Grimsby's local transit will move across the street, to the future Grimsby GO Rail station.

Between the establishment of the local transit system and 2021 (opening date of Grimsby GO Rail station), local transit will make use of the existing bus stop location at the Casablanca GO hub. It is recommended that the Town of Grimsby enter into discussions with Metrolinx, GO Transit's operator and the user of the existing platforms, shelters, and parking lot in order to ensure the use of its site as the hub location for local transit. The carpool lot is owned and managed by the Ontario Ministry of Transportation, so their agreement to use this site as a terminal for local transit would also be required. The current bus loop has two platforms, one for each direction of GO Bus service. Although the Route 12 buses in either direction are not currently scheduled to be at the Grimsby stop simultaneously, Metrolinx would likely want to retain scheduling and operational flexibility and not give up either of the platforms for Grimsby's local use. During the pilot, one bus bay is required for Grimsby Transit. This increases to two bus bays in Year 3 of the service plan. In order to accommodate up to two local

Grimsby transit buses, in addition to maintaining the two existing platforms for GO Bus use, there are two options:

1. Modify the kiss-and-ride lane adjacent to the north side of the passenger waiting area for use by Grimsby transit vehicles. This would require local Grimsby buses to enter the carpool lot/ Niagara Gateway parking lot, but would eliminate the need for substantial infrastructure modifications. **Figure 30** shows the existing kiss-and-ride lane that could be modified for use by local buses.

2. Extend the existing platform east and west from its current ends. The shorter length of the recommended Low-floor Mini Buses compared to the full-sized coach buses used by GO Transit means that a platform extension is likely to be able to accommodate loading bays for two additional vehicles.

It is worth noting that whatever solution is chosen to accommodate Grimsby transit vehicles at the Casablanca GO hub, the configuration would be temporary. Upon the opening of the GO Rail station in 2021, the enlarged facility will provide dedicated bus bays for Grimsby Transit. The proposed medium-term transit network envisions three routes serving Grimsby, but it is recommended that at least four be put aside for local transit needs. The fourth platform would allow for future system expansion and could also potentially serve paratransit vehicles.

Figure 30: Casablanca GO Hub

8.3.2 YMCA

The Niagara West YMCA, located at 325 Main Street East, would serve as the western terminal for Route 2 and as an important stop along Route 1. It has a looping driveway with a lay-by for drop offs and picks ups adjacent to the main entrance. Local Grimsby transit buses could use the existing loop without any infrastructure modifications, apart from the installation of a bus stop sign. For this to occur, discussions would need to take place with the YMCA to allow the use of local buses on their property.

8.3.3 Beamsville GO Carpool Lot

The Beamsville GO Bus stop is located at the Ontario Street carpool lot. In Year 3 of the proposed service plan, this would also be the location of Route 1's terminal during off-peak hours, or at all times if Town of Lincoln does not agree to fund the Route 1 Beamsville Extension. The park-and-ride lot includes a loop that could be used by buses, and the driveway has ample space to install bus stops. The site is owned and managed by the Ontario Ministry of Transportation and is also used by Metrolinx, so their agreement to the usage of the site as a terminal for local transit would need to be ensured.

9.0 Financial Analysis

Both one-time capital and ongoing operational costs are associated with the establishment and operation of a public transit system. This section provides a high-level analysis of the types of costs involved, and establishes an overall general estimate for the financial commitment that the Town of Grimsby can expect should it decide to proceed with the establishment of a transit service. It should be noted that a more detailed assessment is only possible based the initiation of an RFP process to seek quotes from private sector transit operators.

9.1 Operating Costs

Operating costs include both fixed and variable costs that increase with additional service. They are calculated based on an average cost per vehicle hour. At a high level, operating costs generally include the following elements:

- Transportation operation costs (e.g. driver wages and benefits, etc.);
- Fuel costs;
- Vehicle maintenance costs;
- Plant maintenance costs (cost to maintain the vehicle storage facility); and
- Administration costs.

To calculate operating cost for Grimsby, the peer group average hourly operating costs illustrated in **Section 4.0** was used and multiplied by the recommended network service hours, as identified in **Section 5.6**. The service hours calculated include a 10% increase in revenue vehicle hours, a factor used to reflect hours that the bus is not in revenue service (e.g. traveling to and from the transit garage to their first/last run).

