2019 – 2023

MILTON TRANSIT SERVICES REVIEW & MASTER PLAN UPDATE

FINAL REPORT | JUNE 2019

MILTON

MILTON TRANSIT

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EXECUTIVE SUMMARY

INTRODUCTION

The **2019-2023 Milton Transit Service Review and Master Plan Update** (Transit Master Plan) was an all-inclusive evaluation and plan document that identifies current and future transit needs for the Town of Milton. Developed by WSP and its partners, the study provides an assessment of Milton Transit services and updates Milton's 5-year Transit Master Plan for the period of 2019-2023. Among other deliverables, the review evaluates service levels, system deficiencies, accessibility, financing / budget, fare structure / policy and advanced fare collection system (i.e. allowing dynamic fare discount solutions, open fare payment, etc.), partnership opportunities, strategic integration opportunities, (e.g. GO Transit and cross-boundary connections), marketing / communications and future capital / operating growth requirements. The Transit Master Plan builds on previous planning initiatives to further develop short-, medium- and long-term ridership, financial and capital infrastructure plans to improve overall service efficiency and effectiveness.

The Transit Master Plan includes a comprehensive review of the conventional fixed-route and specialized transit services, and the markets they serve. The process includes a review of local and regional (Halton and Greater Toronto and Hamilton Area) strategic initiatives, with assessments of Milton Transit business practices, administrative staffing, fare policies and collection system, marketing and communications programs.

The Transit Master Plan provides a prioritized program of improvements to Milton Transit's service and operations, including:

- Improved services within Milton and connections to key destinations in surrounding communities
- New and innovative service delivery models to cost-effectively meet transportation needs in lower-density and developing areas
- Service warrants to trigger implementation of new services based on demonstrated demand, and a performance monitoring system to promote continuous improvement of service efficiency and effectiveness
- Investments in new vehicles, new passenger facilities and a new vehicle storage and maintenance facility
- Applications of advanced technology to improve fare collection, customer information and service efficiency
- An expanded administrative staff to meet growing management and customer service needs
- Realignment of Milton Transit's marketing program around a "Family of Service" branding concept

STRATEGIC DIRECTION

Milton is a Place of Possibility. Strategic, long-range and service delivery plans emphasise the vision for building a Complete Community and articulate the collective values shared by residents:

- A Safe and Healthy Community
- Enhanced Transportation to Move People Efficiently
- A Community of Education and Innovation
- Adequate Funding to Support Infrastructure Delivery
- Changes to Support Long-term Financial Stability

We live in a time of unprecedented uncertainty. For public services, technology has created opportunities to improve service delivery, but has undermined existing governance and funding models. Agencies are under increased pressure to grow and adapt services in a timely manner, but continuously face uncertain funding envelopes that influence their ability to plan long-term improvements, while mitigating opportunity costs related to funding delays.

Public transit remains a critical component for building a complete community. Milton is the fastest-growing community in the fast-growing Halton Region and the GTHA. The population of Milton is projected to double by 2031; and since 2009, Milton Transit ridership has increased at more than twice the rate of population growth. Planned population and employment growth will continue to drive demand for transit service within Milton, as well as connections to surrounding jurisdictions and the GTHA regional transit network. Accommodating planned travel demand from population and employment growth will require Milton to:

- Coordinate transit improvements with local and regional traffic operations, road, and active transportation improvements
- Enact transit-supportive land use policies that promote higher-density, mixed-use developments with walkable scale and highly developed pedestrian networks
- Commit to multi-year capital investments to expand Milton Transit's bus fleet and transit infrastructure, including passenger amenities, transfer hubs, and a new vehicle storage and maintenance facility
- Increase transit operating funding to:
  - enhance service levels in existing areas
  - extend transit routes to new, developing areas, and
  - improve specialized transit service

These are multi-year initiatives that require significant long-term commitments, and must begin immediately for Milton to meet future transit demand. Meeting this demand also will require strategic coordination with Halton Region, Metrolinx, and with Milton's surrounding communities. Bus routes connecting Milton to Halton Hills, Mississauga and Oakville, will be planned, operated and funded in cooperation with those communities. Milton also must advocate with Metrolinx and the Province for completion of the Milton GO station reconstruction, the new Trafalgar Road GO station, two-way all-day GO rail service, and GO bus service improvements. Continued funding of the Provincial gas tax and additional Provincial funding for local transit will be necessary to support future transit growth.

OUTLINE OF TRANSIT MASTER PLAN

The Transit Master Plan consist of the following chapters:

- Introduction
  - Introduce the background and purposed of the Transit Master Plan
- Existing Transit System Review
  - Evaluation of existing Milton Transit's route design, operation, performance, facility, and integration with the regional transit system – GO Transit
- Market Analysis
  - Evaluation of existing and projected demographics and employment trend, and planned development in Milton
- Service and Performance Standards
  - Proposed service and performance standards to plan, evaluate, and change existing transit service or to introduce new service in Milton
- Recommendations
  - Various strategic recommendations in service delivery, marketing, management, and technology that Milton Transit could implement in short-term (1-2 years), mid-term (3-5 years), and long-term (beyond 5 years)

EXISTING TRANSIT SYSTEM REVIEW

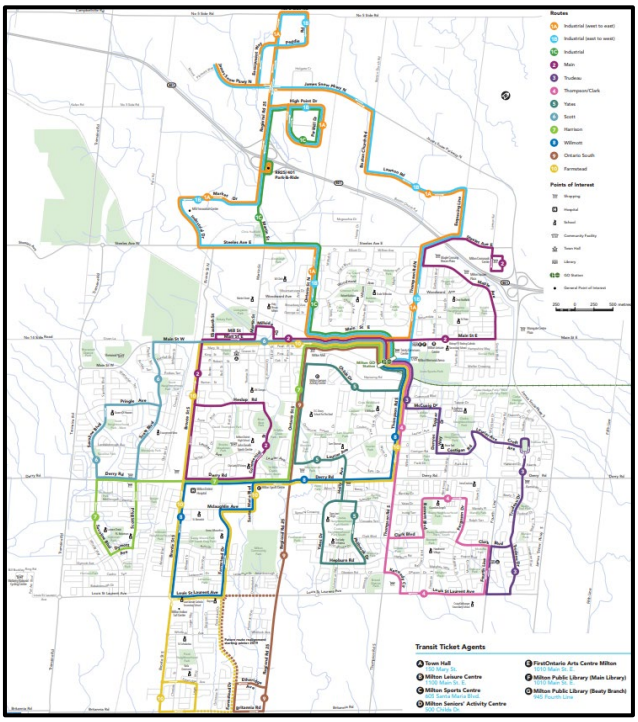


Figure 1 | Milton Transit existing fixed-route system map

Milton Transit operates nine regular, all-day fixed routes covering most of Milton's urban area, two peak-only fixed route services serving the 401 Business Park area, three special secondary school routes serving majority of the public schools and secondary schools, and three GO Drop-off, flex-route services to collect passengers after the last afternoon GO train service. Milton Transit also coordinates the Trans-Cab service that provides connections to and from Milton Transit via taxi at a designated transfer point on Millside Drive. The existing fixed-route transit system map is shown in Figure 1.

Milton's specialized service, Milton access+, provides door-to-door service throughout Milton for disabled and elderly customers. The service has 280 registered users and carried about 20,000 trips in 2018.

Metrolinx' GO rail service operates from the Milton GO Station, providing ten (10) inbound trains to Toronto during the morning peak period, and ten (10) outbound during the evening peak period. Four GO buses also serve Milton, providing connections to Cambridge, Guelph, North York and Oakville. Milton GO rail station also serves as Milton Transit's transfer hub, and includes a park-and-ride lot with more than 1,000 parking spaces.

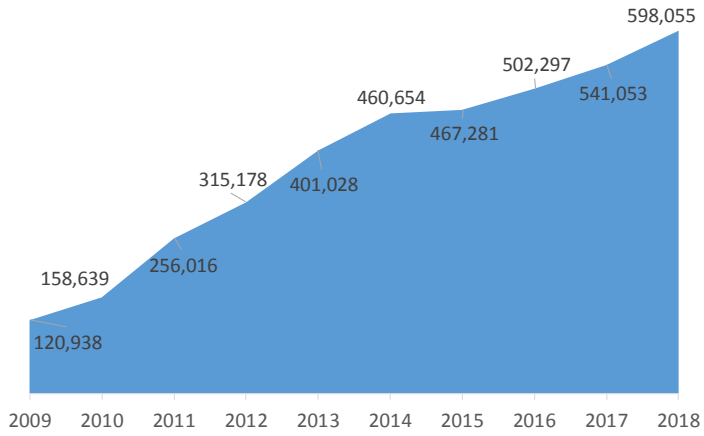


Figure 2 | Milton Transit ridership - from 2009 to 2018

Shown in Figure 2, ridership on Milton Transit has grown rapidly in the past ten years, from around 120,000 annual trips in 2009 to nearly 600,000 in 2018, a compounded growth rate of more than 20% each year. This is more than three times the rate of population growth and more than twice the rate of growth in service volume. Milton is one of the few Canadian transit systems, large or small, that gained ridership in 2017 and 2018.

The Milton fixed-route system is moderately productive, carrying an average of about 12 trips per revenue-hour of service. Most of the routes are delayed during the afternoon peak period, and several, as the school routes, experience crowding during the afternoon peak period. About half of the trips on the system are carried on three routes (route 2, 3 and 4). The four lowest performing routes (1, 5, 9 and 10) carry about 20% of all trips. Ridership is highest during peak periods, and drops off sharply after 8:00pm. In Milton, as in Oakville and Burlington, there is a clear negative correlation between ridership and routes operating on arterial roadways, with the most productive routes in the system operating almost entirely on neighbourhood streets, and avoiding Milton's congested, access-challenged arterials.

Analyses of the fixed-route network provides some direction for potential changes to the routes and for design of future routes. The first of these is that destinations at both ends of the route are is very important to generating ridership. Route 2, the system's highest ridership route, has major destinations at both ends (Milton Hospital, Wal-Mart) and in the middle (Milton GO station, Bishop Redding High School), but its two-way operation through Milton GO can be confusing to customers. Routes 1A, 1B, and 10 have large one-way loop segments, which can be confusing for customers and, in the case of route 10 (where there is no route in the other direction, as with routes 1A and B) require customers using them to make a long, out of direction trip on their inbound or outbound trip.

Milton Access+ provides specialized door-to-door transit service for persons with disabilities for trips that originate/destined for the Milton urban area but are wholly within the Town of Milton. Milton Access+ operates from 5:20am to 11:10pm on weekdays and from 7:10am to 8:10pm on Saturdays – no Sunday or holiday service.

Milton's specialized transit utilization rate is significantly lower than its surrounding peers. Halton Hills and Oakville carry more than twice as many specialized transit trips per capita. This could be due to the lack of accessibility for the disabled on some taxi vehicles, or lack of public awareness of the service. Should specialized service demand grow to match that of Halton Hills or Oakville, specialized costs could skyrocket over the next 10-15 years.

MARKET ANALYSIS

Milton's population is projected to double in the next 10 to 15 years. Population is expected to grow in the existing developed areas of the Town, but much of the growth will be in areas with no existing transit service. Milton Transit will need to increase service levels within the existing developed areas to meet growing demand, and extend service to meet demand in newly-developing areas of Milton.

Milton's demographics indicate that the community is moderately affluent and has few transit-dependent people. Its most promising transit markets are GO commuters, students, and new workers, along with Milton's small transit-dependent population. Most rail commuters in Milton park-and-ride at the GO station. Development of outparcels at the station, and redevelopment of the station itself, will reduce the number of available parking spaces in the next few years, offering Milton Transit an opportunity to capture more GO customers. Higher frequency service, operation on transit-priority facilities, improved on-time performance, and implementation of the PRESTO fare payment all will be critical to capturing a larger share of this market.

Milton Transit's school routes now operate at or above capacity during afternoon periods. Adding service to these routes, is the easiest and fastest way for Milton Transit to increase its ridership and productivity in the short-term. High school age and younger children are one of Milton's largest population groups, and marketing efforts to increase transit use by middle and high-school aged children also is a major opportunity. As these students age, serving those who remain at home while receiving further education, or as they take their first job, will be another potential growth market for Milton Transit.

Milton's employment base also is expected to grow significantly in the next ten years. Most of the employment growth will occur in areas that are geographically separated from the residential areas, and some growing employment sectors are a mismatch with Milton's relatively educated and affluent demographic. Milton Transit will increasingly be called upon to connect residents to employment lands, and to provide cross-boundary connections to surrounding municipalities to provide access to a wider regional workforce.

Milton's population and employment density are projected to remain moderate except in the area around the Milton GO station, the Milton Education Village area, and the Trafalgar secondary plan area. Milton's suburban land use pattern is a formidable challenge for transit. Density will remain below levels considered optimal for operating transit service, pedestrian and transit modes are not prioritized, and land uses are not

mixed in ways that promote walking and cycling for many non-work travel purposes. Detailed plans are not yet in place for many of the subdivisions planned in newer areas of the Town, offering the opportunity that the mix of land uses, priorities of the roadway network and pedestrian access still can be modified.

A credible 65% of riders are using pre-paid fare products, but a significant percentage (35%) of the ridership still pay using cash. Students and Seniors comprise more than 44% of the ridership and also significantly lower the average passenger fare.

Recent traffic projections for Milton indicate that traffic congestion is expected to worsen over the next ten-to-fifteen years, making it more important to ensure that transit-related improvements are carried out on regional arterials like Britannia, Derry, Steeles and Trafalgar, and additional transit-related improvements are made on local roads to improve transit travel time and reliability.

SERVICE STANDARDS AND PERFORMANCE MEASURES

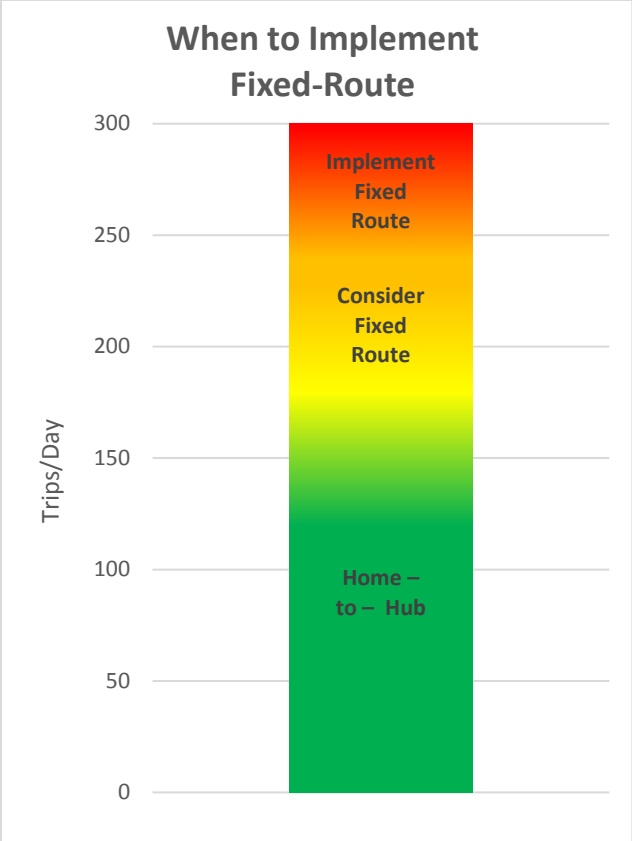


Figure 3 | Example of using the number Home-to-Hub trips as a guide to implement fixed-route service for an area

Service standards and performance measures provide the basis to objectively allocate and measure performance of transit service and facilities. Service standards provide guidance for service delivery and transit infrastructure (service frequency, stop-shelter placement) to support ongoing improvement. Performance measures set goals for safety, service productivity, cost-effectiveness, cost recovery, customer convenience (including on-time performance and crowding) and other areas of operation related to Town goals and industry standards best practices. Initial standards are set based on existing performance and "reach" beyond the existing from examining performance of peer agencies, and are revisited annually to lock in progress and promote ongoing improvement. The standards provide step-by-step guidelines for starting new service and for "triggering" service improvements based on metrics such as ridership, population and employment density, and development density. An example of implementing fixed-route service based on the number Home-to-Hub trips is shown in Figure 3.

PUBLIC AND STAKEHOLDER ENGAGEMENT

Public and stakeholder input to the Master Plan began in 2017, with three (3) survey initiatives as background:

- 2017 "Let's Talk Transit Survey
- 2017/18 Budget Survey
- 2017 #Milton youth Engagement Survey

These surveys indicated support for expanded transit service as well as requests for specific service improvements, including connections to destinations in surrounding communities. Figure 4 displays a poster that Milton Transit distributed to encourage the public to participate in public meetings and surveys.

Figure 4 | Milton Transit "On the Move" survey poster

In addition to reviewing the results of these surveys and ongoing public comments and service requests, the plan process included two routes of stakeholder engagement. The first round was conducted after the Transit Master Plan's Service and Market Review was completed, to gather initial public and stakeholder feedback on service and reactions to the service and market review.

Activities in the first round of public engagement included:

- Let's Talk Milton online platform launch (November 29, 2018)
- "On the Move" online survey (November-December, 2018)
- Milton Youth Advisory Committee (December 3, 2018)
- Stakeholder Focus Groups (December 4, 6, 2018)
- Community Input Session (December 5, 2018)

The public response in the first round of engagement was that more transit service is needed to meet growing and diversifying travel needs. The public requested more frequent and more direct services, better connections to GO Rail, and integration with the PRESTO fare payment system, which would ease transfers between Milton Transit

and GO services. Stakeholders also requested increased service, but had different priorities. Milton employers and agencies serving populations with disabilities and those who are transit dependent requested more frequency and coverage to serve employment areas and specific job locations. Employers facing shortages of entry-level workers also requested transit connections to adjacent communities, particularly Brampton and Mississauga, to provide access to potential employees who live in those communities.

The second round of public engagement sought public and stakeholder comments on draft recommendations. Activities included:

- Follow-up interactive online survey (April 2019)
- Milton Youth Advisory Committee (April 8, 2010)
- Stakeholder Workshop (April 8, 2019)
- Community Input Sessions (April 9, 2019)

Representatives of local employers and agencies, regional transportation agencies, and Youth Advisory Committee members were supportive by the proposed improvements, and eager to see them implemented.

- Public Input was received during display and presentation sessions at the Milton Public Library and at Milton Sports Centre, and from an interactive, on-line survey using the Metroquest public engagement tool. More than 250 survey responses were received in the two rounds of engagement.

One particular survey activity asked respondents to identify their preferred characteristics of transit services. Services to new areas and easier connections were rated high, while availability and affordability of service was of less concern. Users were then asked to rank proposed service improvements on a 1-5 scale. Service connecting to Toronto Premium Outlets and Mississauga received high ratings, while services targeted to youth and to employment areas ranked lower.

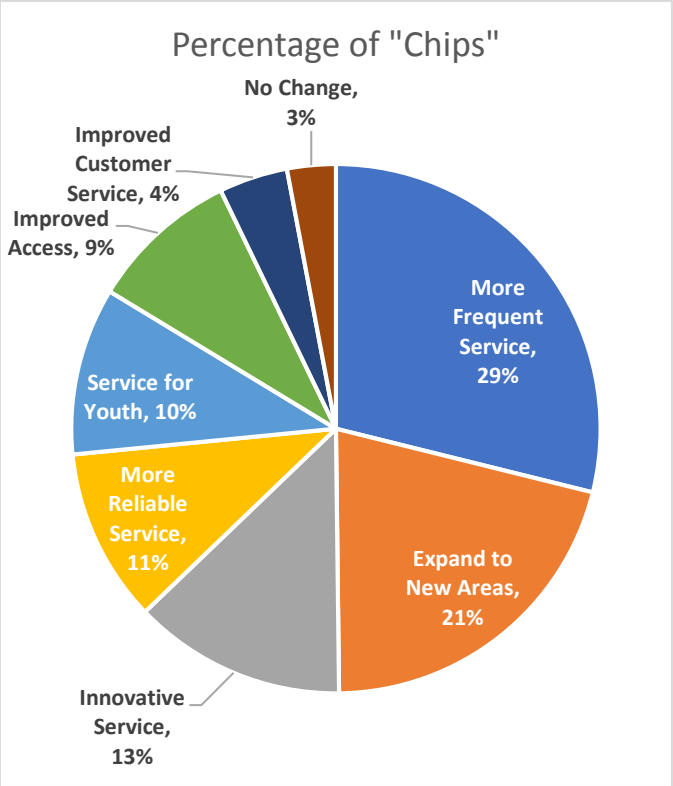


Figure 5 | Percentage of "Chips" - ranking of service improvements from the public

A game in which respondents were given a limited number of “chips” that could be used to fund a range of service improvements found that the two most popular improvements were more frequent service, and service to new areas. Shown in Figure 5, these two improvements together received almost 50% of all “chips” in the exercise.

RECOMMENDATIONS

The consultant team and transit staff developed recommended improvements for every aspect of the transit operation and facilities, and in the areas of technology, marketing and administration. These recommendations have been divided into short-, medium- and long-term phases. While these categories imply future time periods, the plan intends for recommendations to be implemented upon achievement of implementation “triggers” for adding or changing service based on performance of existing service and

development levels in the areas to be served, and when funding, staffing, vehicles, facilities and other resources are available.

RECOMMENDATION DEVELOPMENT PROCESS

Based on the issued identified in the Town's previous plans and transit service goals, the service and market review, and public and stakeholder input, Milton Transit staff and the consultant team developed recommendations using an interactive workshop process. The consultant team developed initial recommendations, which were refined in a series of workshop meetings with Milton Transit administrative staff and the Project Steering Group. Further refinements were made in response to stakeholder and public comments.

The following key principles guided the recommendations development process:

Define expectations: Carefully define what Milton Transit is, and is not, who it serves, and what represents success.

Build on current successes: Review what has worked, and what hasn't, and consider where Milton should position itself in the trade-off between values-based vs. performance-based service (or, the trade-off between coverage vs. frequency).

Formalize service standards, triggers and warrants to efficiently guide service allocation as Milton Transit grows.

Remove stresses for service coordination with GO Transit: Maintain coordination of Milton's routes with GO rail transit without frequent schedule changes.

Provide business case justification for new services: Demonstrating that they will make the system more productive and cost-effective, or will meet other goals that cannot be met by the existing system.

Champion "family of services" approach: Branding the growing range of services as a "family of services" under the Milton Transit brand to raise awareness of available services and ease the addition of new services as opportunities and needs arise.

Adopt new mobility / alternative service delivery (ASD) solutions.

SUMMARY OF RECOMMENDATIONS

Short-Term Recommendations (through 2021)

- **Increase Service Productivity** - Create a High-Frequency Network by increasing peak headway on Route 2, 3, and 4 to 15-minute. Together with Route 6 and 7, this will create a 15-minute frequent network (existing map shown in Figure 7 and proposed map shown in Figure 8, on the next page) that covers most of Milton and eliminate the need to coordinate schedules with GO Rail service; reallocate less productive fixed-route resources by temporarily suspending routes 5, 9 and 10 and maintain transit service coverage with Home-to-Hub; expand School Service, adding trips to Secondary School Special services to relieve crowding; realign Route 1A/B into separate eastern and western bi-directional routes; operate 1C industrial during weekday middays; split Route 2 at the Milton GO Station into two through-routed routes; align schedules so all routes meet at the Milton GO Station.
- **Introduce New Mobility Service -** Implement Home-to-Hub service that could be operated by Milton Transit specialized service, or by taxis / TNCs under subsidy, to serve low-demand and / or low-density areas for a base fare of $3.75 per trip (concept illustrated in Figure 6); service could be used to address coverage gaps and to serve unique service areas, fixed-route transit service to be phased in when development density and / or Home-to-Hub trips reach a certain threshold.
- **Introduce Cross Boundary Service** from the Milton GO Station to TPO and Lisgar GO Station; will require four additional full-sized transit vehicles.
- **Build On and Expand Specialized Service** - contract for dedicated delivery in 2019 using Milton-owned mini-buses, while seeking further specialized service collaboration and integration with surrounding municipalities; vehicles and operators could also be used to deliver Home-to-Hub service.

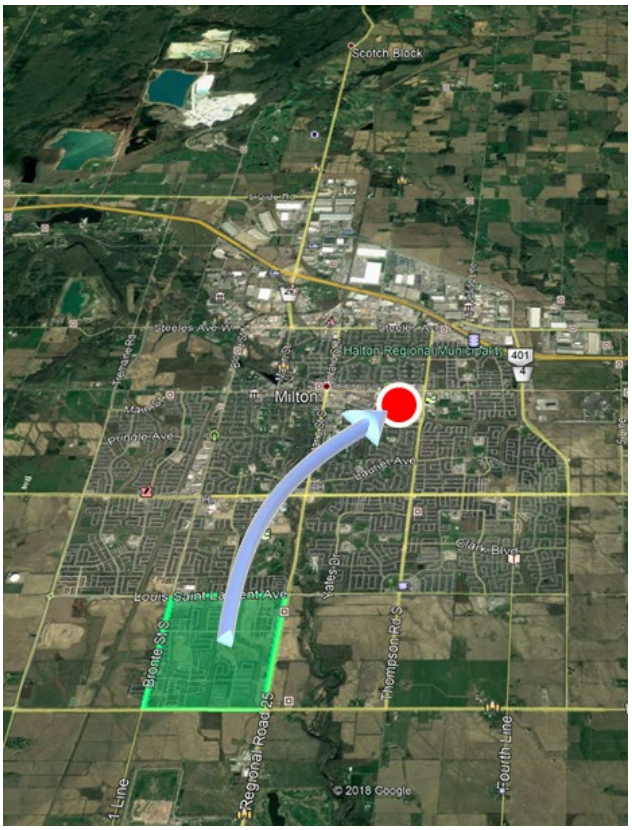
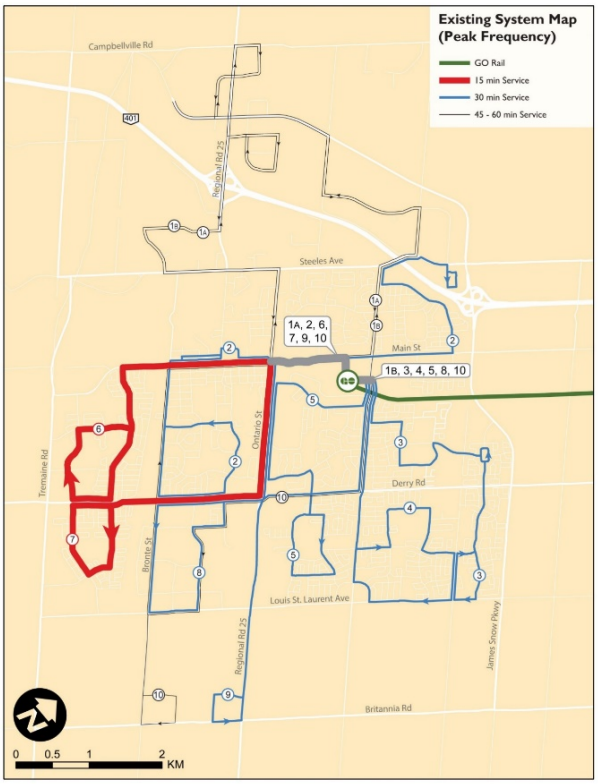


Figure 6 | Home-to-Hub concept

- **Market Family of Services Approach** that applies consistent brand across all Milton Transit services; pursue low-cost, high-value strategies and direct outreach to key markets – current transit riders, transit employees, youth and senior population, and employers and developers; work with Halton District School Board to develop joint student pass program to broaden the use of student pass outside of school days/hours; develop Employer Transit Benefit Program with

Milton Chamber of Commerce; develop Transit Supportive Planning Toolkit to guide development and engage residential developers.

- **Provide Supportive Administration -** adding personnel in the areas of planning, marketing and supervision
- **Support Regional Fare Integration Initiatives** - implementing the PRESTO fare collection system when next generation service is rolled out by Metrolinx in 2021, to ease customer transfers with GO rail, GO bus and other regional operators.



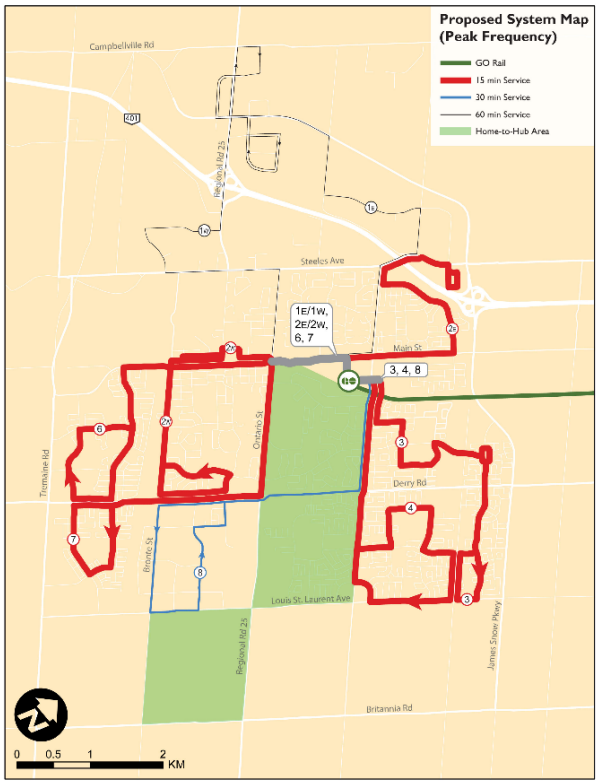


Figure 7 | Left: Peak frequency of existing fixed-route system

Figure 8 | Right: Peak frequency of proposed fixed-route system

Mid-Term Recommendations (2021-2024)

- **Expand New Mobility Service and Specialized Transit Service into New Growth Areas** - implementing Home-to-Hub as the initial transit service in new development areas; align specialized transit service with demand.
- **Extend Local-Fixed Routes Network** - realigning local fixed routes on the western side of Milton to operate bi-directionally on local and collector roads and meeting at a secondary transfer at the Velodrome, or at Milton Education Village, when completed. Develop temporary secondary transfer hub, near the Metro shopping centre or Bristol District Park at Thompson Road and Louis St. Laurent Ave, and realign routes on the eastern side of Milton to operate bi-directionally and terminate at this hub. The additional transfer hubs provide not only critical transfers for customers, but also provide layover for the operators. Would require four additional vehicles. (map shown in Figure 9).
- **Maintain Service Reliability and Assets** - adding running time and recovery time to certain routes, and align schedules to allow all buses to pulse at increments of every 15, 30, and 60 minutes; would require seven additional vehicles; design and build the transit garage facility to accommodate the additional transit vehicles.
- **Continue Expanding Administrative Support** - adding managerial and planning staff to meet growing demand.
- Implementation all Mid-Term Recommendations are expected to require thirty-nine (39) full-sized transit vehicles (15 more than 2019 fleet).

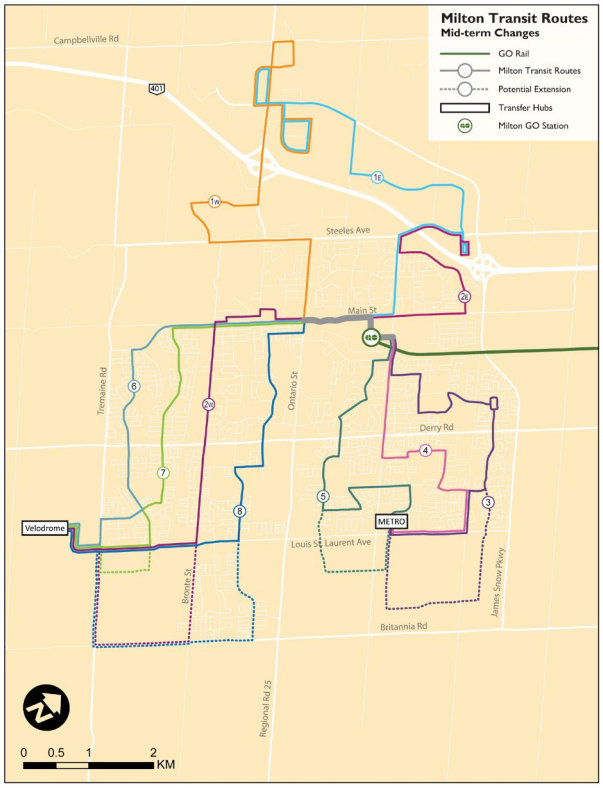


Figure 9 | Proposed mid-term fixed-route alignment

Long-Term Recommendations (Beyond 2024)

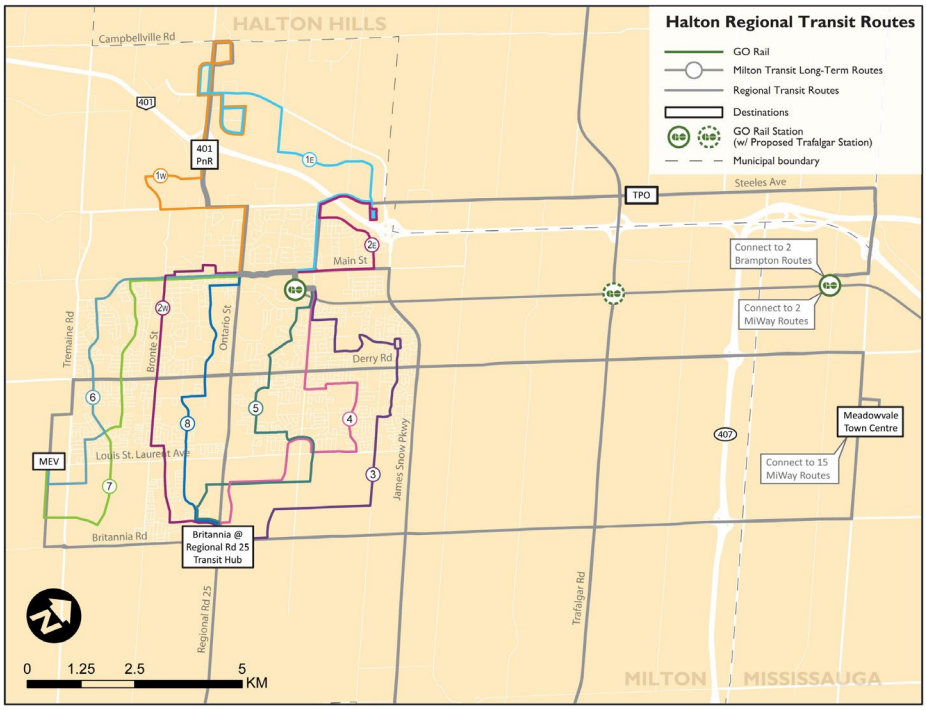


Figure 10 | Proposed regional transit routes operating on Halton Region transit priority corridors

- **Expand New Mobility Service and Specialized Transit Service into New Growth Areas** - implementing Home-to-Hub as the initial transit service in new development areas; align specialized transit service with demand.
- **Extend Local Fixed-Routes –** develop Permanent Secondary Transit Hub at Regional Road 25 and Britannia Intersection, extend fixed-route service to south of Louis St. Laurent and meet at new secondary transit hubs at Milton Education Village and at Regional Road 25 and Britannia Road; would require one full-sized bus (map showing in Figure 10); introduce Service to New Secondary Plan Areas, developing a local bus network in Agerton/Trafalgar Secondary Plan area; would require five additional full-sized buses.
- **Support Regional Network** - with cross boundary routes extending to adjoining communities along Regional transit priority corridors – Britannia, Derry, Trafalgar Roads, Regional Road 25, and James Snow Parkway (map showing in Figure 11); would require twelve vehicles to operate all the routes at 30-minute headway all-day; partnership with adjacent communities / Halton Region / Metrolinx is required to fund these inter-municipal and inter-regional services.
- Implementation of all long-term recommendations (not including the additional cross boundary routes) is expected to add six (6) vehicles to Milton Transit's fleet, expanding the total number of full-sized buses to forty-five (45) vehicles (21 more than 2019 fleet).

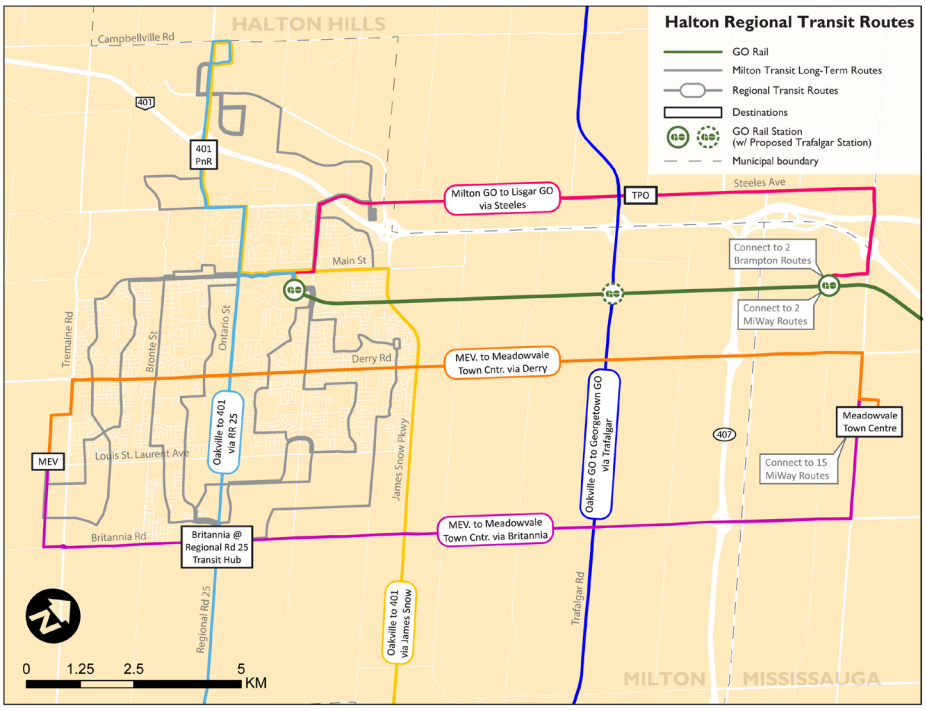


Figure 11 | Proposed long-term fixed-route alignment

SUMMARY

Milton's population, employment and development growth over the past ten years has been nothing short of extraordinary. Milton Transit ridership has grown even faster, demonstrating that transit demand increases as places become larger, more densely populated, and more urban. Ridership most likely will continue to increase faster than population and employment growth over the next ten years. Indeed, every indicator of transit demand analyzed in the preparation of this plan – projected population, employment, and traffic growth; increased land use and development density; GO rail service expansion and station redevelopment; public and stakeholder requests for expanded service; and local and regional plan recommendations – points to increasing future transit demand. Maintaining and improving upon Milton Transit's high-quality service will be among the Town's major challenges as it grows and develops over the next 10-15 years.

As a well-administered contract operation, Milton Transit provides efficient, high quality service that is popular among its customers. However, the system is experiencing

growing pains as it consolidates its recent growth and prepares itself for its own – and Milton's – growth. Buses are well used but often run late as make more stops to carry more riders, and are delayed by Milton's growing traffic volumes. The bus storage and maintenance facility, adequate to the needs of several years ago, is too small and too functionally limited to serve a fleet of Milton's present size, let alone its likely size in 3, 6 or ten years. Lack of integration with the PRESTO fare payment system makes it less convenient for Milton Transit riders to access GO rail service, reducing potential ridership. The administrative staff, unchanged from when the system was operating a fraction of its present size, is challenged to meet the diversifying demands of a growing system.

The Transit Master Plan provides a blueprint for improving Milton Transit in every area of its operation and management while positioning Milton Transit for growth over the next 5-15 years. The plan recommends short-term changes to make routes easier to use, and to reduce the challenges of connecting with GO train schedules in the short-term, while preparing to extend and expand service on existing routes, and add new local and regional routes, to meet future demand. The plan also recommends development of new alternative service concepts to creatively serve customers and markets that are hard to serve efficiently with fixed-route service. New passenger and operating facilities are proposed to improve operation and meet future needs, and new technology applications, including integration in the PRESTO fare payment system, are recommended to improve operational efficiency and meet customers' expectations regarding service information and fare integration. A "family of services" marketing approach is recommended to integrate Milton Transit's growing range of services under a single marketing umbrella, and additional dispatching, and administrative staff will make Milton Transit more efficient and responsive to customer needs.

Implementing this plan over the next ten years will be a financial and administrative challenge for Milton, particularly as it continues to juggle priorities and develop other aspects of its operations to meet the growing needs for public services in a rapidly growing community. However, prompt implementation of many areas of the plan, including development of the new operations facility, securing land for a southern transit hub, and procurement of additional vehicles, will be necessary if Milton the public transit needs of those who live, work, study and do business in Milton as they grow and diversify over the next decade, and beyond.

COST SUMMARY

RECOMMENDATIONS	NET ANNUAL OPERATING BUDGET[1]	INITIAL CAPITAL COST[2]	ANNUAL RIDERSHIP IMPACT
Short Term Recommendations (2020 – 2022)			
Local Fixed-Route Transit Improvements	-$640,000	-	+100,000
Milton-TPO-Lisgar Regional Route	+$298,000[3]	+$1.3 million[3]	+250,000 – 500,000
Home-to-Hub Service	+$160,000 - $350,000	-	+16,000
Specialized Transit Improvements	+$1 million	-	+20,000 – 40,000
Next-Gen PRESTO (short- to long-term)	+8% of fare revenue & 8% of capital cost for future rehabilitation	+$25,000	-
Additional Staff (Town and/or Service Provider)	+$310,000	-	-
Marketing Improvements	+$50,000	-	-
Total Short Term	**+$1.2 – 1.4 million[4]**	**+$1.3 million**	**+400,000 – 670,000**
Medium Term Recommendations (2022 – 2025)			
Expand/Improve Local Fixed-Route Network	+$2.5 million	+$7 million	+270,000 – 290,000
Transfer Hubs (Velodrome, Bristol Park)	+$11,000 – $18,000	+$750,000 – $1.3 million	-
Expand Home-to-Hub Service	$330,000 - $730,000	Included in Specialized	+33,000

[1] Assuming cost recovery ratio at 28% for fixed-route transit and 12% for specialized transit, and includes an annual contribution for the future capital rehabilitation and replacement.

[2] Excludes future rehabilitation and replacement capital costs that are financed by the contributions that are incorporated into the annual operating budget.

[3] Includes half of the costs for Milton GO – TPO – Lisgar GO route

[4] Total net operating budgets do not include impact from the implementation of PRESTO

RECOMMENDATIONS	NET ANNUAL OPERATING BUDGET[1]	INITIAL CAPITAL COST[2]	ANNUAL RIDERSHIP IMPACT
Specialized Transit Expansion	+$1.1 million	+$1 million	+20,000 – 40,000
Additional Staff (Town and/or Service Provider) & Marketing	+$540,000	-	-
Additional Maintenance Vehicle	+$14,000	+$100,000	-
Total Medium Term	**+$4.6 – $5.0 million**	**+$8.8 - $9.3 million**	**+330,000 – 360,000**
Transit Operations Facility	+$1.5 million[5]	+$40 million[5]	-
Long Term Recommendations (2025+)			
Extend Fixed-Routes to Growth Areas	+$1.5 million	+$3.8 million	+230,000
Expand Home-to-Hub Service	$330,000 - $730,000	Included under Specialized	+33,000
Transfer Hub (Ontario - Britannia)	+$7,000 - $29,000	+$500,000 – $2 million	-
Specialized Transit Expansion	+$1.1 million	+$1 million	+20,000 – 40,000
Additional Staff (Town and/or Service Provider) & Marketing	+$310,000	-	-
Additional Supervisory Vehicle	+$10,000	+$75,000	-
Total Long Term	**+$3.3 - $3.7 million**	**+$5.4 - $6.9 million**	**+280,000 – 300,000**
Regional Fixed-Route Transit Improvements	+$5.3 million	$17.8 million	+1.3 - 2.5 million

[5] Subject to refinement through Facility Feasibility Study and detailed design process. Net annual operating budget includes contribution for the future capital rehabilitation and replacement.

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INTRODUCTION

Milton is one of Canada's fastest growing communities. With a population of only 32,000 in 2001, the town has grown to more than 120,000 in 2018, nearly a four-fold increase. Milton's population is projected to nearly double again, to nearly 230,000, by 2031. Employment likewise is anticipated to nearly double, from around 63,000 in 2016 to more than 114,000 in 2031. This is in the context of growth in the jurisdictions neighbouring Milton and throughout Halton Region and the Greater Toronto and Hamilton Area (GTHA). This rapid growth has brought and will bring rapid change to the Town, and expanding public services to meet the needs of this growth represents a range of challenges and opportunities for the Town. In transportation, this population and employment growth has and will dramatically increase traffic volumes and demand for transit service within Milton and between Milton and its neighbouring communities.