The peer group average hourly operating cost of municipalities the size of Grimsby is $70 per hour. The Town of Lincoln recently signed an operating agreement with BTS Network for $60 per hour (which includes a contracted supplied vehicle). This is considered a very low rate that may be difficult to replicate, particularly with a larger fleet operating and longer operating hours. In order to account for variability in potential operating rates charged by the future contractor, a range assuming between $65 and $90 per hour has been used in all calculations. This rate includes the contractor supplying the vehicle. For the short- to medium term, a comparable operating cost is provided assuming that Grimsby supplies its own vehicle. The range for this is between $60 and $80 hour.

Table 16 provides an estimate of operating costs based on the recommended service plan. The service hours shown represent only those operated within and paid for by the Town of Grimsby. The lower ends of the ranges presented depend on the involvement of neighbouring municipalities, due to improved scheduling and route efficiency.

Table 16: Projected Operating Costs

Horizon Year	Total Vehicle Hours*	Annual Cost (contractor-supplied vehicle)		Annual Cost (municipally-owned vehicle)	
		$65/Hr	$90/Hr	$60/Hr	$80/Hr
Pilot Project (Year 1) *Two-bus option*	7,200	$470,000	$650,000	N/A	N/A
Pilot Project (Year 1) One-bus option	3,600	$235,000	$325,000	N/A	N/A
Short-term (Year 3)	9,200-10,000	$600,000 - $650,000	$830,000 - $900,000	$550,000 - $600,000	$735,000 - $800,000
Medium-term (Year 5)**	13,700-16,100	$1,000,000 – $1,045,000	$1,265,000 – $1,450,000	$950,000 - $965,000	$1,160,000 - $1,285,000

**The lower end of the vehicle hour range would be achieved if a partnership with the Town of Lincoln is in place. Without a partnership in place, the higher end of the range would be applicable (due to less efficient scheduling).*

***Assumes $100/hour operating cost for HSR integration on Route 3*

9.2 Ridership and Fare Revenue

Fare revenues are variable and increase with additional ridership and changes to the fare structure. For the purposes of this analysis, the average peer group fare of $1.58 (see **Section 4.0**) was rounded to $1.50 and used to calculate the potential fare revenue for the conventional service. The average fare is based on an average of cash fares and fare concessions provided to seniors and students, as well as for frequent transit use (e.g. purchase of tickets and monthly passes). As a next step, Grimsby will need to develop a fare strategy that balances cost recovery with affordability.

During the pilot project phase, the Town of Grimsby may choose to operate the service at no cost to passengers. Offering free rides to residents may help increase ridership more quickly than envisioned, by providing additional incentive to try out the new system and lowering the barrier to usage for new passengers. The Town of Lincoln will run its 14-month transit pilot without charging any fares and Grimsby may choose to follow this model if it deems this appropriate. However, there is a potential risk to this strategy as passengers may come to expect free transit service. Passenger fares also provided needed revenue that can be used for service expansion and improved service levels. This can have the effect of increasing ridership in the medium to long-term.

Table 17 provides an estimate of ridership and fare revenue, based on a preliminary estimate of ridership, as outlined in **Section 6.3** for the pilot program and the, Year 3 and Year 5 service plan. For the purpose of simplicity and consistency with the operational cost estimates, the average cash fare was not increased and the total fare revenues are reported in constant dollars.

Table 17: Projected Fare Revenues

Horizon Year	Average Fare	Projected Annual Ridership	Approximate Annual Revenue
Pilot Project (*Two-bus*)	Free or $1.50	40,000	$0-$60,000
Pilot Project (*One-bus*)	Free or $1.50	25,000	$0-$35,000
Short-term (Year 3)	$1.50	75,000	$110,000
Medium-term (Year 5)	$1.50	150,000	$225,000

Overall fare revenues can be increased by growing ridership or by raising the customer's cost of utilizing the service. However, fare increases will not have directly proportional increases in revenue collected, as ridership tends to decline as a result. Transit fare elasticity values are highly dependent on the demographics and economic particularities of a given community, but the *Victoria Transport Policy Institute* suggests that a 10% fare increase will lead to a ridership decline of between 2% and 5%.

9.3 Municipal Investment in Transit

Municipal Investment is the shortfall between the operating costs and the revenue. **Table 18** shows a summary of the municipal investment, by presenting the operating costs, the fare revenue, and the resulting revenue-to-cost ratio. For the purpose of simplicity and consistency, operating costs and fare revenue are reported in constant dollars.