Milton Transit also has grown dramatically in recent years, with its fleet and operations steadily growing each year. Milton Transit's ridership nearly doubled its service volume and more than tripling its ridership since 2009, with ridership growing three times as fast as the population. This rapid ridership growth is a credit to Milton Transit's administration and its contract operator, Pacific-Western (PW) Transit. However, this growth has brought growing pains, which can be seen in Milton's sometimes overloaded buses and overloaded bus storage facility, and in other areas of its operations and administration. As Milton grows and becomes more densely developed, transit demand will grow within Milton. As Milton's employment base grows, and as neighbouring communities grow, demand for cross-boundary transit service also will increase.

The Transit Service Strategy provides short-term improvements to help Milton Transit better meet the Town's current transit needs, while positioning Milton transit to grow to meet Milton's transit needs of 2031 and beyond. The purpose of the Service Strategy is to:

- Comprehensively evaluate Milton Transit's conventional and specialized transit services;
- Analyze the existing and future transit market;
- Bring the service in line with the goals and objectives of Milton, Halton Region, and GTHA, and their various transportation and land use plans; and
- Develop a strategic plan to meet Milton's current transit needs and to accommodate future growth.

Although being one of the fastest growing municipalities in the nation, Milton today is still largely an automobile-centric suburban town with a large group of commuters who work outside the town. However, as the town grows, and development intensifies, the proportion of travel carried by transit must increase if Milton is to meet Regional and Provincial mode split goals and avoid traffic congestion so intense that it could curb the rate of growth. Currently, more than 1,000 commuters, most of them Milton residents, use GO rail and bus service daily. While many use Milton Transit to access GO rail service, many more park-and-ride at the station and – increasingly – at adjacent private and public parking lots, both legally and illegally. Metrolinx has ambitious plans for improvement of their services and facilities in Milton. Construction already is taking place around the Milton GO Station area – part of a designated Mobility Hub in Metrolinx 2041 Regional Plan, and an Urban Growth Center (UGC) in GTHA Growth Plan. Improvements to Milton Transit's operating hub at the Milton GO rail station are part of a redevelopment of the station that includes a program of intensified mixed-use development that already is underway. The station improvements are a prelude to operation of two-way, all-day rail service on GO's Milton Line, to be implemented during the next decade. Metrolinx also is planning changes to GO bus service, to be implemented in the next several years. Milton Transit will have a major opportunity to increase the proportion of GO rail customers that it serves during the station's reconstruction period over the next several years.

Halton Region's Mobility Master Plan proposes regional priority transit corridor improvements that include the Milton portions of several regional arterial roadways. These corridors connect Milton's employment areas to important labour markets in Brampton, Mississauga, and Oakville, while providing Milton residents with employment opportunities in those communities as well as the Steeles Avenue corridor just outside Milton in Halton Hills. These facilities are an opportunity for Milton Transit, in cooperation with Halton Region and with the adjacent communities, to operate cross-boundary transit services to serve these growing cross-boundary markets.

Milton's comprehensive plan and several secondary area plans combine intensified development in several areas and expansion of the developed area of the Town. Milton's transportation master plan (TMP) calls for increased transit service within the existing developed area and extension of transit service to new development areas throughout the Town. The Trafalgar Road secondary plan proposes higher density, mixed-use development around a new GO rail station on the Milton Line south of the Highway 401 interchange. Expanding service volume in intensifying development

areas, and extending service into new development areas, will increase the scope of Milton Transit operations and require a diversification of transit offerings to keep transit service in each area consistent with current demand.

Milton will be a very different community tomorrow than it is today. Fast, reliable, efficient transit service will be a key element in maintaining and improving the Town's future quality of life. The Transit Service Strategy provides a comprehensive plan for adapting Milton's services, technology, administrative and marketing efforts to meet the town's growing and changing transit needs, as Milton adapts to a changing transportation future.

SERVICE REVIEW

Milton Transit provides accessible public transit services for the Town of Milton. The purpose of this transit service review is to evaluate performance on the current conventional network and associated routes, specialized transit system as well as operational considerations relative to, were evaluated against industry standards of service productivity, efficiency, effectiveness, cost-effectiveness, and cost recovery. WSP supported Milton Transit in setting agency service performance benchmarks and comparing its performance to that of other similar GTHA and Canadian peers, based on Milton Transit's current and estimated ridership as well as population. This process was used to evaluate existing service and proposed service changes, and provided a basis and a system baseline for Milton Transit to evaluate future performance in the future. WSP also evaluated the conventional network against WSP's transit service design guidelines, which compare route and network design to industry best practices and identify service design issues that may be impacting system performance.

CONVENTION TRANSIT SYSTEM REVIEW

Milton Transit provides local transit service for the Town of Milton. Milton GO Station, located just east of Milton's historic downtown area, serves as the primary connection point between Milton Transit and GO Transit rail and bus services, and as the primary transfer hub for Milton Transit bus routes. This station is also the western terminus of the Milton Line operated by GO Transit

Milton Transit operates ten (10) local fixed routes, three (3) high school special/connector routes, and three (3) evening-only drop-off circulators that collect customers from arriving GO trains and redistributes them at the bus stops nearest to their destinations. The fixed-route network operates from approximately 5:20am to 10:11pm on weekdays and from 7:10am to 7:40pm on Saturdays. This service operates shortly after 4:30am to collect passengers traveling to the Milton GO Station, after which the service is converted to fixed route via 1A and 1B during the peak period operate as peak-period fixed routes serving the 401 Industrial Area. Additionally, Milton Transit partners with a local taxi operator to offer Trans-Cab, a supplementary service designed to provide connections to and from Milton Transit at the transfer point located on Millside Drive. Trans-Cab operates north of Main Street between Martin Street and Thompson Road, and lead into 401 Business Park area to High Point Drive via Regional Road 25. Trans-Cab service operates from 9:00am to 2:30pm and 5:00pm to 6:00pm on weekdays, and from 7:10am to 7:40pm on Saturdays. There is no Sunday or holiday service. Milton Transit's conventional transit service is a contracted operation provided by Diversified Transportation – PW Transit.

Figure 12 provides a brief overview of key performance indicators for Milton Transit conventional service in 2018, and the percentage change compared to 2017. Milton Transit realized a sizeable 8% increase in ridership. The boost in ridership and subsequent fare revenue supported a decrease in the municipal subsidy per boarding, decreasing 15.7% compared to 2017.

Total Annual Boardings	2018 vs. 2017
598,055	▲8.0%

Boardings per Revenue Hour	2018 vs. 2017
12.22	▼6.7%

Fare Revenue per Boarding	2018 vs. 2017
$2.34	▲2.6%

Boardings per Revenue Kilometre	2018 vs. 2017
0.50	▲7.3%

Subsidy per Boarding	2018 vs. 2017
$6.41	▼15.7%

Figure 12 | Key performance indicators comparison, 2017 – 2018

GROWTH

Conventional transit service in Milton began with two fixed routes in the 1980s and continued in the 1990s. Between 2000 and 2004, a reduction in Provincial transit funding caused Milton to move to a "Dial-a-Bus" system. In August 2004, a contracted, fixed-route service was re-introduced as a result of public input and recommendations from the North Halton Transit Strategy Study (2004). In 2010 Milton Transit implemented a new service design with the objective to achieve a more reliable, convenient, sustainable and cost-effective transit service. Routes were realigned and service levels were adjusted to meet higher ridership demand while providing a basic level of mobility during non-peak periods.

As a result, Milton Transit is achieving one of the highest percent ridership growth in Canada. This favourable performance was recognized in 2011 by Milton winning the Canadian Urban Transit Association (CUTA) Award for Exceptional Performance / Outstanding Achievement. Since 2009, Milton Transit ridership has been growing at an

extraordinary rate. As shown in Figure 13, annual ridership (unlinked passenger trips) has grown from about 121,000 in 2009 to nearly 600,000 in 2018, an annual compounded growth rate of more than 19%.

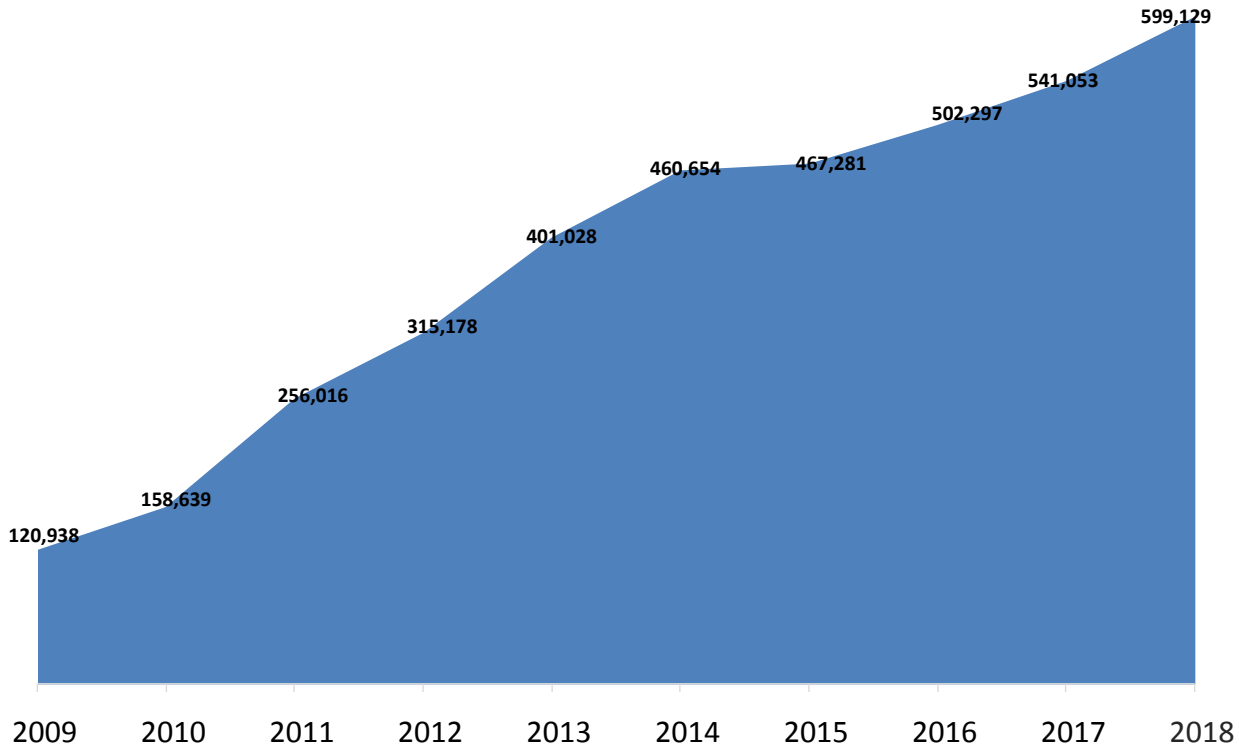


Figure 13 | Milton Transit ridership (annual boardings), 2009 – 2018)

Figure 14 compares Milton Transit's rate of ridership growth to the rate of service volume growth, service area population growth, and transit administrative staff growth. As the graph indicates, ridership has grown more than three times the rate of service area population growth, and twice the rate of service hour growth.

This last statistic is a strong indicator of transit demand exceeding the supply of available transit service, since it is more typical for ridership to grow at a lesser rate than the rate of growth in service volume. Milton Transit has had the same number of municipal staff (2) since 2009 to carry out planning, budgeting and contract administration functions.

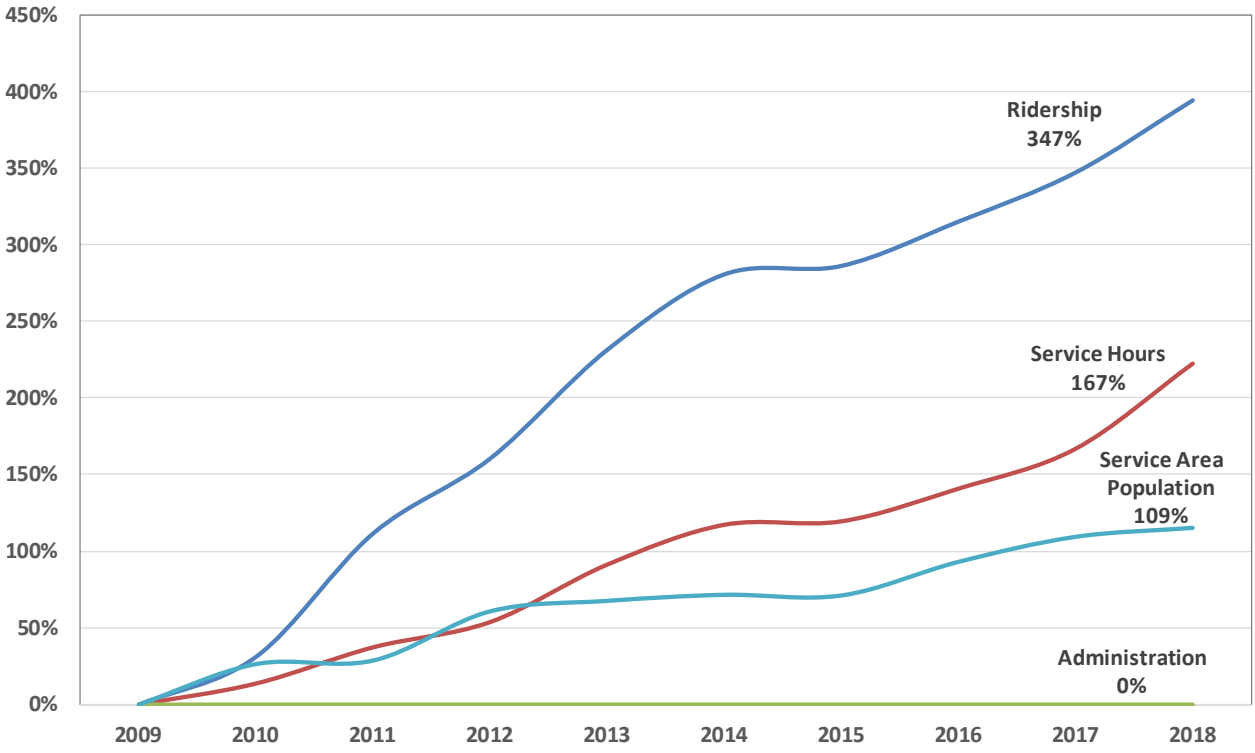


Figure 14 | Milton Transit ridership growth compared to various growth drivers, 2009 – 2018

CONVENTION ROUTE NETWORK DESRIPTION

Milton Transit currently operates nine (9) regular, all-day fixed route services covering most of the Milton urban area, two (2) peak-only fixed route services serving the 401 Business Park area, three (3) special secondary school routes serving local high schools with schedules aligned to bell times, three (3) GO Drop-off, flex-route services to collect passengers after the last afternoon GO train service, and Trans-Cab service that provides connections to and from Milton Transit via taxi at a designated transfer point on Millside Drive. Maps of fixed-routes, school routes, GO Drop-Off service areas, and Trans-Cab service area are displayed in Figure 15 through Figure 18, on the following pages.

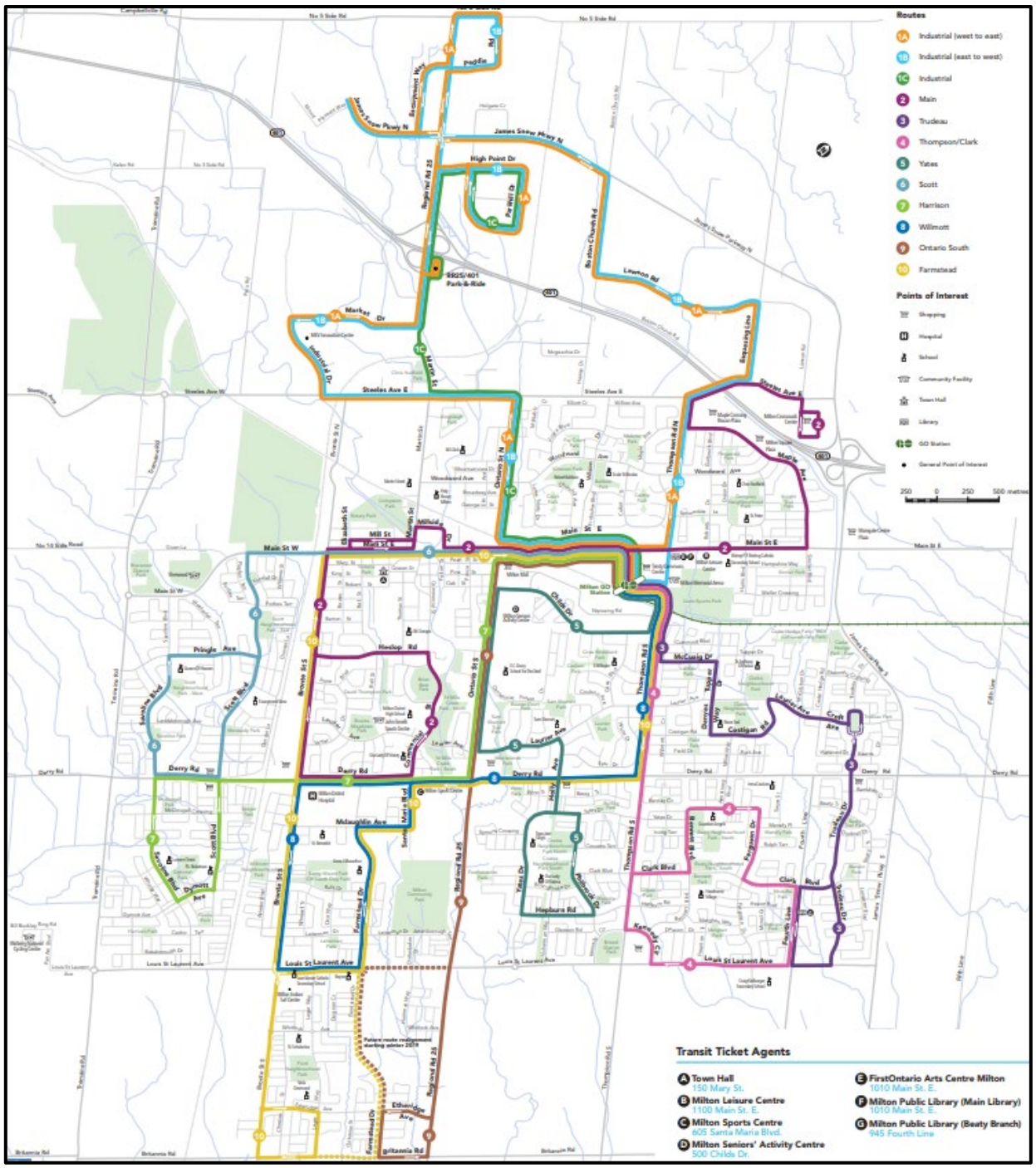


Figure 15 | Milton Transit fixed-route network, 2019

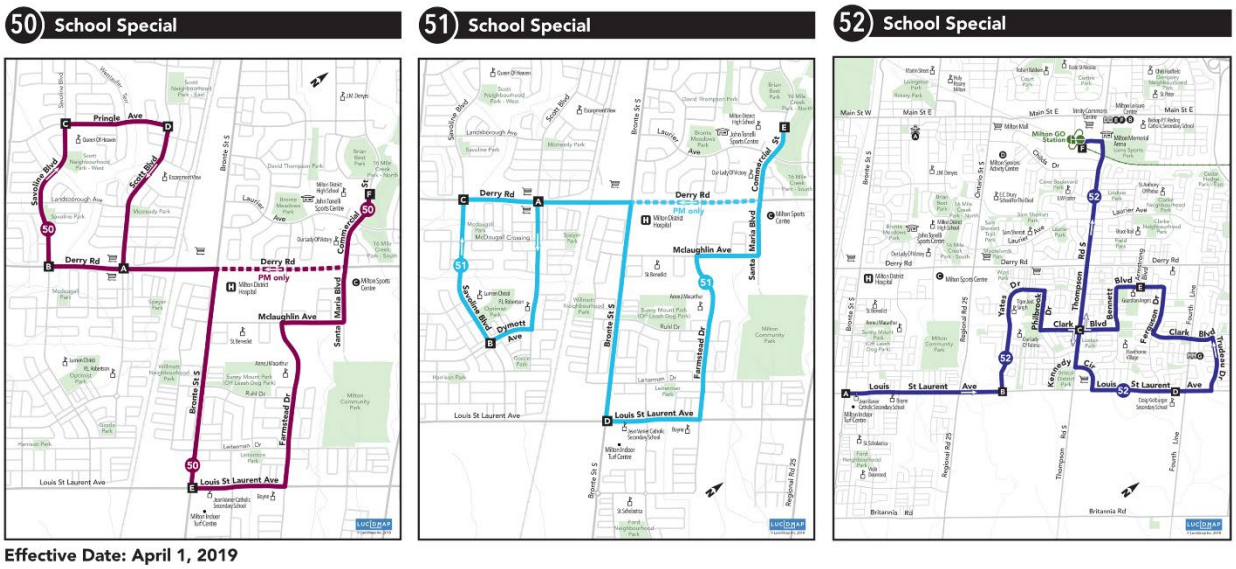


Figure 16 | Milton Transit Secondary School Special Route network, 2019

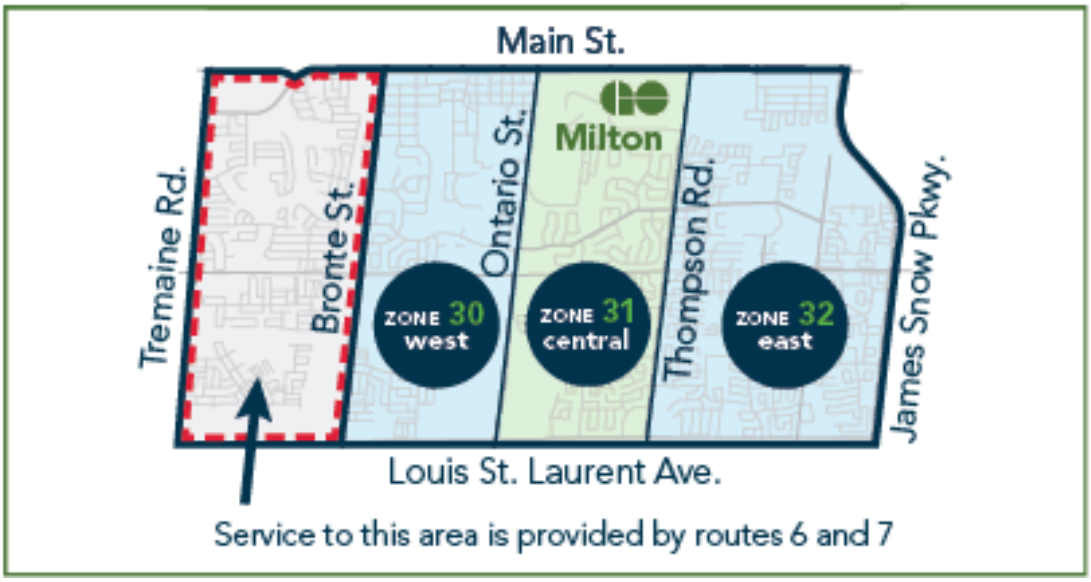


Figure 17 | Milton Transit GO Drop-off service areas, 2019

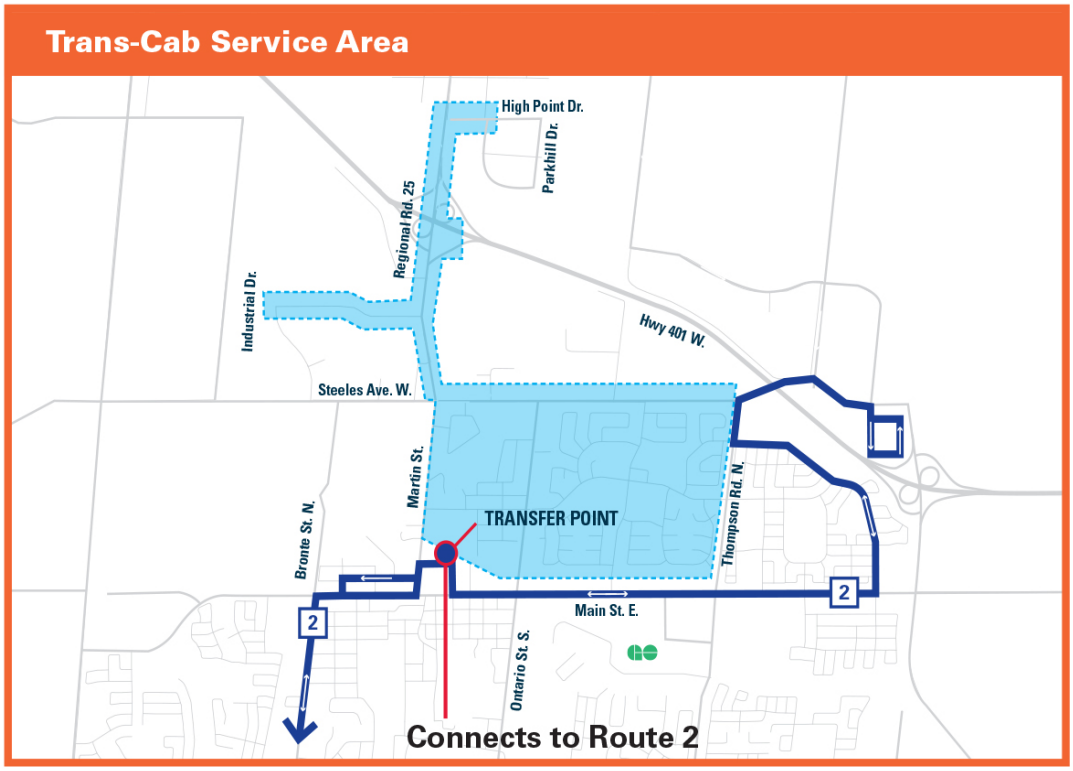


Figure 18 | Trans-Cab service area

FLEET SIZE & DESCRIPTION

Milton Transit has a fleet of 27 vehicles for operating fixed-route and specialized services. Milton Transit operates 20 vehicles during peak hours (in maximum service). Milton's bus fleet includes seventeen (17) 12-metre diesel buses from New Flyer and Nova Bus for regular fixed-route and school services, two (2) 8-metre Chevrolet cutaway vehicle for the 401 Business Park peak service when 12-metre buses are not available, and three (3) 8-metre Chevrolet cutaway vehicles for evening GO drop-off services. Three (3) low-floor 12-metre vehicles from Nova Bus are expected in 2019 as replacements for three (3) existing 1995 New Flyer buses. The complete fleet tables shown in Table 1, and the vehicle operation chart by route is shown in Figure 19.

YEAR BUILT	2009	2010	2012	2013	1995	1995	2015	2016	2017	2018	TOTAL
MANUFACTURER	New Flyer	New Flyer	New Flyer	Chevrolet	New Flyer	New Flyer	Chevrolet	Nova	Nova	Nova	
MODEL	D40LF	D40LF	XD40	Arboc Mobility	D40LF	D40LF	Arboc Mobility	LFS	LFS	LFS	
NUMBER OF VEHICLES	3	2	3	3	3	2	2	2	3	1	24
VEHICLE TYPE	Transit Bus	Transit Bus	Transit Bus	Small Vehicle	Transit Bus	Transit Bus	Small Vehicle	Transit Bus	Transit Bus	Transit Bus	
ACCESSIBLE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
VEHICLE FLOOR HEIGHT	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	
ON-VEHICLE ACCESSIBILITY EQUIPMENT	Ramp	Ramp	Ramp	Ramp	Ramp	Ramp	Ramp	Ramp	Ramp	Ramp	
SEATS	38	38	37	19	37	37	19	37	37	37	
LENGTH (FEET)	40	40	40	26.4	40	40	26.4	40	40	40	
WIDTH (INCHES)	102	102	102	96	102	102	96	102	102	102	
POWER TYPE (CODE)	Clean Diesel	Clean Diesel	Clean Diesel	Clean Diesel	Clean Diesel	Clean Diesel	Clean Diesel	Clean Diesel	Clean Diesel	Clean Diesel	
ACTIVE VEHICLES	3	2	3	3	3	2	2	2	3	0	23
REHABILITATED VEHICLES	3										3
TO BE REHABILITATED		2									2

Table 1 | Milton Transit's current transit fleet

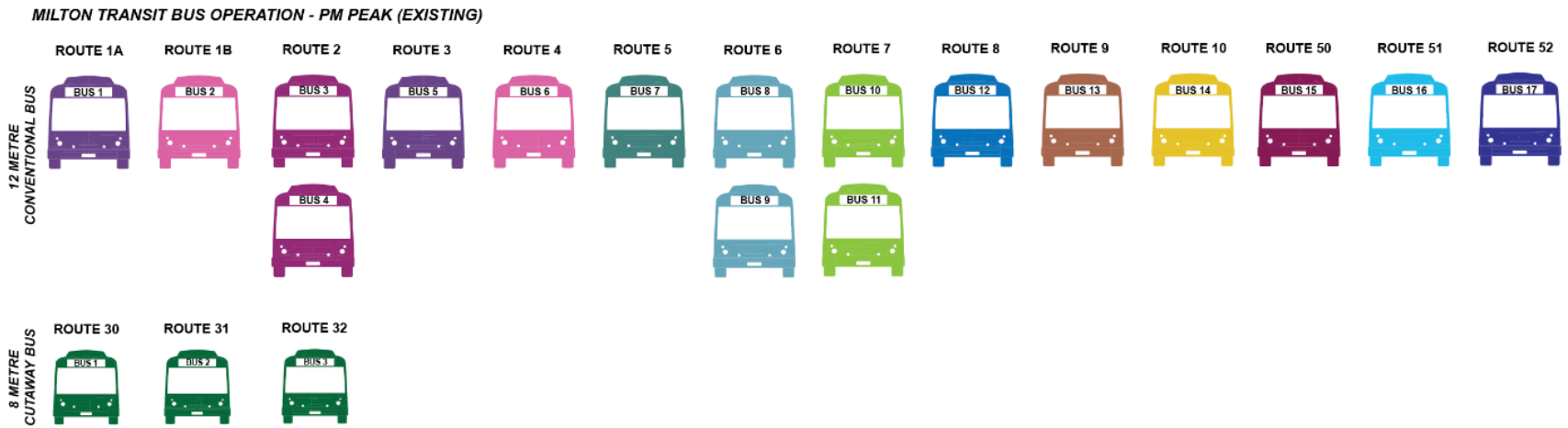


Figure 19 | Vehicle operation chart

STOPS, STOP SPACING & PASSENGER AMENITIES

According to 2018 Milton Transit GTFS data, the system has a total of 391 bus stops in its fixed-route system. A map showing all the stops in relation to the Milton Transit fixed-route system is provided in Figure 20.

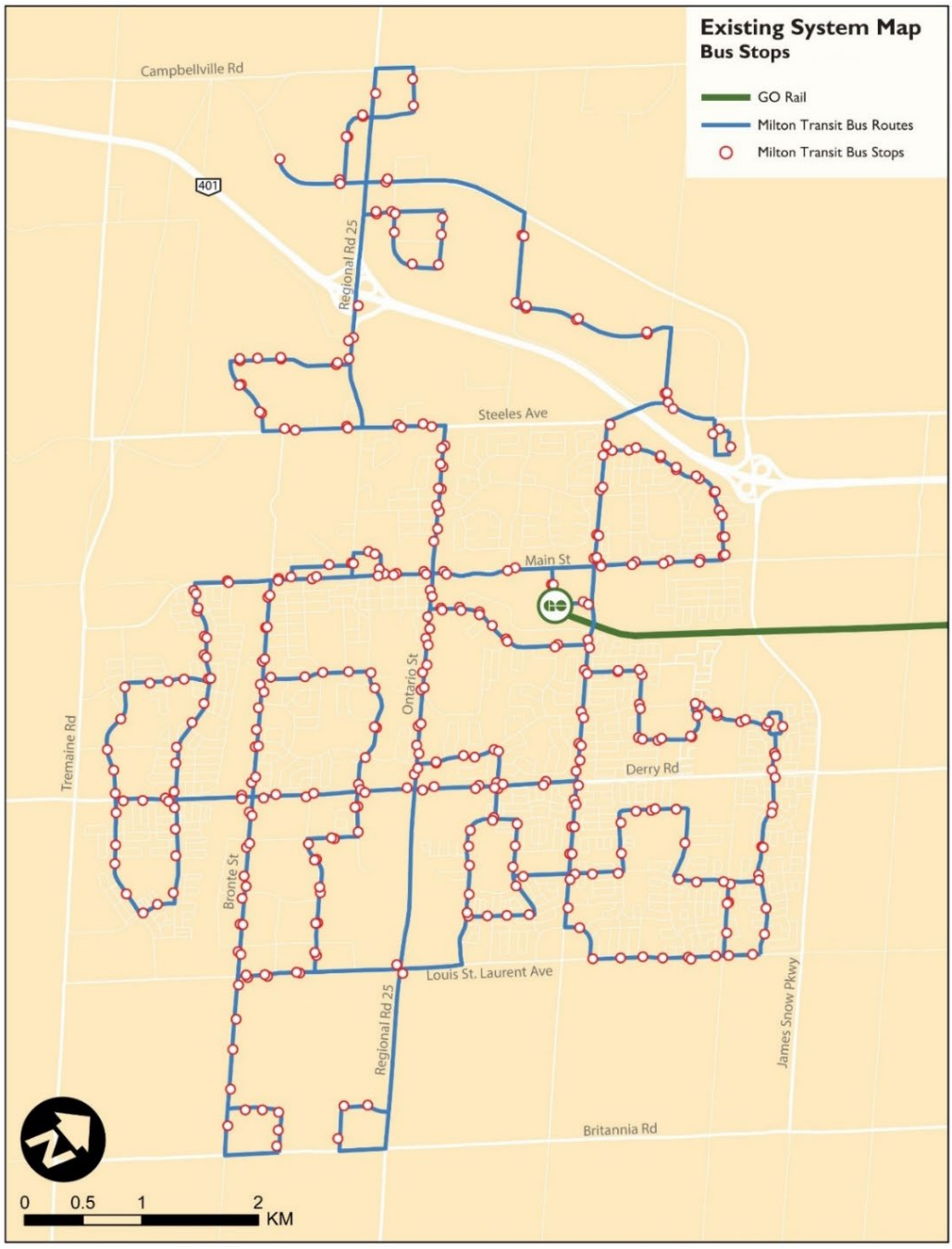


Figure 20 | Milton Transit's existing fixed-route transit stops

Table 2 below detailed the round-trip route length, number of stops, and average stop spacing in metres for each route. The routes range in length from less than 11 kilometres on route 4 to nearly 22 kilometres on route 2. Stop spacing ranges from a low of less than 250 metres on route 4 to more than 450 metres on route 9. Ridership and stop spacing are inversely related, with shorter stop spacing on higher ridership routes and wider stop spacing on lower ridership routes. However, the wider stop spacing on higher ridership routes could be explained by limited access or lack of appropriate stop locations, which would indicate development issues that would explain the lower ridership.

ROUTE	ROUND-TRIP ROUTE LENGTH (KM)	NUMBER OF STOPS	AVERAGE STOP SPACING (M)
1A	21.5	49	439
1B	21.5	51	421
1C	13.5	30	451
2	21.9	79	278
3	11.9	45	265
4	10.8	44	246
5	12.7	50	253
6	12.0	47	255
7	13.5	43	313
8	12.9	44	294
9	13.7	30	456
10	17.1	56	306

Table 2 I Route length and average stop spacing

ANNUAL OPERATING BUDGET

Table 3 below summarizes Milton Transit's actual budget in 2017, projected actual budget in 2018, proposed budget in 2019.

		2017 ACTUALS	2018 PROJECTED ACTUALS	2019 BUDGET AS PRESENTED
EXPENDITURES				
	Salaries and Benefits	$229,257	$241,608	$254,098
	Administrative	$12,308	$13,002	$13,099
	Financial	$334	-	-
	Transfers to Own Funds	$931,872	$1,198,211	$1,300,501
	Purchased Goods	$4,963	$12,578	$12,578
	Purchased Services	$4,045,940	$3,802,019	$4,097,835
	Fleet Expenses	$749,435	$1,314,533	$1,470,779
	Reallocated Expenses	$47,316	$64,941	$65,939
TOTAL EXPENDITURES		$6,021,425	$6,646,892	$7,214,829
REVENUE				
	Financing Revenue	($1,103,416)	($1,075,454)	($1,039,547)
	Recoveries and Donations	($333,729)	($333,226)	($386,213)
	User Fees and Service Charges	($1,141,622)	($1,400,107)	($1,455,345)
TOTAL REVENUE		($2,578,767)	($2,808,787)	($2,881,105)
TOTAL TRANSIT		$3,442,658	$3,838,105	$4,333,724

Table 3 I Milton Transit budget in 2017, 2018, and 2019

The bulk of Milton Transit's budget is expended on purchased services. Operating budget has essentially been flat since 2017, despite growing ridership (Milton Transit's ridership grew by nearly 11% between 2017 and 2018, but PW's budget is only 1% higher than its 2017 budget). Service levels have not increased over that time, which has led to higher passenger volumes, delay and overcrowding on Milton Transit buses. Funding in Purchased Services, Fleet Expenses, and Salaries and Benefits will need to

grow substantially to support the level of growth that will be required to meet future transit needs.

OPERATING FACILITIES

Milton Transit's current operating facility is located at 430 Morobel Drive, north of Steeles Avenue and west of Regional Road 25. Location is shown in Figure 21, below.

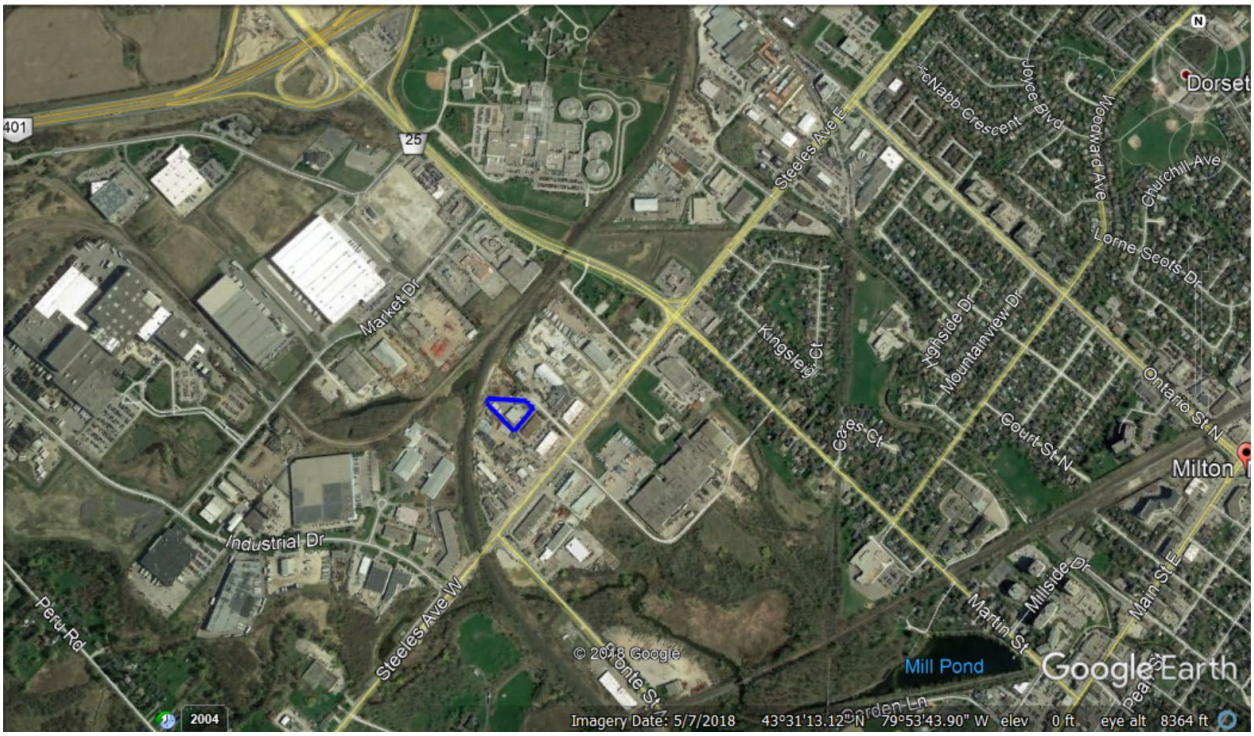


Figure 21 I Location of Milton Transit (PW Transit) operating facility, indicated in blue

The site, shown in Figure 22, comprises about 0.45 hectares but is an irregular triangular shape, limiting its utility for bus movements and storage.

Figure 22 I Milton Transit Facility Site Plan, property boundary is shown in blue

Figure 23 shows the garage and office building. The garage facility encompasses about 840 square metres, and includes four maintenance bays and allows for indoor storage of eight vehicles. The garage building includes a partial second story used for equipment and parts storage, as well as parts storage and an employee break and meeting room on the first story. The building was not built for maintaining and storing buses, and is much smaller and configured differently than a typical storage facility for a bus fleet of this size and configuration. Most of the vehicles are stored outdoors, and the size and irregular shape of the site complicate and add time to parking and moving the vehicles for washing during the night. The site is or above its effective vehicle capacity and should be replaced as soon as financially and practically possible. The building has no wash bay; vehicles are washed nightly using a combination of a portable washer and hand washing. Fueling occurs outdoors. An attached office area of about 70 square metres provides restrooms, three small offices and a reception area.

Figure 23 I Milton Transit Facility Building, garage is circled in red and office is circled in green

Milton initiated a transit operations facility feasibility and functional design study in 2017. The consultant report is reproduced in Appendix 4. The study identified several additional shortcomings of the existing facility, including the lack of a refueling pump, lubricant top up, or vacuum system, and the lack of a degreasing bay to steam clean the bus undersides prior to performing maintenance, which can affect mechanics' ability to identify some maintenance issues. There also is no inspection pit to conduct quick underside inspections, which reduces maintenance efficiency.

In their final report (January 19, 2019), the consultants conducting the facility study estimated a need for a fleet of 70 vehicles (compared to 23 in 2018) by 2038 to meet transit demand growth based on the Town's rapid population growth. To accommodate this larger fleet, the study recommended that the present facility be replaced with a new, purpose-built bus storage and maintenance facility with 12,650 square metres of interior space, or about 13 times the size of the existing facility. development of a new facility with 12,650 square metres of interior space, or about fourteen times the size of the present facility. The functional area space requirements for this facility are shown in Table 4 on the next page.

FUNCTIONAL AREA	TOTAL AREA REQUIRED IN 2038 (M^2)
Administrative	584
Employee Amenities	372
Bus Maintenance Garage	4,511
Indoor Service Lane	910
Indoor Bus Storage	5,671
Contingency (5%)	602
TOTAL	**12,650**

Table 4 I Proposed Milton Transit Operations Facility – Functional Area Space Requirements (2038)

The study estimated the construction and equipment cost of the facility at $37.1 million (in 2020 dollars). Given the magnitude of the investment and its potential impact on Town finances, the consultants developed two options for development. In option 1, the entire facility would be constructed at once for operation in 2028; in option 2, the facility would be developed in two phases, with the first to be complete for operation in 2028, at a cost of $27.2 million. A second phase would be developed to be completed before 2038, at a cost of $13.6 million (with additional costs owing to lost efficiencies in constructing the facility in two phases). Based on Milton Transit 2017/2018 average budget, the study estimated that the annual utility, repair, and replacement costs for the proposed operations facility would be $1.5 million in 2038. Some plan and elevation views of the proposed facility are shown in Figure 24 through Figure 27.