Table 18: Projected Annual Municipal Investment

Performance Measure	Contractor Supplied Vehicles				Municipal-Owned Vehicles			
	Pilot Project (Two Bus)	Pilot Project (One Bus)	Short-Term (Year 3)	Medium-Term (Year 5)	Pilot Project (Two Bus)	Pilot Project (One Bus)	Short-Term (Year 3)	Medium-Term (Year 5)
Estimated Operational Costs	$470,000 - $650,000	$235,000 – $325,000	$600,000 - $900,000	$1,000,000 – $1,450,000	N/A	N/A	$550,000 - $800,000	$950,000 - $1,285,000
Estimated Fare Revenues	$0-$60,000	$0-$35,000	$110,000	$225,000	N/A	N/A	$110,000	$225,000
Estimated R/C Ratio	0-13%	0-15%	12-18%	16-23%	N/A	N/A	14-20%	18-24%
Total Operating Investment	$410,000 - $650,000	$200,000 – $325,000	$490,000 - $790,000	$775,000 - $1,225,000	N/A	N/A	$440,000 - $690,000	$725,000 - $1,060,000
Potential Provincial Gas Tax Contributions	N/A	N/A	$150,000 - $200,000	$350,000 - $400,000	N/A	N/A	$150,000 - $200,000	$350,000 - $400,000
Net Costs*	$410,000 - $650,000	$200,000 – $325,000	$290,000 - $640,000	$375,000 - $875,000	-	-	$240,000 - $540,000	$325,000 - $710,000

*Note: provincial gas tax provided as an estimate only. Gas tax can be applied to either operating or capital costs.

Generally, the municipal investment in transit is funded using revenue from municipal property or business taxes. In addition to this funding source, there are other potential funding sources that may reduce the overall municipal investment in transit.

Advertising and charter revenue can be used to off-set some costs. This is typically not high and may account for 1-3 percent of overall operating costs. This may be slightly higher if a Trolley Bus is purchased and can be used on a regular basis. It is recommended that the Town undertake a more detailed market assessment of this option and the potential for revenue generation.

Another important source of funding includes the Provincial Gas Tax, which is distributed based on population and ridership. For a community of Grimsby's size with a functioning transit system, the Provincial Gas Tax could provide between $150,000 to $200,000 in funding annually, based on 2015's total province-wide allocation of $332 million. It should be noted that gas tax funding is not available for pilot projects and would only be available once Council decides that the system is permanent.

By the year 2021-2022, the Province has committed to doubling the overall gas tax funding to $642 million. Consequently, in the medium term, Grimsby could expect to receive between $350,000 and

$400,000 annually towards capital or operating expenses. This can be used for the purchase of vehicles or to further off-set operating costs.

If the Route 1 Beamsville extension is operated with the cooperation and financial support of the Town of Lincoln, it is possible that additional financial subsidies could be made available by the Region of Niagara. Because it would be an inter-municipal service connecting Grimsby and Beamsville, the Region could explore some form of financial support for the route. This strategy would be consistent with its objective of improving links between various communities in Niagara Region and would diminish some of the funding requirements from the Town of Grimsby.

9.4 Other Funding Sources

There are a number of other funding sources that the Town of Grimsby can take advantage of to help fund the upfront capital and ongoing operational costs of running transit system. In addition to the traditional methods of funding that result from user fees (fares) and property taxes, dedicated funds flowing from upper levels of government can help support the development and operation of a local transit system in Grimsby.

9.4.1 Federal Public Transit Infrastructure Fund

The Public Transit Infrastructure Fund (PTIF) is a fund administered by the Government of Canada that explicitly aims to support investments in transit. Funding of 50 percent of the total project cost is provided for eligible capital projects, the rehabilitation of transit systems, and planning studies for future transit expansion. Municipalities, regional governments, and the provincial government must provide the remaining 50 percent of eligible project costs. Phase 2 funds are allocated to each province on a 70% ridership and 30% population basis. A total $20.1 billion dollars will be made available in Phase 2, which runs until 2028.

Examples of projects eligible for federal funding through the PTIF include:

- Purchase, refurbishment or replacement of rolling stock (buses);
- Projects for system expansion;
- Pilot projects related to innovative and transformative technologies; and
- Expenditures to support asset management capacity.