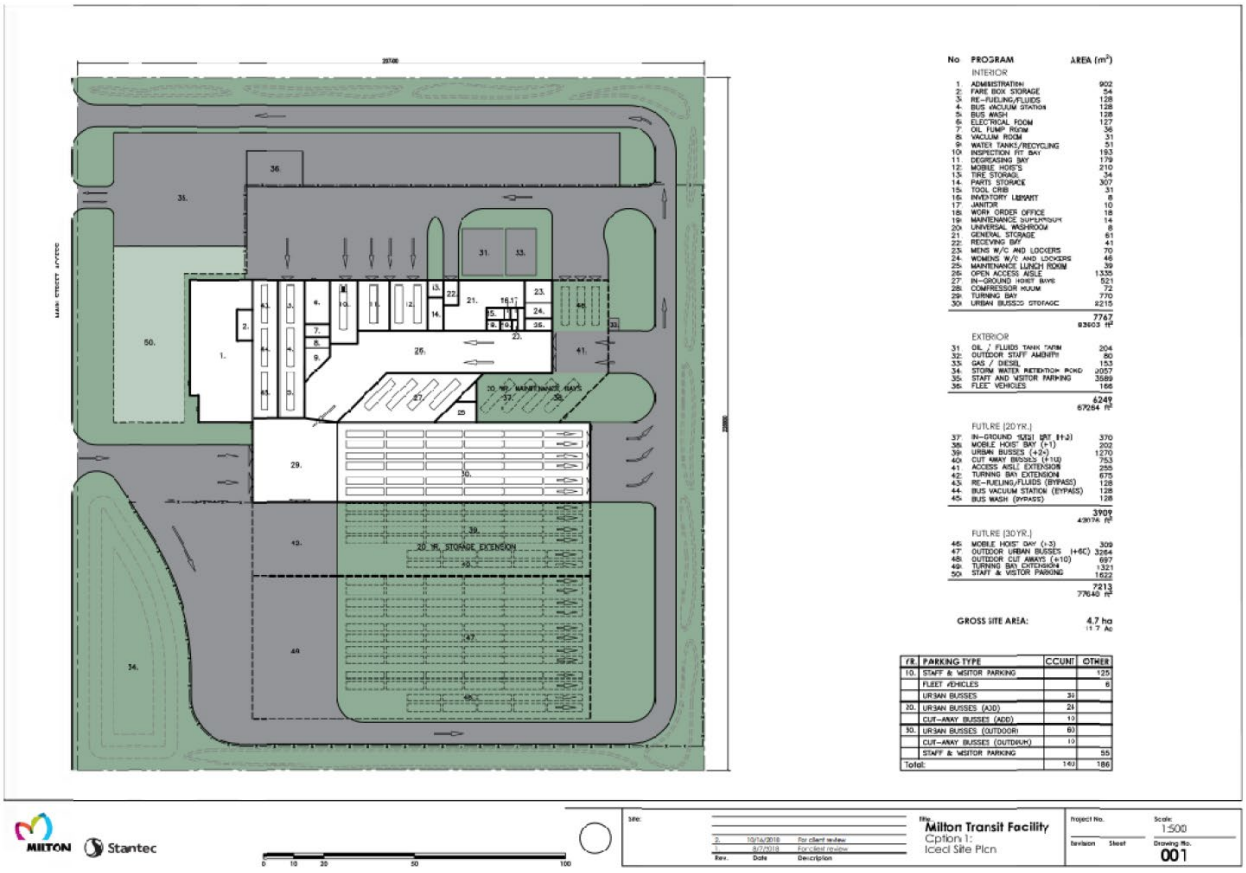


Figure 24 I Milton Transit Operations Facility Master Plan – Option 1

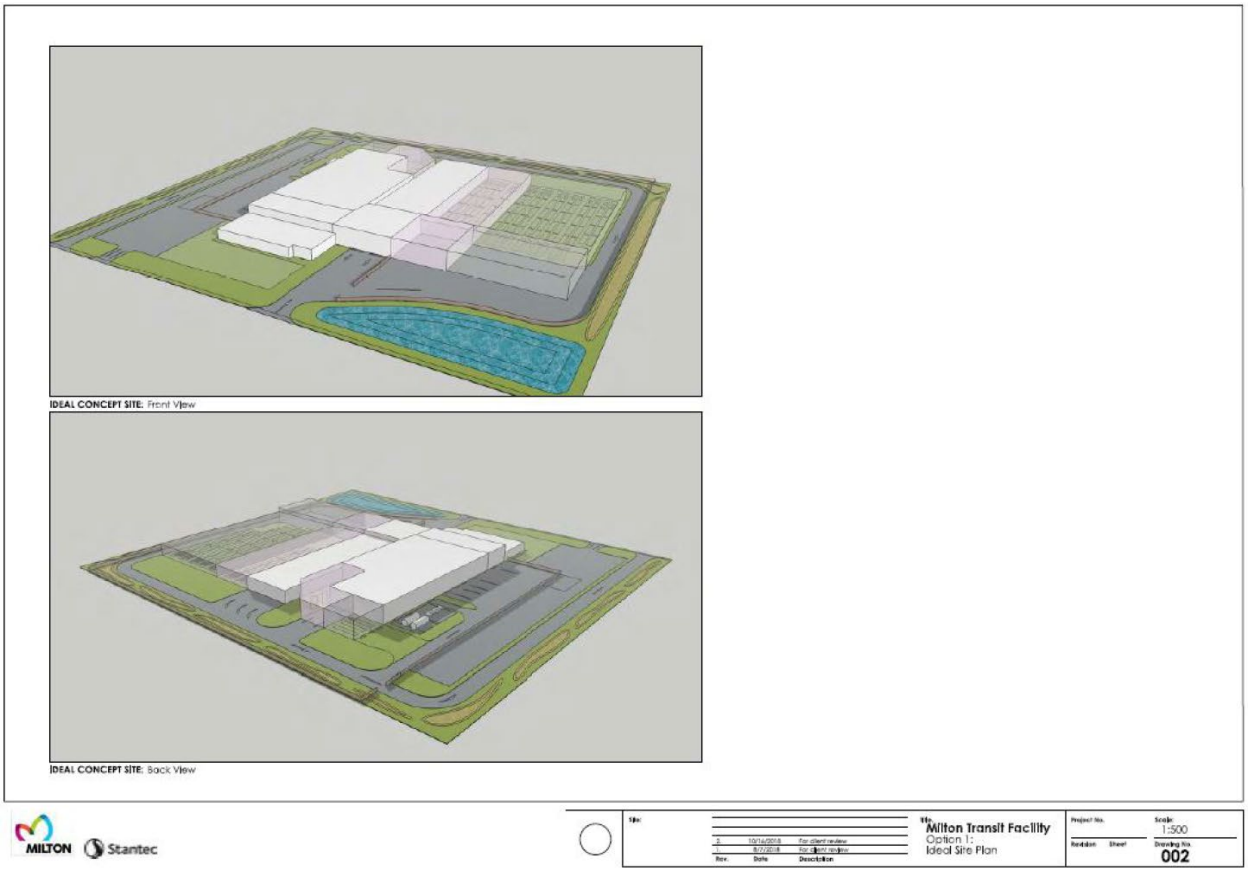


Figure 25 I Milton Transit Operations Facility Option 1 Renderings

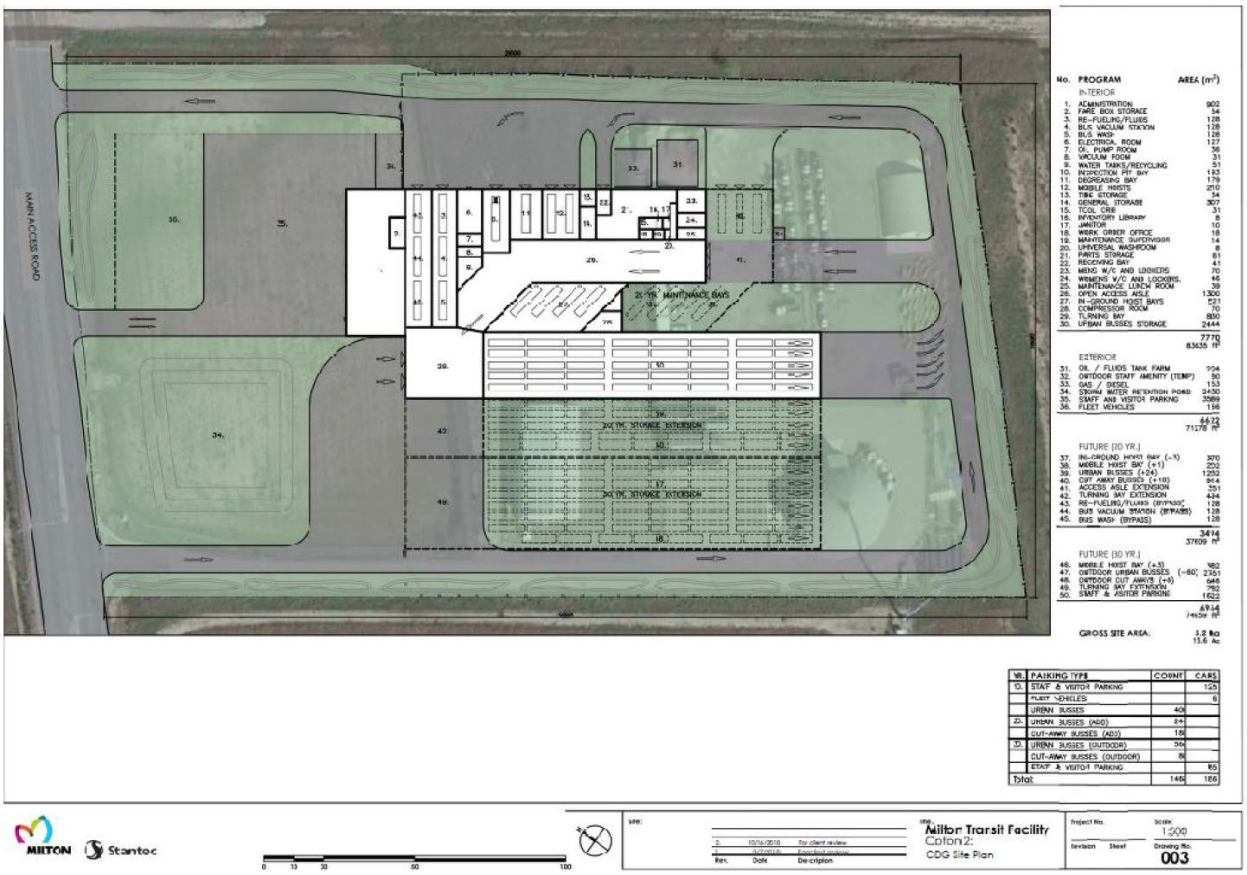


Figure 26 *I* Milton Transit Operations Facility Master Plan - Option 2

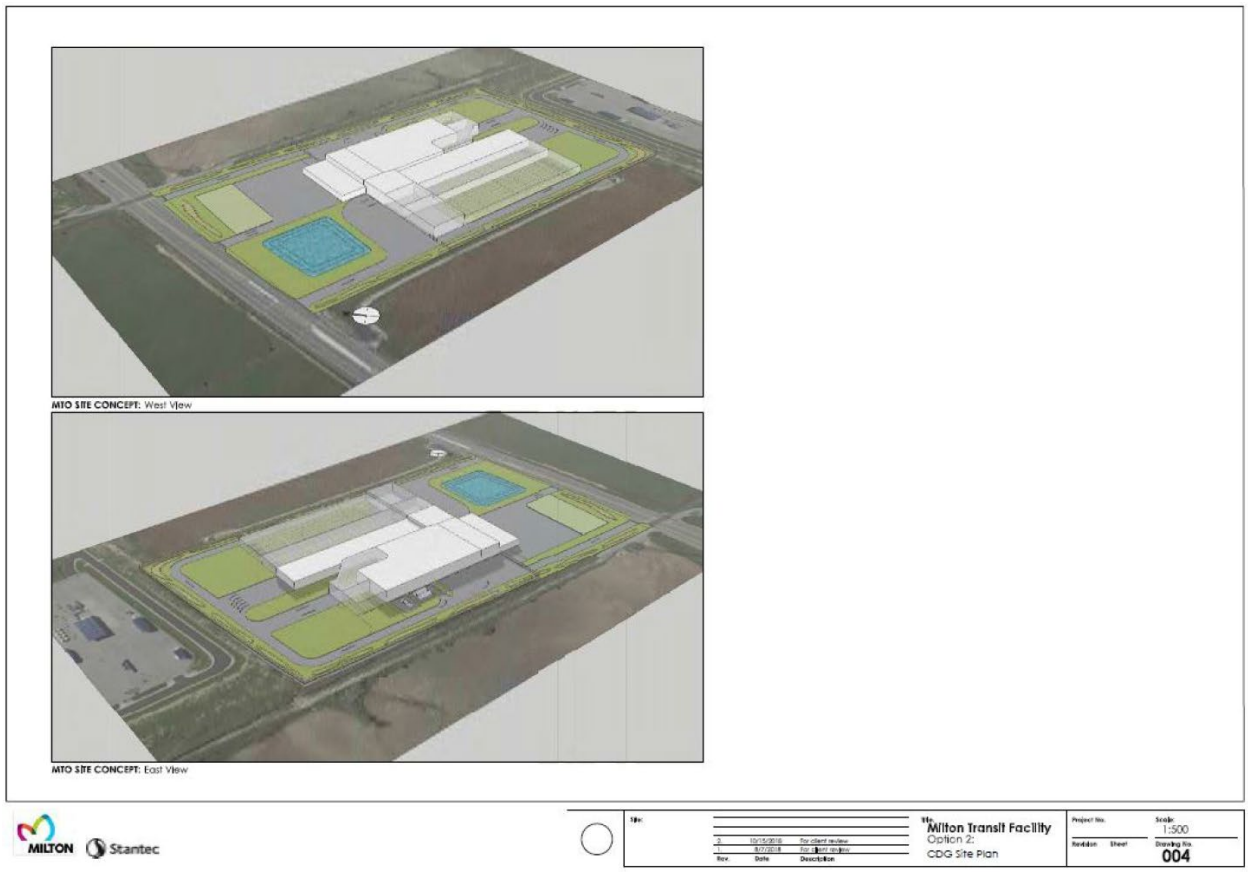


Figure 27 I Milton Transit Operations Facility Option 2 Renderings

The study estimated that the facility would require a 4.7 to 5.2 acre site, and identified and evaluated several potential sites in Milton. However, no final site was selected, and the above cost estimates exclude site acquisition costs.

EXISTING PLANS & STUDIES

WSP also reviewed a series of local and regional plans and studies related to the Transit Master Plan that are listed below, and a summary of each plan is provided in **Appendix 1**.

REGIONAL PLANS & STUDIES

- Halton Region Transportation Master Plan 2011-2031
- Metrolinx 2041 Regional Transportation Plan
- Growth Plan for the Greater Golden Horseshoe 2017 - 2041

LOCAL PLANS & STUDIES

- Milton Transportation Master Plan 2018 – 2031
- 2018 Milton Transit Accessibility Plan
- 2018 Milton Youth Engagement Report
- Destiny Milton 3 – Town of Milton Strategic Action Plan 2015 – 2018
- 2006 Town of Milton TOD Policy Review
- Milton Land Base Analysis 2017 – 2031
- Milton 2017 Fiscal Impact Assessment of Growth 2017 – 2036

At regional level, transit to / from Milton will be significantly strengthened - with designation of multiple higher order transit corridors on regional roads with transit protection, signal priority, and exclusive right-of-way connecting Milton to surrounding municipalities; transformation of GO Rail from a commuter-focused service into frequent two-way, all-day service with a new GO station at Trafalgar Road; and the designation of Urban Growth Centre in downtown Milton – Milton GO Station area, which will be planned to achieve a density of 200 residents and jobs combined, at minimum. At local level, the 2018 Milton Transportation Master Plan provides guidance of future transportation infrastructures that leads to more transit and active transportation friendly development; the Transit Accessibility Plan ensures that Milton Transit will grow with accessibility and inclusivity in mind; Destiny Milton 3 and Transit Oriented Development (TOD) Policy Review sought to guide transit supportive development in focus areas; the Land Base Analysis and Fiscal Impact Assessment examined development strategies and ensure Milton grows in a sustainable manner; the Youth Engagement Report provides insights on key trends affecting the youth

population in Milton, one of the largest group in terms of transit ridership, and provides insights on how transit can better serve them.

PROPOSED CHANGES TO MILTON TRANSIT SERVICE

Milton Transit adjusted its schedule slightly early 2019 to account for the schedule change of the GO Rail services. Route 9 and 10 were also expected to operate on their new alignments traversing northward on Farmstead Drive from Britannia Road to Louis St. Laurent Avenue through the entire subdivision, instead of operating small loops in the corners, starting later in 2019.

GO RAIL & BUS SERVICE IN MILTON

GO Transit is a division of Metrolinx providing regional public transit service for the GTHA. As of 2018, there are seven commuter rail lines connecting 68 stations including the Union Station in downtown Toronto, and 42 bus routes providing additional connectivity when rail services are not operating and for places without rail access.

Milton is the western terminus of Milton Line leading to the Union Station in downtown Toronto. According to the 2016/2017 GO Transit Monthly Ridership Report, Milton Line is the third most heavily used corridor on the GO Rail system, representing approximately 13% of total system-wide boardings. The line operates 10 eastbound trips during workday morning between 6:00 to 9:30am, and 10 westbound trips during afternoon peak hours between 3:30 to 8:00pm, at an average headway of 21 minutes. Future improvements are planned, including transition to 15-minute, all-day, two-way service, and a potential new station at Trafalgar Road between Highway 401 and Derry Road to serve the proposed Agerton employment area.

Figure 28 shows the system map of the entire GO Transit system, and Figure 29 shows a schematic map of the GO Rail system, along with service level and designations of Mobility Hub as well as Urban Growth Centre.

Figure 28 | GO Transit System Map

Figure 29 | Milton GO Rail System – Schematic Map

MILTON GO STATION

The Milton GO Station is located on Main Street at Drew Centre Road. Approximately 2,532[6] riders board GO at the Milton GO on a typical weekday, making it the third most heavily used station on the Milton line, due both to the large number of boardings generated in Milton as well as the fact that it is the terminal station on the line, attracting riders from Campbellville and other communities west of Milton. The station includes climate-controlled waiting room with restrooms and a coffee shop, open only during hours that GO rail vehicles are serving the station. Tickets are available from vending machines outside the station building.

A satellite image of the Milton GO Station and its surroundings is provided in Figure 30. Most of the station is occupied by 1,567 vehicle parking spaces. Despite the large number of parking spaces, demand for parking is near or exceeds supply. Drivers are directed to drive to the next stations at Lisgar or Meadowvale in Mississauga. A number of them park at the retail shopping centre across Drew Centre road from the station, while still others park at the Lions Sports Park and Milton Memorial Arena, across Thompson Road.

The station also has a 33-vehicle Kiss-and-Ride waiting area in 5 lanes with a 7-vehicle passenger loading area that is used by taxis and Transportation Network Company (TNC) vehicles.

[6] 2014 Cordon Counts Rail Passenger On counts by station for inbound trains to Union Station, from 2015 GO Rail Passenger Survey Final Report, prepared in April 2016

Figure 30 | Milton GO Rail Station, Located on Main Street at Drew Centre Road

Figure 31 shows the current arrangement of the bus bays at the Milton GO Station. Milton Transit uses seven of the eleven bus bays that are closer to the rail line, including three landing pads on Drew Centre Access Road. GO Bus service occupies the remaining four bays. There is also a layover area for GO Transit buses on the opposite side of the GO Transit bus bays. The right lane on south-east bound Drew Centre Access Road is designated as bus only lane with signs and pavement markings. Three shelters with seating and a total of 40 bike parking spaces, including 32 covered and 8 open spaces, are provided at the station.

The Town of Milton has tried to discourage private automobile drivers from entering the bus loops and obstructing the lanes through enforcement, with moderate success. Under the existing layout, bus passengers that get off at the stops on Drew Centre Access Road (and those that park at the shopping centre on the northern side of Drew Centre) must walk across bus traffic to transfer among bus routes or to access the GO Rail platform. The crossing locations are marked by red arrows in Figure 31.

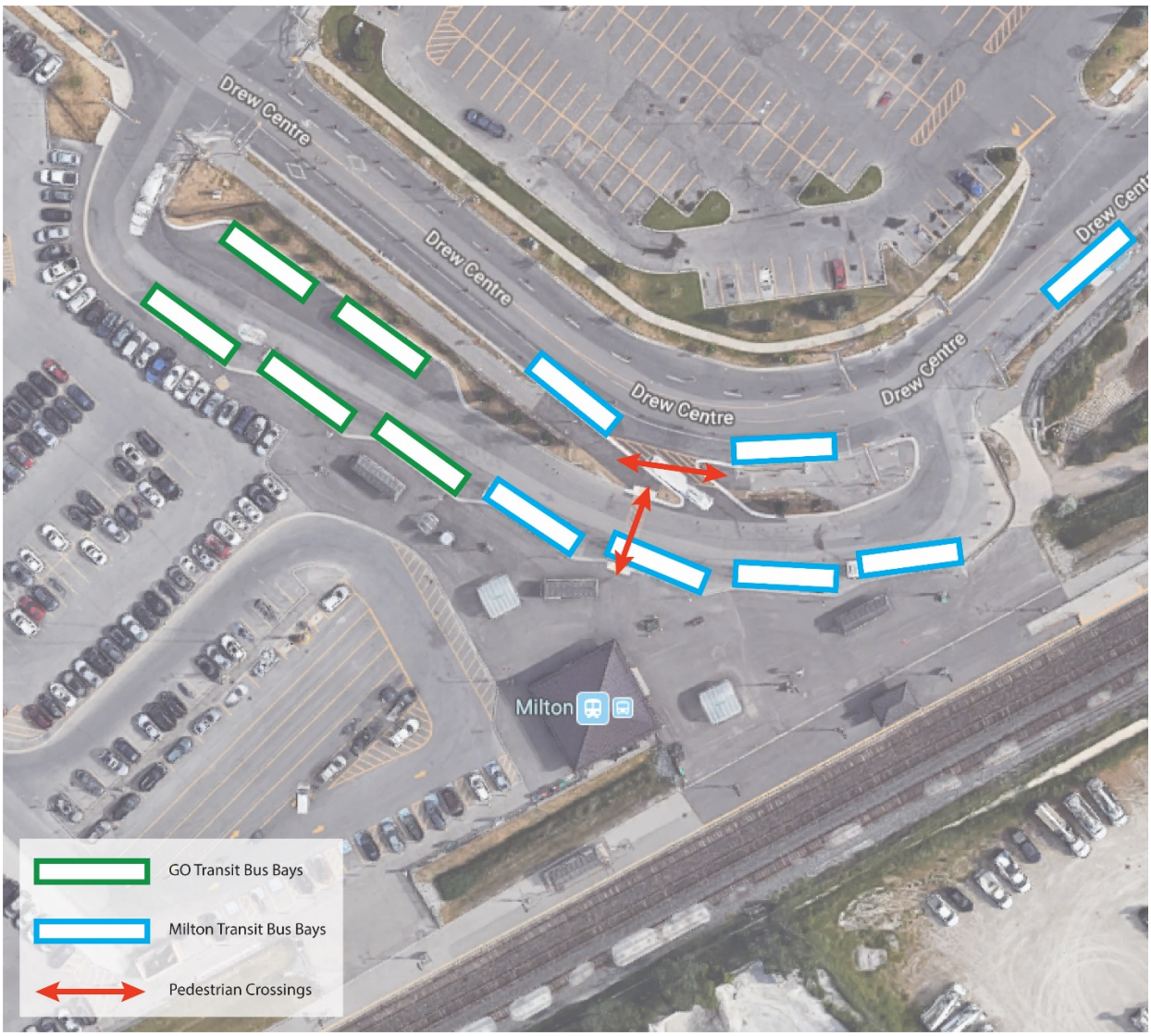


Figure 31 | Milton GO Rail Station Transit Stops, Routes, Shelters & Parking

Milton GO Station serves as Milton Transit's transfer hub, allowing passengers to transfer among its bus routes as well as with GO rail and bus services. Milton Transit schedules eight routes to pulse at the Milton GO Station, but the current layout is not large enough to accommodate all eight routes at the same time. More bus bays are necessary to serve Milton Transit's existing service, and more still will be necessary to accommodate Milton Transit's future growth through 2031.

Metrolinx is set to begin construction in 2019 on a major reconstruction of the Milton GO station. The original completion date was scheduled to be in December 2020, however, no updated timeline has been confirmed. Milton GO station and its surrounding area is designated as a regional growth centre (this is discussed in more detail in chapter 3), and a number of private residential and mixed-use developments are proposed to occupy portions of the station parking lot near Main Street. The project includes the construction of a total up to 2,322 space surface parking, including up to 1,096 parking stalls north of the tracks and 1,226 stalls in the south, to expand parking capacity and replace existing space that is to be occupied by this private development on the existing station property. The new station will feature a pedestrian bridge providing station access from Nipissing Road, on the southern side of the tracks, and new interior waiting areas. The project also includes a new and expanded set of bus bays that will be stretched along the GO rail track, taking up the entire north side of the rail platform, instead of sitting in a corner, as well as an increase in the number of bays available, from the current 7 bays to a total of 20 bays, with 14 bays dedicated for Milton Transit. Out of the 14 bus bays, 11 of them are located in the bus loop, while 3 are located on Drew Centre Access Road. All bus bays are to be used for both revenue service and layover vehicles. While this is an improvement over the existing number, even the proposed expansion in the number of bus bays is unlikely to be sufficient for the number of bus routes Milton is likely to be operating by 2031.

GO TRANSIT SERVICES

GO RAIL SERVICE

Currently, the GO rail service on Milton Line only operates during weekday peak hours, with 10 eastbound trips from Milton GO Station to Union Station in Toronto from 6:00 to 9:30am, and 10 westbound trips from Union Station back to Milton GO Station from 3:30 to 8:00pm. Midday service between Milton GO Station and Union Station is provided by GO bus service. According to Milton Transit's 2017 farebox data, 28% of the rider paid the fare with GO pass or cash discounts through the GO Transit Fare Integration Program.

In its 2041 Regional Plan, Metrolinx proposed a series of service improvements to its GO Rail service, including a move from peak-only service to a 15-minute all-day two-

way service on the Milton Line, and a new GO Rail Station at Trafalgar Road to account for the proposed Trafalgar Corridor/Agerton Employment Area Development.

GO BUS SERVICE

Although not as heavily used as its rail system, GO Bus service plays a crucial role in connecting municipalities in the GTHA, especially for areas that are not currently served by GO Rail service. Figure 28 on page 29 shows the GO Bus Routes in relation to GO Rail Lines, rail stations, and other destinations such as park-and-ride lots, for the entire GO Transit service area. For Milton, GO Bus service in part serves as a supplement of the rail service, maintaining the connection between Milton GO Station and Union Station while the trains are not operating. In addition, GO bus routes are the only transit service that connects Milton to surrounding municipalities like Oakville and Guelph. The list below summarizes the existing GO bus service that serve Milton:

- 20 – Milton/Oakville
- 21 and 21A/B/N – Milton
- 25 – Waterloo/Mississauga[7]
- 27 and 27A/C – Milton/North York
- 29 – Guelph/Mississauga[8]
- 46, 46A, 47, 47C/E - 407 West[9]

Metrolinx is in the process of performing an analysis of its bus services to identify potential improvements to its bus system. Metrolinx also plans for GO Bus service to transition to low-carbon bus fleet.

Milton Transit connects hundreds of Milton residents to GO Rail service, but hundreds more GO riders choose to park-and-ride at the station—sometimes hundreds of metres from the station platform.

[7] Serves Hwy 401 Park-and-Ride, does not serve Milton GO Station

[8] Serves Hwy 401 Park-and-Ride, does not serve Milton GO Station

[9] Serves Hwy 407 Park-and-Ride, does not serve Milton GO Station

CONVENTIONAL ROUTE NETWORK PERFORMANCE REVIEW

Milton Transit operates ten (10) conventional bus routes (11 if routes 1A and B are counted separately), which carry slightly more than 2,100 trips on an average weekday; three school service routes that together carry an average of 140 daily trips; and three evening drop-off routes that provide a guaranteed ride home to GO commuters in the evenings, and carry about 25 trips on an average weekday.

A summary of each bus route's operation and basic performance metrics are summarized in the following sections.

FIXED ROUTE SERVICE BY ROUTE

ROUTE 1A / 1B / 1C – INDUSTRIAL

Figure 32 shows the alignment for Route 1A, 1B, and 1C. Route 1A and 1B operate during weekday morning (5:15am to 9:05am) and afternoon (2:02pm to 6:29pm) peak periods connecting the 401 Industrial Business Park to the Milton GO Station. In addition, this service includes a special early morning pick-up service from 4:45am to 5:15am, designed to connect passengers throughout the town to the regular 1A and 1B service, via the Milton GO Station, to allow those who have early shift start times to connect to their workplaces before 6:00am. Route 1A operates as a clockwise one-way loop, while Route 1B operates on the same alignment (with minor differences) as a counter clockwise one-way loop. Each of the one-way loops, in turn, operate several one-way loops within the loop, to maximize coverage of the industrial area and to accommodate the poor connectivity of the roadway network in the area. Each route operates on a 45-minute headway, offset to maximize the number of departures from the Milton GO station. The annual ridership and performance details for Route 1A, 1B, and 1C are shown in Table 5, and the operation details are shown in Table 6.

Route 1C operates only on Saturdays from 8:10am to 7:36pm, bidirectionally on a shorter, more direct route to Parkhill Drive. Both Route 1A, 1B, and 1C serve the GO 401 Park-n-ride lot on Regional Road 25 at Highway 401.

Annual Ridership (2018)	Passengers per Revenue Hour	Passengers per Revenue Kilometre	Average Weekday Ridership	Average Population Density within 500m Buffer Area along Route (Statistics Canada 2016, persons per hectare)
31,501	8.8	0.29	125.5	1A: 7.94 1B: 8.30 1C: 10.32

Table 5 I Annual Ridership Details of Routes 1A, 1B & 1C - Industrial

	Trips	Service Span	Peak Headway	Off-Peak Headway
Weekday	20	05:15-09:05 14:02-18:25	45	-
Saturday	12	08:10-19:36	60	60
Sunday	No Service			

Table 6 I Weekday and Weekend Trip Details of Routes 1A, 1B & 1C - Industrial

Routes 1A and 1B are the only routes serving Milton north of Main Street and west of Thompson Road (Route 2 connects to Milton Crossroad Centre), and the only routes connecting to Milton Education Village Innovation Centre on Industrial Drive, and the many employers in the Employment Lands north of Steeles Avenue. However, the route's ridership is relatively low, carrying about 125 trips on an average weekday, or fewer than 9 trips per revenue hour of service. The route's lack of midday service may be a challenge to riders, given that it serves an area that includes many workers with irregular schedules. The opposing loop alignments, further complicated by three "loops within loops" in the northern part of the route, and the 45-minute headways—which effectively preclude connecting at transfer times with other Milton Transit routes—may be confusing to customers, and may further discourage use of the route.

Figure 32 I *Route Map showing Routes 1A, 1B & 1C – Industrial*

ROUTE 2 – MAIN

Figure 33 shows the alignment of Route 2. Route 2 operates between the Walmart in Milton Crossroads Centre on Steeles Ave East and Milton District Hospital on Derry Road at Bronte Street South, via the Milton GO Station, from 5:19am to 10:11pm on Weekdays and from 7:10am to 7:38pm during Saturdays. Because Milton GO station is in the middle of the route, rather than its terminus, the route effectively operates as two interlined bus routes, one operating from Milton District Hospital to Milton GO station, and the other from Milton Crossroads Centre to Milton GO. The route travels bidirectionally on the same streets for the most part, except in the historic downtown area, where it travels eastbound on Main Street East and westbound on Mill Street, and at its western terminus, where the route operates a relatively large, counter clockwise, one-way loop to serve Milton High School and J.M. Denyes Public School. The loop facilitates the route's turn around, and also increases coverage in the areas around the schools. Although Route 2 travels through the historic downtown on Main Street, it does not stop in the downtown area between Bronte Road and Martin Street. Table 7 shows the annual ridership and productivity of Route 2, and Table 8 shows the operation details.

Annual Ridership (2018)	Passengers per Revenue Hour	Passengers per Revenue Kilometre	Average Weekday Ridership	Average Population Density within 500m Buffer Area along Route (Statistics Canada 2016, persons per hectare)
124,616	14.6	0.67	496.5	24.24

Table 7 I Annual Ridership Details of Route 2 - Main

	Trips	Service Span	Peak Headway	Off-Peak Headway
Weekday	34	05:19-23:11	30	30
Saturday	25	07:10-19:38	30	30
Sunday	No Service			

Table 8 I Weekday and Weekend Trip Details of Route 2 - Main

Route 2 is Milton Transit's highest ridership route, carrying nearly 500 daily trips, or nearly a quarter of the fixed-route system's daily ridership, owing to a number of important destinations including Milton High School, Bishop Reding High School, and the Maple Crossing and Milton Crossroads shopping centres. The open loop at the western end of the route defies best practice but may be impossible to avoid given the limitations of the roadway network and traffic in the area of the high school. The organization of the public timetable, with Milton GO station situated in the middle rather than at one end of the bus schedule, and the designation of the buses eastbound and westbound buses on the bus head-signs may be confusing to some customers. This route also interlines at the station with other routes (such as route 10), which effectively cuts the route off mid-trip, might cause further customer confusion.

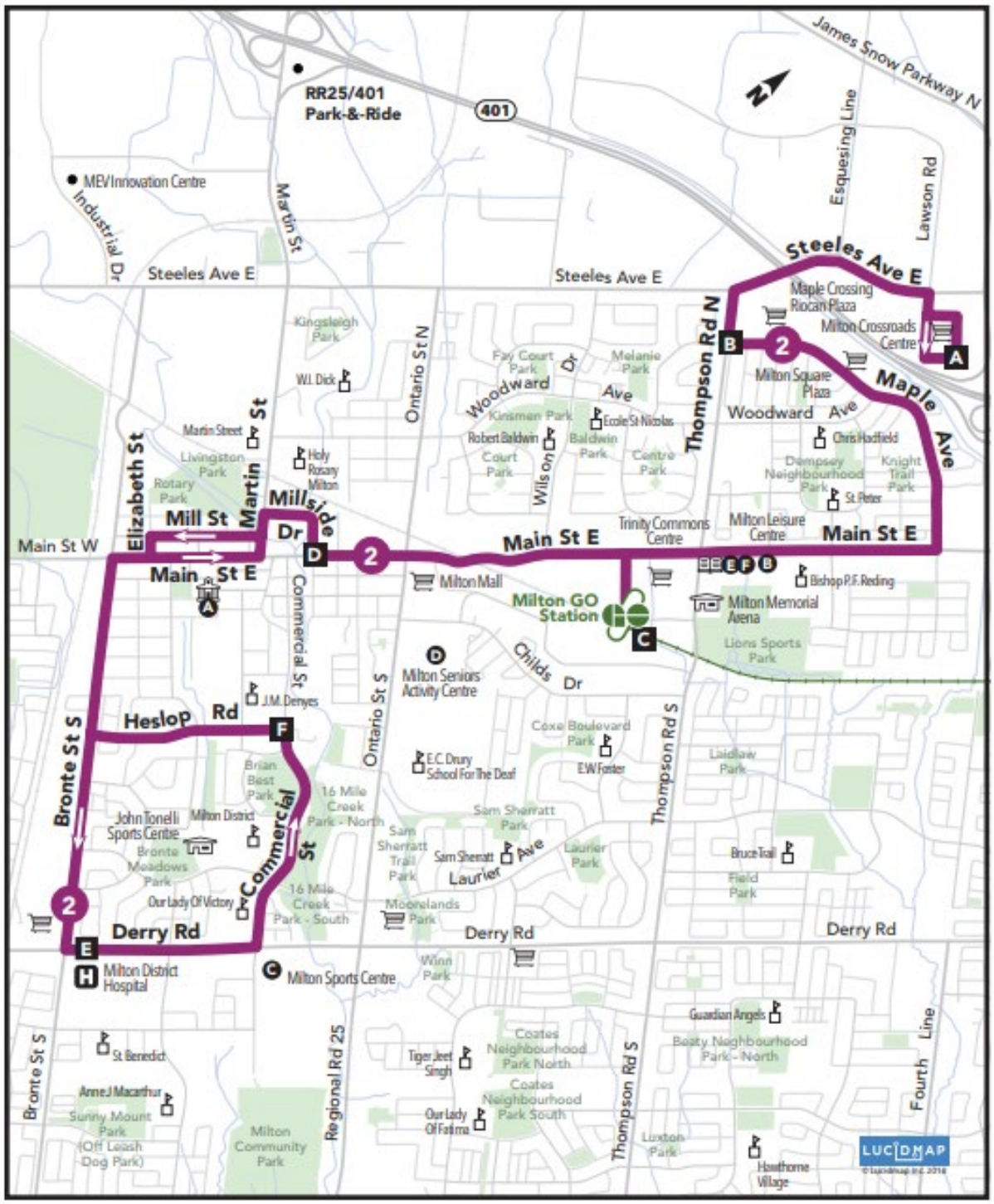


Figure 33 I *Route Map showing Route 2 - Main*

ROUTE 3 – TRUDEAU

The alignment of Route 3 is shown in Figure 34. Route 3 connects the Milton GO Station to east Milton at Fourth Line and Louis St. Laurent Avenue. This route operates from 5:19am to 10:11pm on Weekdays, and from 8:10am to 7:38pm on Saturdays. Route 3 interlines with Route 4 at the Milton GO Station. Route 3 operates primarily as a bi-directional route, with buses operating on both directions on the same street, except for the one-way loop at the routes southern terminus that allows the route to turn around at the end of its outbound run. Table 9 shows the annual ridership and productivity of Route 3, and Table 10 shows the operation details.

Annual Ridership (2018)	Passengers per Revenue Hour	Passengers per Revenue Kilometre	Average Weekday Ridership	Average Population Density within 500m Buffer Area along Route (Statistics Canada 2016, persons per hectare)
68,526	20.2	0.88	273.0	38.73

Table 9 I Annual Ridership Details of Route 3 - Trudeau

	Trips	Service Span	Peak Headway	Off-Peak Headway
Weekday	27	05:19-23:11	30	60
Saturday	12	08:10-19:38	60	60
Sunday	No Service			

Table 10 | Weekday and Weekend Trip Details of Route 3 - Trudeau

With an average daily ridership of 273, Route 3 is Milton Transit's most productive route, carrying more than 20 trips per revenue hour. One of the reasons for its success may be that it avoids arterial roadways almost entirely, passing directly through neighbourhoods and avoiding the access challenges preventing customers from connecting to bus stops on arterial roadways, and the high traffic volumes on the arterial roadway network.

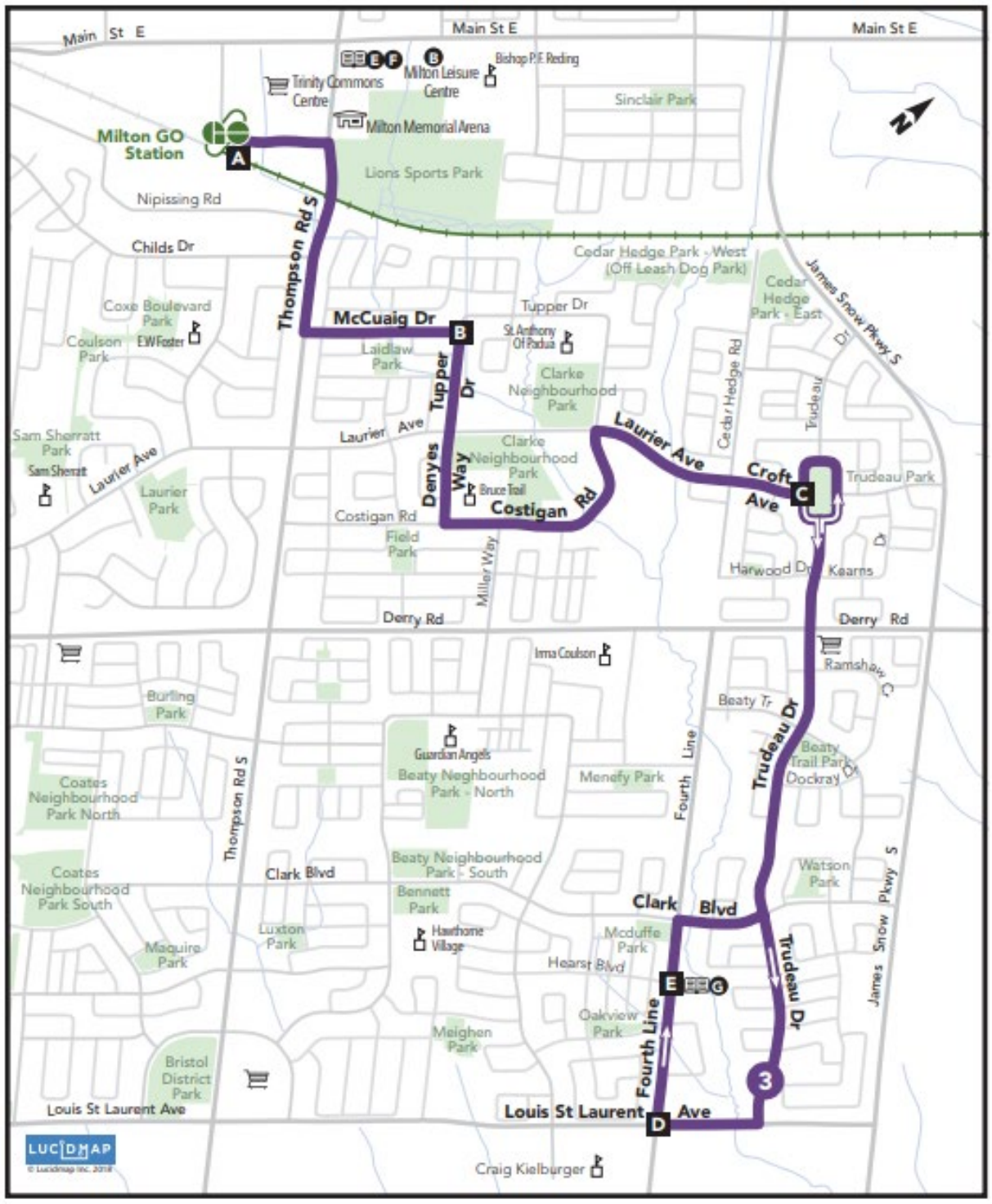


Figure 34 I Route Map showing Route 3 - Trudeau

ROUTE 4 – THOMPSON / CLARK

While Route 3 serves neighbourhoods north of Derry Road and east of Fourth Line, Route 4 runs straight down Thompson Road and serve the neighbourhoods surrounded by Derry road, Fourth Line, Louis St. Laurent Avenue, and Thompson Road on a clockwise loop alignment that operates mostly on neighbourhood street, as shown in Figure 35. In addition to two schools, Route 4 also serves a shopping center on Kennedy Circle. Route 4 operates from 5:19am to 9:41pm on weekdays, and from 7:40am to 7:08pm on Saturdays. Table 11 shows the annual ridership and productivity of Route 4, and Table 12 shows the operation details.

Annual Ridership (2018)	Passengers per Revenue Hour	Passengers per Revenue Kilometre	Average Weekday Ridership	Average Population Density within 500m Buffer Area along Route (Statistics Canada 2016, persons per hectare)
64,266	16.5	0.79	256.0	41.33

Table 11 I Annual Ridership Details of Route 4 – Thompson / Clark

	Trips	Service Span	Peak Headway	Off-Peak Headway
Weekday	31	05:19-22:41	30	30(M)/60(E)
Saturday	12	07:40-19:08	60	60
Sunday	No Service			

Table 12 I Weekday and Weekend Trip Details of Route 4 – Thompson / Clark

Route 4 carries about 256 trips on an average day and has an above-average productivity of more than 16 trips per revenue hour. However, it carries fewer passengers and is less productive than route 3, possibly, in part, because the route operates mostly on Thompson Road, a major arterial that faces both traffic challenges and challenges with access to adjacent neighbourhoods, many of which are separated from the arterial roadway by back yard fences of houses that face away from the road.