Although Grimsby would not be eligible for any ongoing Phase 1 funding, Phase 2 of the PTIF is expected to follow in 2018, and will be targeted to longer-term strategic projects. Consultations to determine project eligibility and cost-sharing formulas are currently ongoing. It should be noted that Grimsby would likely not be eligible for Phase 2 PTIF funding if it does not have a transit service in place before the Phase 2 funding is announced. It is recommended that the Town engage with the Province and Federal government to learn more about the potential to gain access to future PTIF funding.

9.4.2 Development Charges

The population of the Town of Grimsby is expected to grow significantly over the next 5-10 years. Part of this growth will result in the need for additional transit services; some of which can be recovered through Development Charges (DCs).

Through the application of Development Charges (DCs), the development community contributes an appropriate share of infrastructure capital costs for necessary growth-related transit improvements over the ten-year planning period. DCs are a tool for municipalities to ensure that "growth pays for growth".

The Development Charges Act ("DCA") regulates when and how municipalities may collect DCs.
The provincial government recently enacted changes to the Development Charges Act, 1997 (the DCA) with direct implications for how municipalities plan and fund future transit services.

Historically, transit services could only be funded through DCs in the following manner:

- Service costs could only be recovered at up to 90 percent of total capital cost due to a DCA mandatory 10 percent reduction of eligible growth related capital cost applied to transit services; and
- Growth-related capital expenditures for transit infrastructure were limited to expenditures that supported maintaining historic service levels. This was calculated based on the average level of service over the prior ten years.

Changes in the DCA, which came into effect in January 2016, have resulted in alterations to a municipal growth-related transit funding mechanisms. These changes are summarized as follows:

- The mandatory 10 percent reduction of eligible growth-related capital costs has been removed for transit services, allowing growth related transit services to be 100 percent recoverable through development charges.
- The introduction of planned levels of services for transit, with the prescribed method and criteria to establish the service level (outlined in O.Reg. 428/15). This allows municipalities to be forward-looking in estimating future level of service for transit development charge calculations and apportion them to growth accordingly. It also included new highly prescriptive reporting requirements associated with the background reporting for development charges.

A portion of transit capital expenses that are identified in a Council approved capital plan can be paid for by the development community as a growth related expense. This would be especially applicable for Route 3 in the medium-term, which would be partly necessitated due to future growth and development.

Expenditures are eligible to be funded through the DC legislation including:

- New transit vehicles;
- Expansion of transit terminals;
- Expansion of transit facilities;
- On-road transit infrastructure; and
- Transit technology (e.g. smart card technology).

Once the total transit capital cost is determined, detailed ridership forecasting would need to be completed to determine the required reduction in the eligible capital expenditures based on the extent to which an increase in service benefits existing development (growth related expenditures versus non-growth related expenditures). The portion of capital costs that are growth related within the ten-year period of the capital plan are eligible for DC funding.

Based on this initial assessment, it is estimated that approximately 10 to 15 percent of transit capital costs will be apportioned to growth in northwest Grimsby and therefore eligible for DC funding.

It should be noted that Grimsby elects to have the contractor supply vehicles, a portion of the contracted hourly rate that the contractor has identified for the amortization of contractor supplied vehicles may be eligible for DC charges. This should be examined more closely as part of the Town's DC review.

9.4.3 FCM Municipalities for Climate Change Innovation Program

The Federation of Canadian Municipalities (FCM) has released a new 'Municipalities for Climate Innovation Program' grant for climate change infrastructure projects for up to one million dollars for capital projects that will help adapt to climate change impacts, such as flooding, extreme temperatures and drought, and reduce greenhouse gas emissions.

The funding is a five-year, $75-million program funded by the Government of Canada and delivered by the Federation of Canadian Municipalities. One of the key objectives of the fund is to identify ways to introduce new transportation options for residents of a municipality and therefore reduce GHG emissions. The capital costs associated with the introduction of a transit service would be eligible for funding (as long as it can be demonstrated that the initiative has the potential of reducing GHG emissions by 20%.

Up to one million dollars in funding is available per grant application. Of this, the municipality is required to cover 20% of the capital cost and the FCM will cover up to 80% of the capital cost.

This funding should be used to cover the capital costs of buses if the municipality decides to purchase vehicles.

9.5 Capital Costs

The service delivery model recommended in **Section 7.5** is a privately contracted service.

During the pilot program, no vehicle purchase costs are assumed. Upon completion of the pilot program, the municipality will need to make a decision about whether to purchase vehicles for the contractor to maintain and operate, or whether to enter into an extended contract with the contractor continuing to supply the vehicles. Under both scenarios, it is recommended that the contract supply a bus maintenance and storage facility.

The decision to purchase municipally-owned and privately-operated/maintained buses will depend primarily on the availability of funding support from upper levels of government. Potential funding sources are identified in **Section 9.5**, which could reduce the municipal capital investment by up to 80% and also reduce operating costs by 10% to 20%.

The assessment below presents the capital costs for both scenarios (municipal owned buses and contractor supplied buses).
Overall, the following capital costs are required for the service:

- Purchase of buses (only if additional funding sources can be secured);
- Installation of bus stop signs;
- Installation of shelters; and
- Installation of bus stop pads.

Based on the recommended service plan, there is a peak vehicle requirement of two buses plus one spare vehicle during the pilot project phase. However, these buses will be owned by the service contractor. In the short-term (Year 3), three to four buses will be required to operate the service. In the medium-term (Year 5), four to five buses will be required to operate the service. The range in the short- to medium-term is due to the uncertainty of the Route 1 Beamsville extension. If the Town of Lincoln decides to enter into an agreement with the Town of Grimsby to operate the Route 1 Beamsville extension, then the additional bus would be required, but may be cost-shared with the Town of Lincoln. The Town of Lincoln could help directly finance the purchase of that bus, or it could remunerate the Town of Grimsby at an hourly rate higher than what the Town of Grimsby is paying the private contractor to amortize the purchase price of the extra vehicle. Allowing for at least one spare vehicle system-wide, this means that there will be the need to purchase four or five buses in the short-term (Year 3) and one additional bus to operate Route 3 and potentially one additional spare vehicle by Year 5.

Depending on the model and exact configuration chosen, the recommended Low-floor Mini-Bus carry a unit price of approximately $200,000 (amortised over a 6 to 8 year period). In addition to this, Grimsby would need to install fareboxes and automated vehicle announcement systems (required by the AODA),

which calls out and provides a visual display of bus stops on the route. It is estimated that this would be an additional $30,000 per vehicle.

Table 19 provides a preliminary capital cost estimate for the establishment of a local transit system in Grimsby, if the municipality signs an operating agreement with a contractor supplying the buses.

Table 19: Projected Capital Costs (Contractor Supplied Buses)

Item	Unit Price	Pilot Project (Year 1)		Short-Term (Year 3)		Medium-Term (Year 5)	
		Quantity	Total Price	Quantity	Total Price	Quantity	Total Price
Low-floor Mini Buses	$230,000	0	$0	4-5	$0	2	$0
Shelters	$5,000	0	$0	10	$50,000	5	$25,000
Bus Stop Signs	$100	100	$10,000	50	$5,000	10	$1,000
Concrete Bus Pads	$3,500	0	$0	20	$70,000	30	$105,000
Total			**$10,000**		**$125,000**		**$131,000**

*Note: Bus stop sign requirements for the one-bus pilot phase option not known until route design is finalized.

Table 20 provides a preliminary capital cost estimate for the establishment of a local transit system in Grimsby, if the municipality purchases the buses operated by the private contractor.

Table 20: Projected Capital Costs (Municipally-Owned Buses)

Item	Unit Price	Pilot Project (Year 1)		Short-Term (Year 3)		Medium-Term (Year 5)	
		Quantity	Total Price	Quantity	Total Price	Quantity	Total Price
Low-floor Mini Buses	$230,000	0	$0	4-5	$920,000-$1,150,000	2	$460,000
Shelters	$5,000	0	$0	10	$50,000	5	$25,000
Bus Stop Signs	$100	100	$10,000	50	$5,000	10	$1,000
Concrete Bus Pads	$3,500	0	$0	20	$70,000	30	$105,000
Total			**$10,000**		**$1,045,000 - $1,275,000**		**$591,000**
Potential Federal Funding Reduction (80%)*			**$0**		**$736,000 - $800,000**		**$368,000**
Adjusted Total			**$10,000**		**$309,000 - $475,000**		**$223,000**

**applied to vehicle costs only based on FCM funding. Capital costs may decrease further based on other funding sources (e.g. Development Charges, Federal Public Transit Infrastructure Fund).*

It is emphasized that vehicles should be purchased only if funding support for capital costs can be secured from upper levels of government. If funding mechanisms are in place to offset the cost of vehicle purchases, the Town of Grimsby will benefit through lowered annual operating costs.