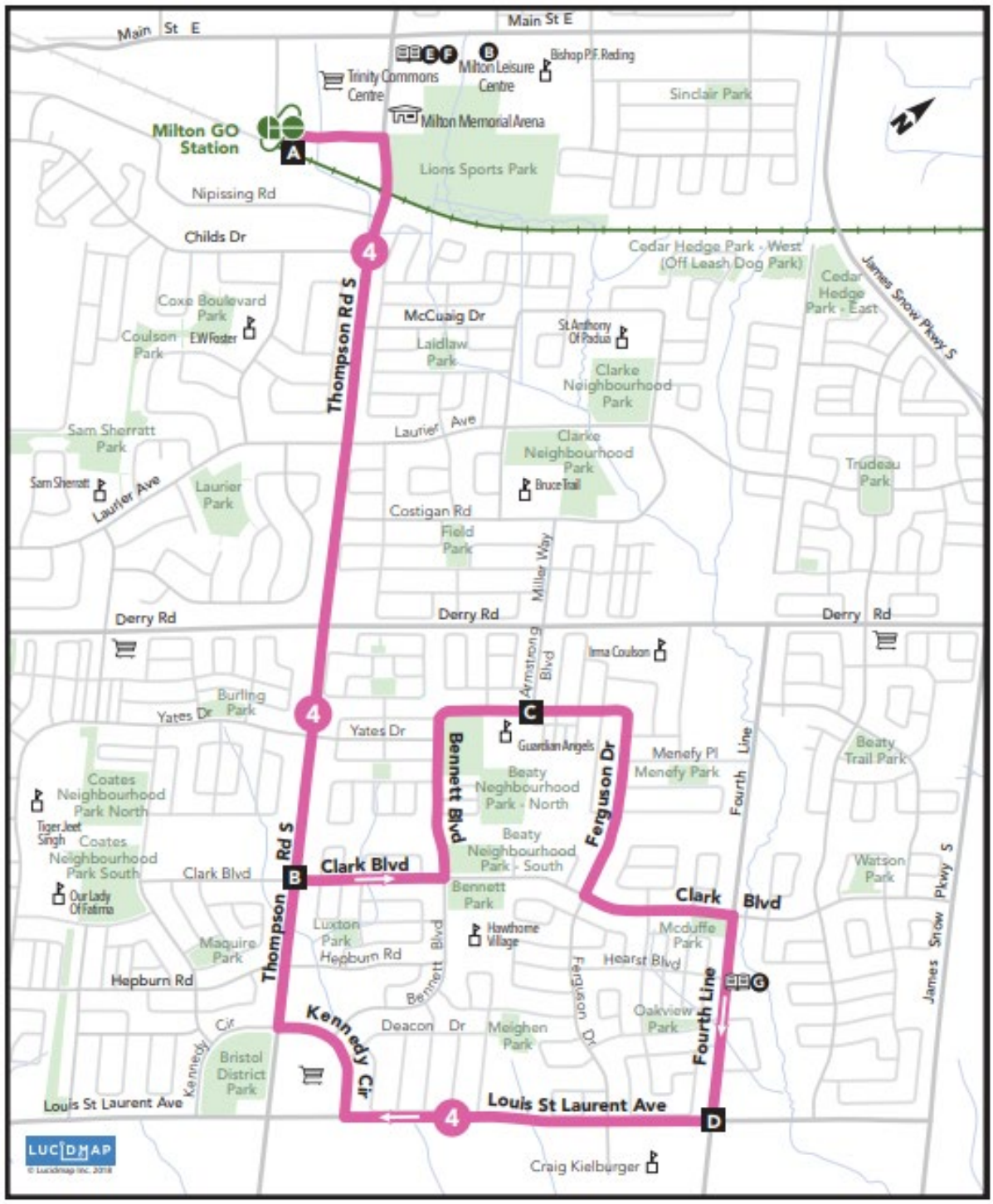


Figure 35 I Route Map showing Route 4 – Thompson / Clark

ROUTE 5 – YATES

The alignment of Route 5 is shown in Figure 36. Route 5 provides coverage for neighbourhoods surrounded by Childs Drive, Ontario Street / Regional Road 25, Louis St. Laurent Avenue, and Thompson Road. Route 5 operates from 5:19am to 10:11pm on weekdays, and from 8:10am to 7:38pm on Saturdays. Route 5 interlines with Route 8 at the Milton GO Station. Route 5 mostly operates as a bi-directional route, except for a loop within the neighbourhood bounded by Derry Road, Thompson, Louis St. Laurent and Regional Road 25, which also allows the route to turn around at its southern end. Table 13 below shows the annual ridership and productivity of Route 5, and Table 14 shows the operation details.

Annual Ridership (2018)	Passengers per Revenue Hour	Passengers per Revenue Kilometre	Average Weekday Ridership	Average Population Density within 500m Buffer Area along Route (Statistics Canada 2016, persons per hectare)
38,173	10.1	0.46	152.1	27.86

Table 13 I Annual Ridership Details of Route 5 – Yates

	Trips	Service Span	Peak Headway	Off-Peak Headway
Weekday	27	05:19-23:11	30	60
Saturday	12	08:10-19:38	60	60
Sunday	No Service			

Table 14 I Weekday and Weekend Trip Details of Route 5 – Yates

Route 5 carries about 152 daily trips and, at 10.1 trips per revenue vehicle hour, is among the least productive routes in the Milton Transit system. Much of the alignment along Ontario Street (Regional Road 25) is lightly populated and has access and traffic issues.

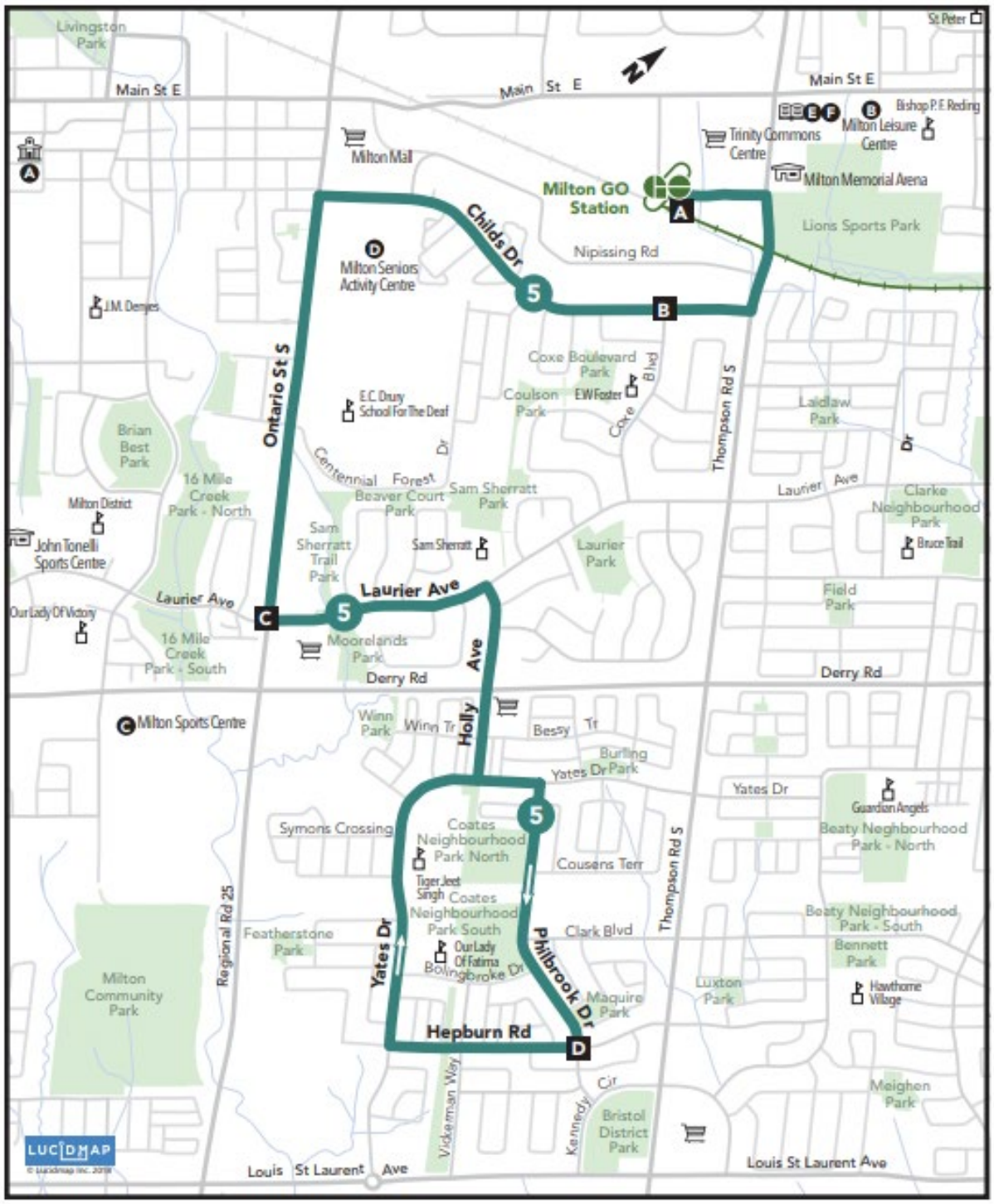


Figure 36 I Route Map showing Route 5 - Yates

ROUTE 6 - SCOTT

Figure 37 shows the alignment of Route 6. Route 6 connects neighbourhoods surrounded by Bronte Street, Derry Road, Tremaine Road, and Main Street to the Milton GO Station, via Main Street. Like Route 2, Route 6 also runs through the historic downtown but does not stop until east of Ontario Street. Route 6 operates from 5:25am to 9:41pm on weekdays, and from 7:40am to 7:08pm on Saturdays. Route 6 interlines with Route 7 at the Milton GO Station. The route is primarily bi-directional except for a loop at the end that facilitates access to the neighbourhood west of Bronte Road between Main and Derry, and to turn the bus around at the western end of the route. Table 15 below shows the annual ridership and productivity of Route 6, and Table 16 shows the operation details.

Annual Ridership (2018)	Passengers per Revenue Hour	Passengers per Revenue Kilometre	Average Weekday Ridership	Average Population Density within 500m Buffer Area along Route (Statistics Canada 2016, persons per hectare)
53,403	12.5	0.54	212.8	30.05

Table 15 I Annual Ridership Details of Route 6 - Scott

	Trips	Service Span	Peak Headway	Off-Peak Headway
Weekday	34	05:25-22:41	15-30	60
Saturday	12	07:40-19:08	60	60
Sunday	No Service			

Table 16 I Weekday and Weekend Trip Details of Route 6 - Scott

Route 6 carries about 212 daily trips and is slightly above the Milton Transit average in trips per revenue hour. Route six is one of two existing routes that operates a 15-minute headway during the rush hour periods. This higher frequency explains both its relatively high ridership in a relatively low-density area, and its average productivity in spite of high ridership.

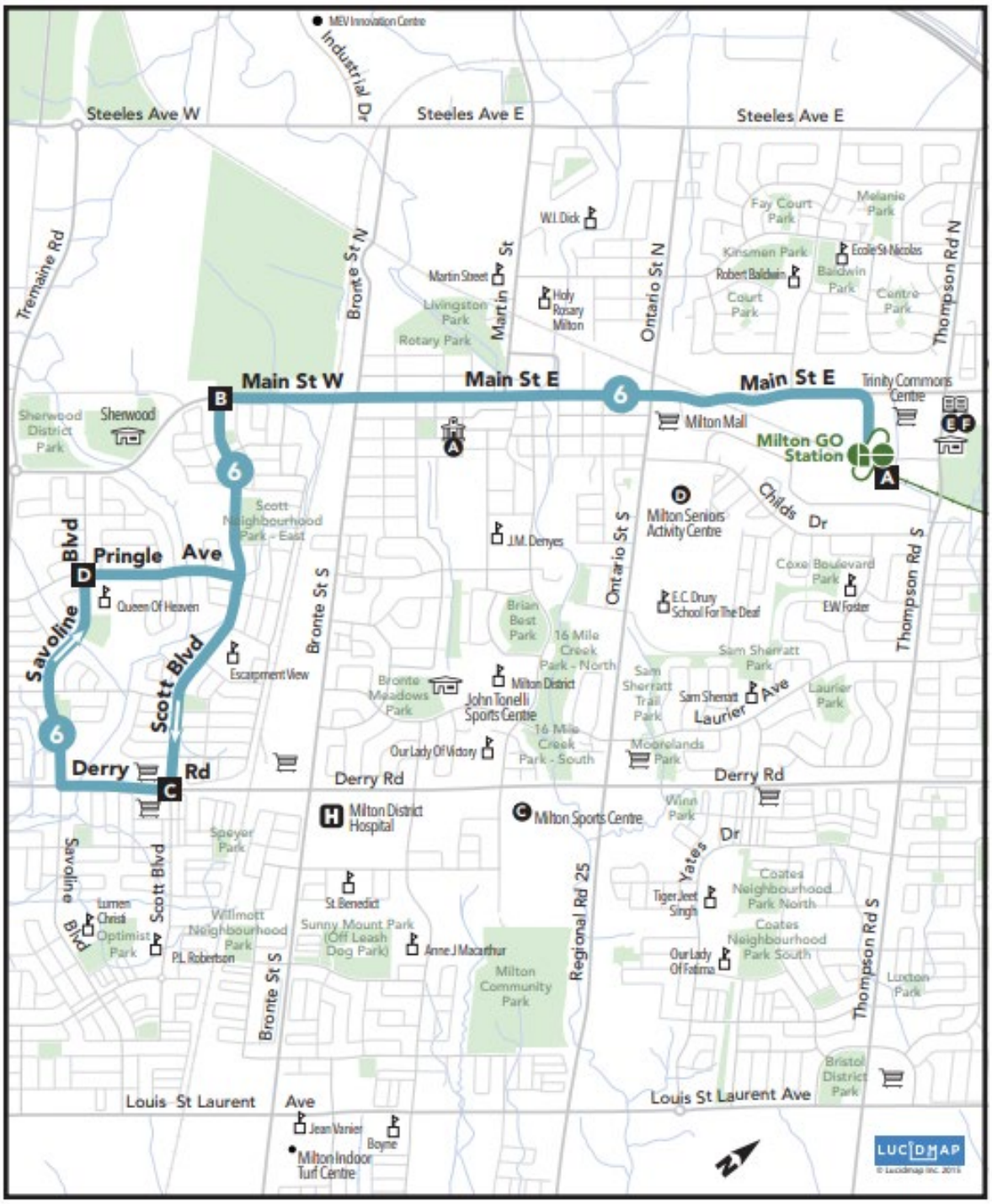


Figure 37 I Route Map showing Route 6 - Scott

ROUTE 7 – HARRISON

Interlined with Route 6 at the Milton GO Station, Route 7 connects neighbourhoods surrounded by Derry Road, Bronte Street, Louis St. Laurent Avenue, and Tremaine Road via Derry Road and Ontario Street, as shown in Figure 38. Route 7 operates from 5:25am to 10:11pm on weekdays, and from 8:10am to 7:38pm on Saturdays. The route is mostly bi-directional except for its terminal route, which allows for the bus turnaround and provides access to the neighbourhood. Table 17 below shows the annual ridership and productivity of Route 7 and Table 18 shows the operation details.

Annual Ridership (2018)	Passengers per Revenue Hour	Passengers per Revenue Kilometre	Average Weekday Ridership	Average Population Density within 500m Buffer Area along Route (Statistics Canada 2016, persons per hectare)
66,873	14.8	0.57	266.4	28.55

Table 17 I Annual Ridership Details of Route 7 - Harrison

	Trips	Service Span	Peak Headway	Off-Peak Headway
Weekday	36	05:25-22:41	15-30	60
Saturday	12	08:10-19:38	60	60
Sunday	No Service			

Table 18 I Weekday and Weekend Trip Details of Route 7 - Harrison

Route 7, like its interline partner route, 6, provides 15-minute service during peak periods, and has relatively high ridership (266 trips on an average weekday) and productivity (above 14 trips per revenue hour) to show for it.

Figure 38 I Route Map showing Route 7 - Harrison

ROUTE 8 – WILLMOT

The alignment of Route 8 is shown in Figure 39. Route 8 connects neighbourhoods surrounded by Derry Road, Regional Road 25, Louis St. Laurent Avenue, and Bronte Street to the Milton GO Station, via Thompson Road and Derry Road. Route 8 operates from 5:26am to 9:41pm on weekdays, and from 7:40am to 7:08pm on Saturdays. Route 8 is interlined with Route 5 at the Milton GO Station. The route operates bidirectionally on Derry and Thompson Roads but operates a large one-way loop providing access to the neighbourhood it serves at the end of the route. Table 19 below shows the annual ridership and productivity of Route 8, and Table 20 shows the operation details.

Annual Ridership (2018)	Passengers per Revenue Hour	Passengers per Revenue Kilometre	Average Weekday Ridership	Average Population Density within 500m Buffer Area along Route (Statistics Canada 2016, persons per hectare)
43,506	13.9	0.56	173.3	28.95

Table 19 I Annual Ridership Details of Route 8 – Willmot

	Trips	Service Span	Peak Headway	Off-Peak Headway
Weekday	25	05:26-22:41	30	60
Saturday	12	07:40-19:08	60	60
Sunday	No Service			

Table 20 I Weekday and Weekend Trip Details of Route 8 – Willmot

Route 8 is relatively productive (nearly 14 trips per revenue vehicle hour) despite its lower ridership (173 trips on an average weekday), probably owing to its less frequent service. The route operates much of its alignment on arterial streets, including Derry, Bronte and Louis St. Laurent, and access and traffic issues on these streets could be the cause of the routes' lower ridership.

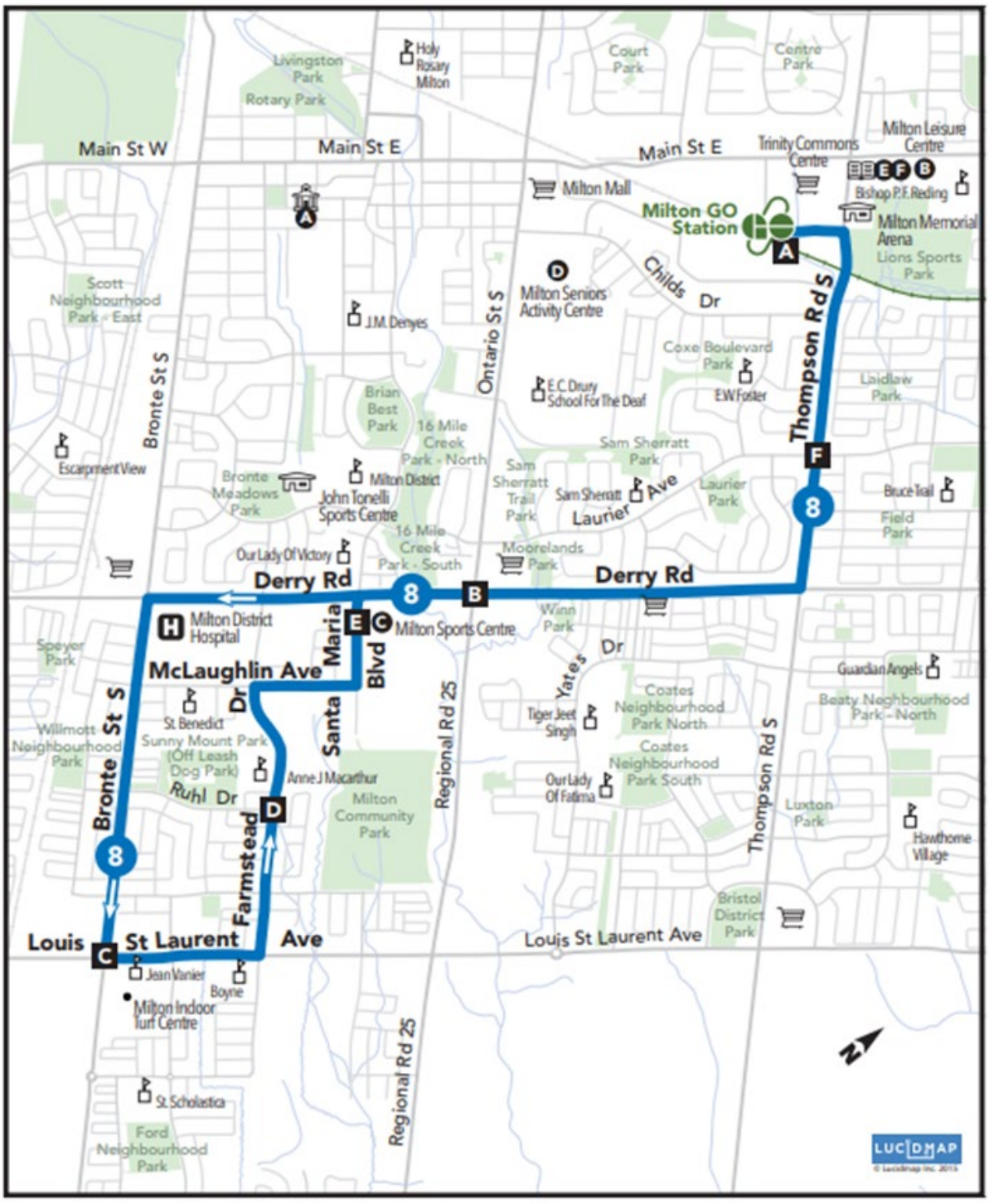


Figure 39 I Route Map showing Route 8 - Willmot

ROUTE 9 – ONTARIO SOUTH

As shown in Figure 40, Route 9 provides service to neighbourhoods surrounded by Louis St. Laurent Avenue, Regional Road 25, Britannia Road, and Bronte Street, via Regional Road 25. The route was recently realigned to serve a larger portion of Farmstead Road between Etheredge and Louis St. Laurent. Route 9 operates from 5:19am to 10:11pm on weekdays and from 7:40am to 7:08pm on Saturdays. Route 9 is interlined with Route 4 on weekdays and with 1C on Saturdays at the Milton GO Station. Except for the loop that takes the route between Britannia and Louis St. Laurent via Farmstead, the route operates as a bi-directional route, mostly along Ontario Street (Regional Road 25). Table 21 below shows the annual ridership and productivity of Route 9, and Table 22 shows the operation details.

Annual Ridership (2018)	Passengers per Revenue Hour	Passengers per Revenue Kilometre	Average Weekday Ridership	Average Population Density within 500m Buffer Area along Route (Statistics Canada 2016, persons per hectare)
18,619	5.5	0.22	74.2	15.66

Table 21 I Annual Ridership Details of Route 9 – Ontario South

	Trips	Service Span	Peak Headway	Off-Peak Headway
Weekday	27	05:19-22:41	30	60
Saturday	12	07:40-19:08	60	60
Sunday	No Service			

Table 22 I Weekday and Weekend Trip Details of Route 9 – Ontario South

Route 9, a relatively new route that began operation in April 2017, has the lowest ridership in the system, carrying only about 73 daily riders, and has the second lowest productivity (after route 10) at 5.1 trips per revenue hour. In addition to being a relatively new route, the area it serves between Bronte and Regional Road 25 south of Louis St. Laurent Avenue is not fully built out, and the area east of the alignment south of Louis St. Laurent currently is undeveloped. The route is also among the longest in the Milton Transit route network, and much of its alignment north of Louis St. Laurent is

duplicated by other Milton bus routes. Finally, there is a clear correlation between low ridership and operation on arterial streets as well as population density (will be discussed more in Chapter 3) in the Milton system, suggesting that an alignment using some combination of neighbourhood streets north of Louis St. Laurent could be more desirable.