10.0 A Note on Transit Accessibility for Persons with Disabilities

10.1 Background

Grimsby does not provide a separate demand-responsive door-to-door service for persons with disabilities. With the implementation of a conventional transit service, there will be an expectation that the Town also address mobility requirements for persons with disabilities.

The provision of accessible transit services in Ontario is legislated through the Accessibility for Ontarians with Disabilities Act (AODA). The act outlines accessibility requirements for both conventional and specialized transit systems, including ensuring that there is parity between the two services. Despite this, there is no clear requirement in the AODA that states that a transit system that provides a conventional transit service must also provide a specialized transit service for persons with disabilities. The legislation is fairly vague about this and subject to interpretation.

Under the legislation, the Town must ensure that its conventional service is fully accessible and does not discriminate against access from persons with disabilities. This includes the purchase of fully accessible vehicles, the use of automated stop announcements, etc.

Of the peer systems reviewed, seven of the eleven systems that operate a conventional service also operate a parallel service for persons with disabilities.

If the Town elects not to implement a parallel specialized transit service to compliment the proposed conventional transit service, there is a risk that an Ontario Human Rights Complaint could be issued. The Ontario Human Rights Code protects people from discrimination in five parts of society called social areas, based on one or more grounds. A key social area is services, which include public transit. Discrimination is based on 17 different personal attributes called grounds, and includes discrimination based on disability.

Equal access by persons with disabilities to adequate, dignified public transit services is a right protected under the Ontario Human Rights Code. For many citizens, providing accessible transit is also essential to obtaining education or employment or accessing basic services such as health care and grocery shopping. Lack of access to transit may also lead to isolation.

A Consultation Report issued by the Ontario Human Rights Commission on “Human Rights and Public Transit Service in Ontario” (March 27, 2002) explored this potential human rights issue. The report states:

"The Code protects the right to equal treatment with respect to services, which includes public transit. The Supreme Court of Canada has affirmed the principle that society should be structured and designed for inclusiveness. This means that positive steps are needed to ensure equal participation for those who have experienced historical disadvantage and exclusion from society's benefits. This includes a right to accommodation with dignity to the point of undue hardship.

In the context of transit services, this means that the design and development of transit services should be based on the objective of maximum integration of all persons into society. As part of their duty to accommodate, transit providers have a legal obligation to provide accessible transit services. This includes both modifications to conventional systems to ensure maximum accessibility for all persons, and the creation and maintenance of paratransit systems.

The duty to accommodate is to the point of undue hardship. Undue hardship is assessed based on costs, outside sources of funding, and health and safety. When assessing cost implications, the cost must be assessed having regard to the entire budget of the transit authority, and not solely the operating budget allotted to a particular part of the service or department, such as the paratransit service."

Source: http://www.ohrc.on.ca/en/discussion-paper-accessible-transit-services-ontario

While it is recommended that any conventional service implemented by Grimsby be fully accessible, a person with a disability has the potential to file a complaint because they do not have the ability to access a public transit stop. While the Town may go a number of years without a human rights complaint, it may wish to further address this issue before a complaint is filed.

10.2 Potential Specialized Transit Service

The following section provides a high level review of the size and potential ridership that would be attracted to a specialized transit service should the Town decide to implement this service in parallel with a conventional fixed-route service.

Table 21 provides data on existing specialized transit services provided by the peer systems identified in **Section 4.0** of this report. Noteworthy findings include:

- Seven of the eleven peer systems offer a dedicated paratransit service.
- Average annual ridership in the peer group was approximately 8,000 trips in 2015, with about 500 registrants. This suggests the average registrant uses the service about once a month.
- The average number of passenger trips per capita was 0.48 in 2015. Based on Grimsby's population, this would equate to approximately 13,000 annual rides.
- The average number of service hours per capita was 0.26 in 2015. Based on Grimsby's population, this would equate to approximately 6,700 annual service hours.

Table 21: Peer Review – Specialized Transit Services

Transit System	Service Area Population	Specialized Transit	Registrants	Annual Ridership	Annual Passenger Trips / Capita	Annual Service Hours	Annual Service Hours / Capita
Extended GTA							
Bradford/West Gwillimbury	34,860	No	-	-	-	-	
Orangeville	29,400	No	-	-	-	-	
Northern Ontario							
Midland	17,000	Yes	411	5,583	0.33	4,680	0.28
Wasaga Beach	18,615	No	-	-	-	-	-
Owen Sound	22,000	Yes	397	7,905	0.36	3,407	0.15
Elliot Lake	11,348	Yes	210	9,283	0.82	3,801	0.33
Eastern Ontario							
Cobourg	18,519	Yes	655	7,845	0.42	4,357	0.24
Port Hope	12,350	Yes	187	5,772	0.47	3,744	0.30
Quinte West (Trenton)	54,014	Yes	2,411	35,135	0.65	12,054	0.22
Brockville	21,870	Yes	1,055	11,043	0.50	5,293	0.24
Southern Ontario							
Port Colborne	18,600	No	-	-	-	-	
Average*	***17,181***	***-***	***486***	***7,905***	***0.48***	***4,214***	***0.26***

**Represents average of systems offering dedicated specialized transit services, with the exception of Quinte West which extends is specialized transit service to another municipality.*

There are three options available to the Town to provide enhance services for persons with disabilities:

1. **Option 1: Do not implement specialized transit**
   In this option, the Town would make the conventional system as accessible as possible, however, it would only be beneficial for those that can access the service. Persons with disabilities that are unable to get to a stop (or use a stop that is not accessible) would need to take the Red Cross service or an accessible taxi. While these services provide mobility, they have different service hours and higher fares which may not provide the same level of affordable mobility as conventional transit. From a financial perspective, this option is the least expensive, however, runs the risk of a Human Right's complaint being issued.

2. **Option 2: Implement separate specialized transit system**
   In this option, the Town would implement a parallel specialized transit service that provides curb-to-curb on-demand transportation for registered persons with disabilities. This would require the town to develop eligibility criteria and operate approximately 6,000 to 7,000 hours of service a year. The annual operating cost for this type of service (based on the peer review analysis) would be approximately $600,000 (calculated using an $80 per hour operating rate). Revenue on the service is expected to only recover approximately 4-5 percent of operating costs in the short-term. Two to three low-floor or lift-equipped cutaway vehicles ($150,000 each amortised over a 6 to 8 years) would also need to be purchased to operate the service. This option would be the most expensive for the Town.

3. **Option 3: Partnership with Red Cross service**
   In this option, the Town would enter into a partnership with the Red Cross to provide the specialized transit service. This would require that the Town subsidize the existing $5.05 Red Cross fare to be equal to the proposed conventional transit fare. The Red Cross would need to meet the full AODA requirements, which may require some additional funding from the Town for capital or to increase service levels (e.g. hours of operation of the customer call centre). If ridership grows beyond the Red Cross's ability to deliver the service (e.g. their vehicles are already near capacity), the Town may also need to contribute to additional capital and operating expense. Despite this added cost, this option may be less expense than a separate specialized service (Option 2) offered by the Town and should be considered.

As the Town makes a decision on the future of conventional transit service, a decision should also be made regarding how accessibility should be addressed and the potential need to deliver a separate curb-to-curb specialized transit service[4].

Starting with a fixed-route service and making it as accessible as possible would be a first step and the town tests the long-term feasibility of introducing public transit. Once this service is established, the Town should revisit the question of the need to implement a separate specialized transit service for persons with disabilities.

[4] Note: The design of a specialized transit service was not included in the scope of this study. The preliminary cost estimates are included to help determine the feasibility of an overall transit service.

11.0 Conclusion and Next Steps

11.1 Summary

The introduction of a transit service in Grimsby is a political decision that should be made balancing the costs of providing the service with the benefit that transit provides to its residents. Transit should be viewed as a municipal service; one that promotes mobility and access to employment, school, retail and social trips within the community. It is a means to improve quality of life for members of the community that do not have access to a private automobile or choose not to drive. In this sense, transit is seen as a municipal investment, similar to recreation facilities and schools. While not all members of the community will use each of these services, the addition of the service makes the community a better and more attractive place.

There are five compelling reasons to support the establishment of a local transit system:

1. **Transit will provide additional mobility options in Grimsby.**
   As Grimsby continues to grow, improved mobility within the Town will become an increasingly important issue. A transit system will particularly help the elderly and youth, as well as employees going to and from their place of work. Additionally, those without financial means or those who simply choose not to drive will also see significant benefits. Transit also has many spinoff social and economic benefits that will be felt throughout the community.

2. **There is broad-based community support for local transit.**
   A very high proportion of Grimsby residents support the establishment of a local transit service. As confirmed by statistically valid telephone survey, the majority of residents also support a modest property tax increase to help fund the operations of a new transit service.

3. **Local transit will support the arrival of the GO Rail service in Grimsby.**
   The confirmed extension of GO Rail service to Grimsby by 2021 will change commuting patterns in the community. The establishment of a local transit service will help best leverage the positive effects of those changes and will allow Grimsby to be better integrated with both the GTHA and Niagara Region.

4. **Local transit will support the introduction of inter-regional transit in Niagara Region.**
   Niagara Region Transit has approved a 10-year expansion plan to guide the growth of the regional transit system. As part of the current push towards consolidated governance and service delivery, the plan focuses on strengthening inter-municipal connections throughout Niagara Region, including better linkages to West Niagara. The introduction of a local transit network in Grimsby will likely be required before regional transit services are extended to Grimsby.

5. **Improve Quality of Life**
   Communities smaller than Grimsby throughout Ontario already have operational transit systems in place. Within Niagara Region, Pelham, Port Colborne and Niagara-on-the-Lake (jurisdictions with a lower population than Grimsby), all offer local transit. Establishing a transit system within Grimsby will improve quality of life for its residents and connect them within and to adjacent communities.

11.2 Next Steps

If the Town of Grimsby decides to proceed with the establishment of a local transit network, a number of next steps are required to implement the service. These are outlined below:

Initial Tasks - Pilot Program

1. Council to choose whether they would like to begin with a one-route pilot or a two-route pilot for a period of 12 to 24 months.
2. Finalize route design and identify bus stop locations.
3. Identify a staff person in Grimsby to undertake the role of Transit Coordinator. This will likely only take up 25% of the individual's time, depending on how quickly the service is implemented.
4. Develop key performance indicators that the municipality will use to monitor the delivery of a pilot the service.
5. Write and issue an RFP for the provision of a pilot service that will run for 18 to 24 months. The contract should be based on the contractor supplying vehicles and a maintenance and storage facility and should specify performance parameters.
6. Issue an RFP.

Funding Opportunities

1. Assess impacts on property and business taxes to pay for the recommended transit service.
2. Update Development Charges Study to include capital purchases required for the transit system. Identify whether the amortization of contracted bus capital costs (included as part of the hourly operating cost) can be included as part of applicable DC charges.
3. Prior to the end of the pilot program
   a. Enter into discussions with the Town of Lincoln regarding the potential for operating the Route 1 Beamsville extension.
   b. Apply for to the FCM Municipalities for Climate Innovation Program to request capital funding for the purchase of vehicles.
   c. Enter into discussions with Niagara Region to assess the opportunity for funding contribution to Route 1 (should the Lincoln discussion prove fruitful).
   d. Enter into discussions with the MTO regarding the potential to secure funding from the Phase 2 PTIF funding.

e. Take the steps necessary to receive provincial gas tax funding once the pilot program is complete.

Transit Terminals

1. Enter into discussions with Metrolinx and the Ontario Ministry of Transportation regarding the use of and any required modifications to the Casablanca GO hub in Grimsby and the Ontario Street carpool lot in Beamsville.
2. Enter into discussions with the YMCA to confirm their willingness to allow Route 1 and Route 2 to stop on their private property.
3. Provide input into the Niagara GO Hub and Station Area study to ensure provision of 3-4 bus bays for local Grimsby service at the proposed Casablanca GO Station.

Fleet

1. Identify fleet requirements to be included in the RFP for the contracted pilot service. Fleet specifications in the RFP should identify accessibility requirements, number of seats, and need for a farebox.
2.
3. In the short-term, identify options for purchasing buses provided funding is made available to off-set the majority of capital costs.
4. Prepare a business case analysis to quantify the potential demand and revenues resulting from the operation a heritage trolley.
5. If funding is received, issue an RFP for the purchase of up to five transit vehicles.

Service Contract

1. If the pilot is successful, modify the existing contract or issue a new RFP for the provision of a transit service for a three-year contract, with the opportunity to extend for another two years.
2. Refine key performance indicators that the municipality will use to monitor the delivery of the service.

Marketing and Communication

1. Develop a logo and brand for the Grimsby Transit service. Identify a marketing and communications strategy. This may require retaining a marketing and communications firm to assist.

Implementation

1. Once a contractor is hired, work with the contractor to test each route and confirm timing and appropriate stop locations.
2. Establish a transit website linked to the municipal home page. Produce transit maps and schedules.

3. Install bus stop signs at proposed locations on transit service routes. This should include any construction required at the GO Bus terminal to accommodate two local bus bays.
4. Develop and implement a marketing and communications strategy for start of service.