Figure 40 I Route Map showing Route 9 – Ontario South

ROUTE 10 - FARMSTEAD

Unlike most of Milton Transit's fixed-route services that operate bidirectionally on most of their alignments, Route 10 operates as a large clockwise one-way loop from the Milton GO Station through Thompson Road, Derry Road, Santa Maria Boulevard, McLaughlin Avenue, Farmstead Drive, Louis St. Laurent Avenue, Bronte Street south to Britannia Road, then north up to Main Street and back to the Milton GO Station, as shown in Figure 41. The route alignment was recently changed, to serve Farmstead between Britannia and Louis St. Laurent, allowing it to potentially connect at the outer end with route 9. Like Route 2 and Route 6, Route 10 runs through downtown but does not have a stop west of Ontario Street. Route 10 operates from 5:15am to 9:58pm on weekdays and from 7:10am to 7:55pm on Saturdays. Route 10 interlines with selected Route 2 trips at the Milton GO Station. Table 23 below shows the annual ridership and productivity of Route 10, and Table 24 shows the operation details.

Annual Ridership (2018, 98 Days of Operation)	Passengers per Revenue Hour	Passengers per Revenue Kilometre	Average Weekday Ridership	Average Population Density within 500m Buffer Area along Route (Statistics Canada 2016, persons per hectare)
7,896	4.2	0.24	97.48	26.08

Table 23 I Annual Ridership Details of Route 10 – Farmstead

	Trips	Service Span	Peak Headway	Off-Peak Headway
Weekday	19	05:15-22:58	50	60
Saturday	13	07:10-19:55	60	60
Sunday	No Service			

Table 24 I Weekday and Weekend Trip Details of Route 10 - Farmstead

Route 10, Milton Transit's newest route, is the network's least productive route, at around 4 trips per revenue hour, and the second lowest total ridership route, carrying fewer than 100 trips per day. It shares many of the challenges of Route 9, with which it now connects along Farmstead Drive, including its length, the less than complete build out of the area between Bronte Road and Regional Road 25 south of Louis St. Laurent

Avenue, and the lack of development west of Bronte. The open loop alignment of the route is a further challenge, potentially making the route confusing and difficult to use for customers who do not live in the neighbourhood south of Louis St. Laurent Between Farmstead and Bronte. Customers using the route along Thompson, Derry, Santa Maria, or the portion of Bronte north of Louis St. Laurent, would face a long, out-of-direction trip either the inbound or outbound direction.

Figure 41 I Route Map of Route 10 - Farmstead

CONVENTIONAL FIXED-ROUTE SUMMARY

The analysis of the fixed-route network provides some direction for potential changes to the routes and for design of future routes. The first of these is that destinations at both ends of the route are very important to generating ridership. Route 2, the system's highest ridership route, has major destinations at both ends (Milton Hospital, Wal-Mart) and in the middle (Milton GO station, Bishop Reding High School). Another is that one-way loop routes, (routes 1A, 1B, and 10) generally do not generate high ridership, as they can be confusing for the customer and, in the case of route 10 (where there is no route in the other direction, as with routes 1A and B) require customers using them to make a long, out of direction trip on their inbound or outbound trip. In Milton, as in Oakville and Burlington, there is a clear *negative* correlation between ridership and routes operating on arterial roadways, with the most productive routes in the system operating almost entirely on neighbourhood streets, and avoiding Milton's congested, access-challenged arterials. Figure 42 on the next page shows how fences prevent pedestrian access to one of Milton's main corridor – Thompson Road, from adjacent development, and similar situation happens to almost all the main arterials.

Figure 42 I Thompson Road northbound between Laurier Avenue and McCuag Drive. Fences prevent access to Thompson Road from the adjacent development from both sides between the two crossing streets, a distance of 350 metres. On the western side, the fence continues

SCHOOL SPECIAL ROUTE 50, 51 & 52

Route 50, 51, and 52 are special secondary school connection routes provide student access to and from multiple secondary schools throughout Milton, during instructional school days. Route 50 runs one trip in the morning starting from Derry Road at Scott Boulevard at 7:34am and reaches Milton District High School at 8:00am. In the afternoon, the first trip leaves Jean Vanier Secondary School at 2:33pm and arrives at Derry Road and Scott Boulevard at 2:48pm. The second trip leaves Milton District High School at 3:00pm and arrives at Derry Road and Scott Boulevard at 3:15pm. Route 51 follows the same schedule but runs on a slightly different alignment serving neighbourhoods south of Derry Road. Route 52 only operates one afternoon trip that leaves Jean Vanier Secondary School at 2:33pm and arrives the Milton GO Station at 3:03pm. Figure 43 through Figure 45 shows the alignment of each route. Table 25, Table 27, and Table 29 below show the annual ridership and productivity of Route 50, 51, and 52, and Table 26, Table 28, and Table 30 show the operation details.

Annual Ridership (2018)	Passengers per Revenue Hour	Passengers per Revenue Kilometre	Average Weekday Ridership
11,810	47.4	3.15	63.2

Table 25 I Annual Ridership Details of School Special Route 50

	Trips	Service Span	Peak Headway	Off-Peak Headway
Weekday	3	07:34-08:00 14:33-15:18	-	-
Saturday	No Service			
Sunday	No Service			

Table 26 I Weekday and Weekend Trip Details of School Special Route 50

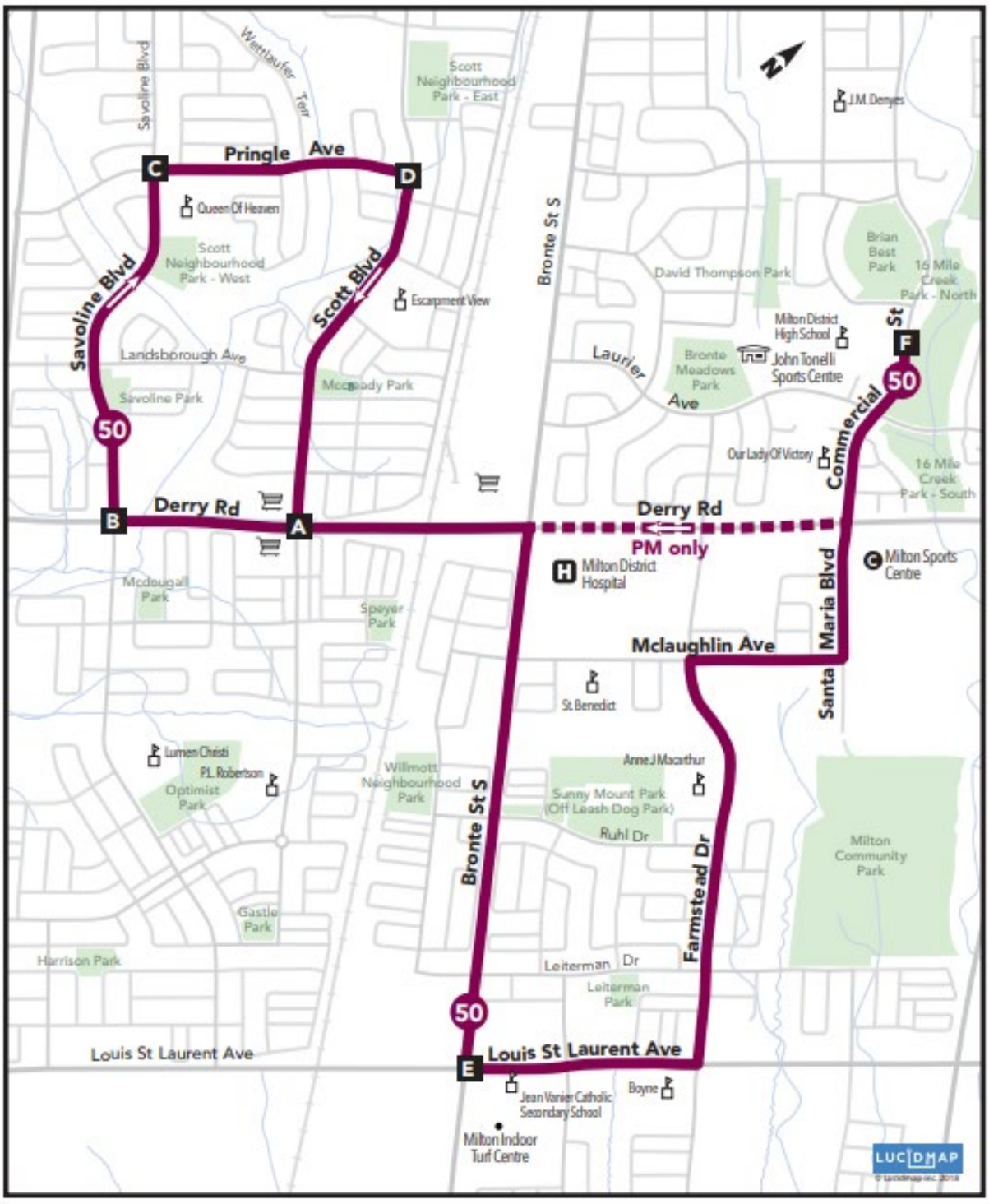


Figure 43 I Route Map showing School Special Route 50

Annual Ridership (2018)	Passengers per Revenue Hour	Passengers per Revenue Kilometre	Average Weekday Ridership
8,940	36.8	2.66	47.8

Table 27 I Annual Ridership Details of School Special Route 51

	Trips	Service Span	Peak Headway	Off-Peak Headway
Weekday	3	07:36-08:00 14:33-15:15	-	-
Saturday	No Service			
Sunday	No Service			

Table 28 I Weekday and Weekend Trip Details of School Special Route 51

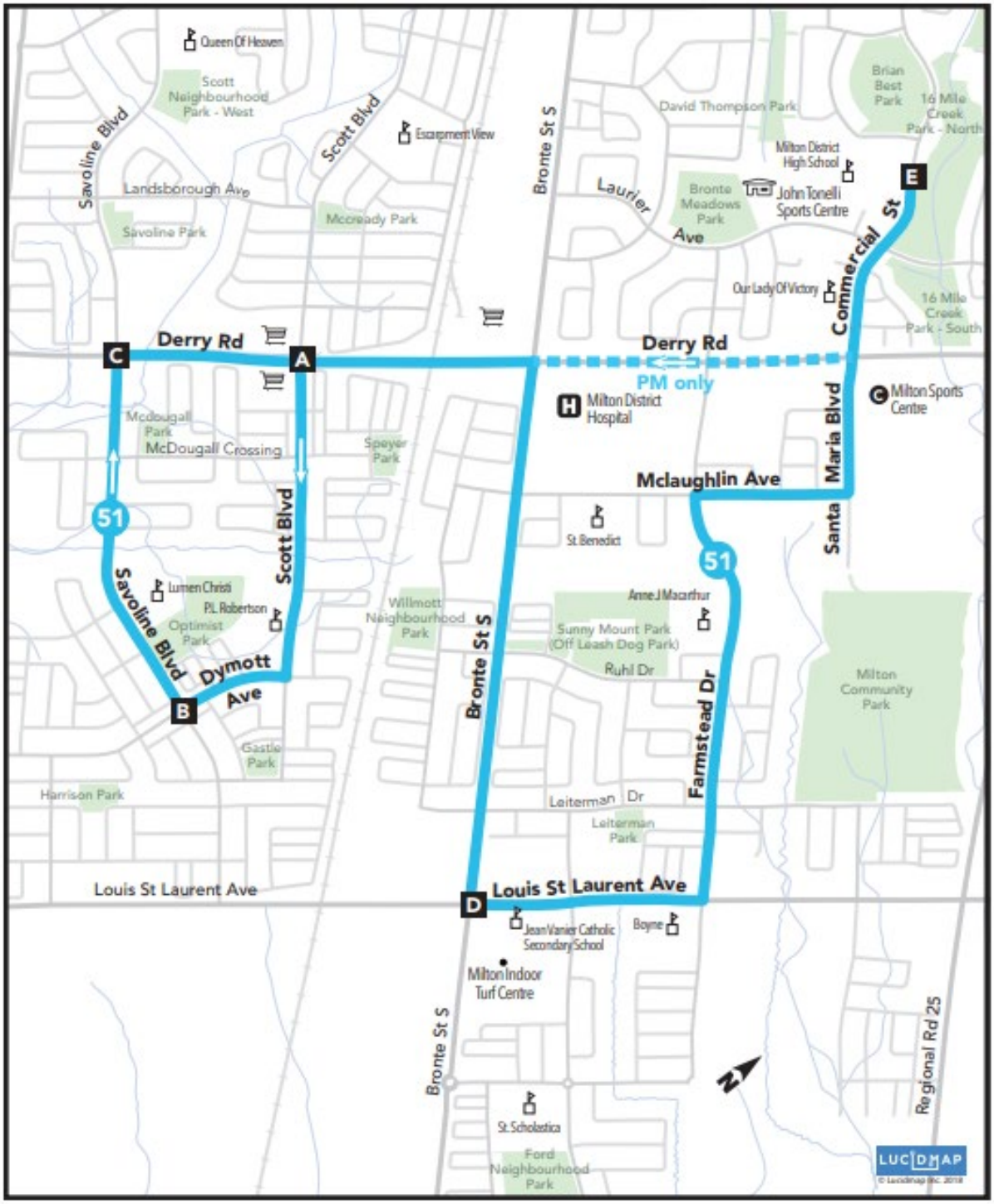


Figure 44 I Route Map showing School Special Route 51

Annual Ridership (2018)	Passengers per Revenue Hour	Passengers per Revenue Kilometre	Average Weekday Ridership
6,181	66.1	2.48	33.1

Table 29 I Annual Ridership Details of School Special Route 52

	Trips	Service Span	Peak Headway	Off-Peak Headway
Weekday	1	14:33-15:03	-	-
Saturday	No Service			
Sunday	No Service			

Table 30 I Weekday and Weekend Trip Details of School Special Route 52

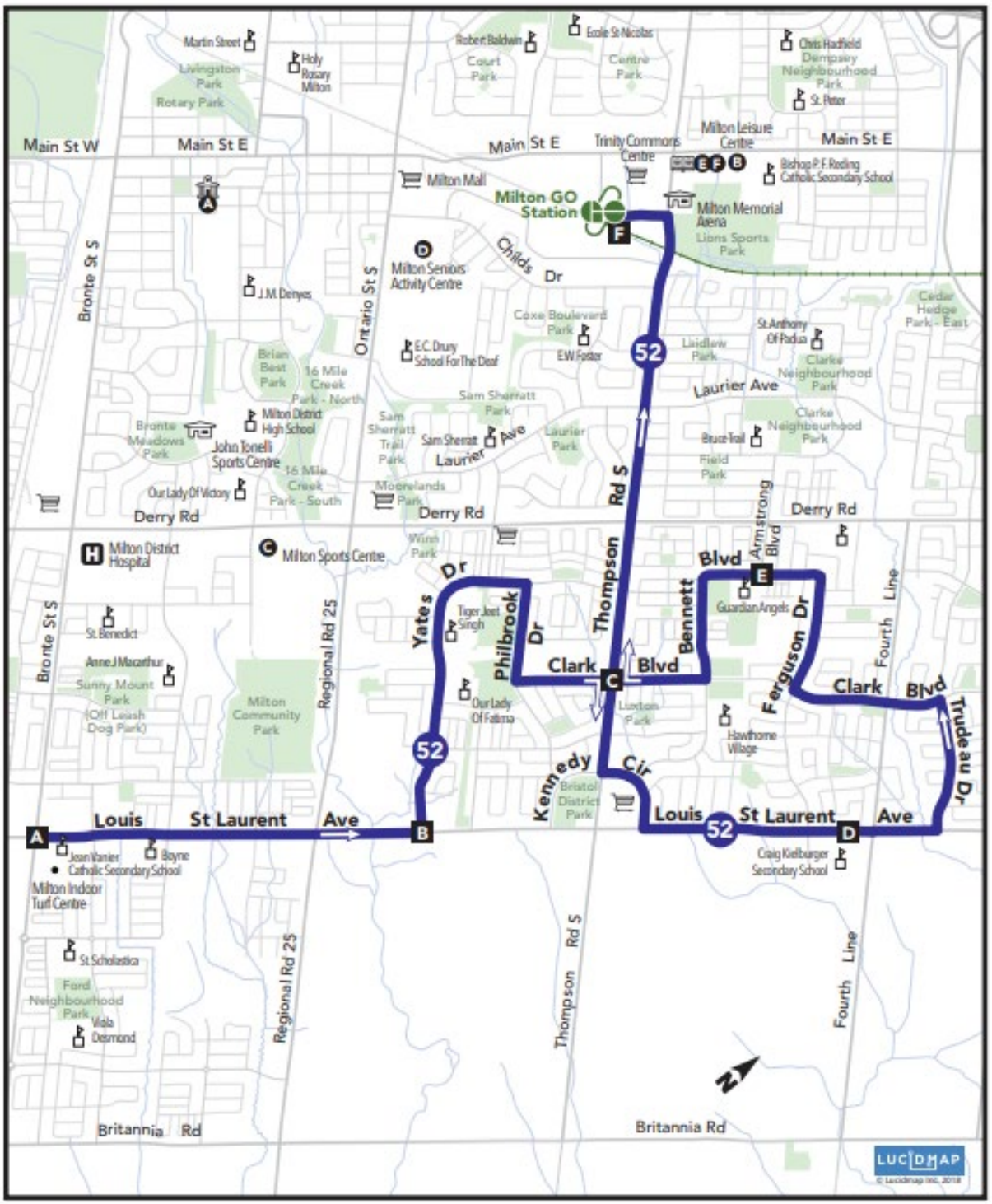


Figure 45 I Route Map showing School Special Route 52

EVENING GO DROP-OFF SERVICE

The evening GO drop-off service operates three routes and runs three trips on each route, from 5:59pm to 7:29pm. Each route operates in a defined zone between Main Street and Louis St. Laurent Avenue, shown in Figure 46 on the next page. Passengers are dropped off at the bus stops closet to their destination within the drop-off zone. Upon boarding, the operator will create a flex route that maximizes efficiency based on all the requested drop-off locations. Table 31 below shows the annual ridership and productivity of three GO Drop-off routes, and Table 32 shows the operation details.

Annual Ridership (2018)	Passengers per Revenue Hour	Passengers per Revenue Kilometre	Average Weekday Ridership
856 (30) 1,268 (31) 4,344 (32)	2.3 (30) 5.1 (31) 11.5 (32)	N/A	3.4 (30) 5.1(31) 17.31 (32)

Table 31 I Annual Ridership Details of the Evening GO Drop-Off Service

	Trips	Service Span	Peak Headway	Off-Peak Headway
Weekday	~3 per Route	17:58-19:28	30	-
Saturday	No Service			
Sunday	No Service			

Table 32 I Weekday and Weekend Trip Details of the Evening GO Drop-Off Service

The Evening Flex Routes provide convenient connections for GO Rail commuters who arrive at the station after Milton Transit has reduced service on its fixed-routes, but it does so at a very high cost per rider. The three routes together carry only about 25 trips per day, two thirds of them on one route (32). While Route 32's productivity is similar to that of some Milton Transit fixed routes, routes 30 and 31 are clearly below reasonable levels of productivity. More cost-effective solutions to provide this service, or changes to the fixed-route service that make it redundant, are a potential opportunity for Milton Transit to more cost effectively allocate its services.

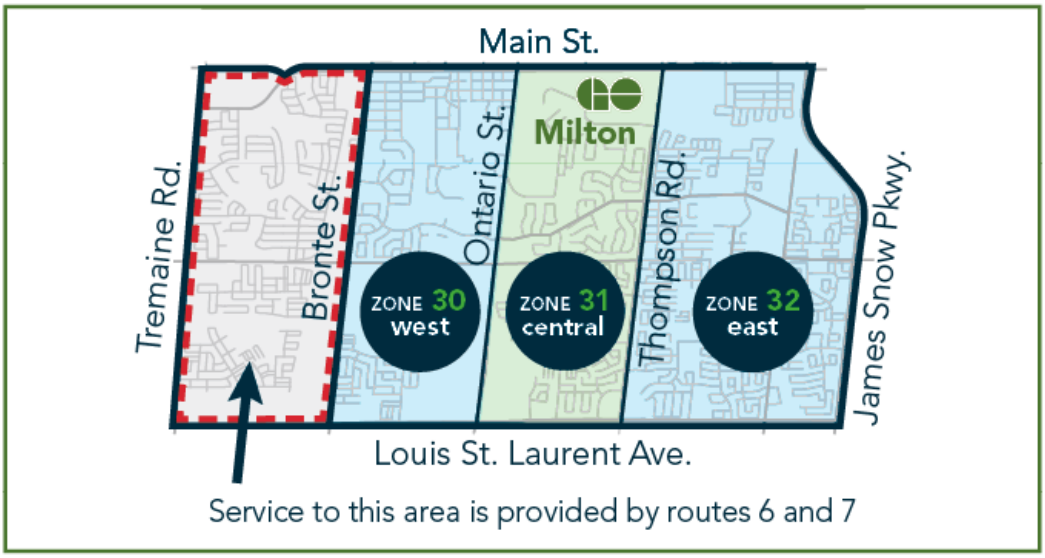


Figure 46 I Evening GO Drop-Off Service Zones

SERVICE DESIGN GUIDELINES

In addition to evaluating the performance of each individual route, WSP also compared each route against a series of service design guidelines that presents the best practices, which WSP developed over the years. Table 33 below summarize the guidelines and Table 34 provides a summary comparing each route again these guidelines.

Clockface Headways	Route Directness	High Frequency	Pulse Operation	Connectivity	Schedule Reliability	Transit Priority
✓ or ✗	✓ or ✗	✓ or ✗	✓ or ✗	✓ or ✗	✓ or ✗	✓ or ✗
Routes operate at regular intervals **(every 60, 30, 15, 10 or fewer minutes)**	Route alignment has few, or no, diversions from main arterial roads to connect to off-corridor destinations	The frequency of trips on the route (trips per hour) is high (10 minutes peak, 15 minutes off-peak, or better) on key routes and corridors	Multiple routes meet for transfers at a single location at regular intervals (usually hourly or half-hourly)	Routes connect to key destinations and to multiple routes **on both ends of the alignment**	Vehicles generally run on-time and arrive at time points within a few minutes after the times indicated on public timetables	Designated transit priority corridors receive more frequent service, travel time, reliability or stop improvements

Table 33 I Service Design Guidelines

NETWORK SERVICE DESIGN GUIDELINES REVIEW

ROUTE	TERMINI	CLOCKFACE HEADWAYS	ROUTE DIRECTNESS	HIGH FREQUENCY	PULSE OPERATION	CONNECTIVITY	TRANSIT PRIORITY
1A	Milton GO Rail Station	No clockface headways - operates during AM/PM peak only at 45-minute headways.	Operates as large loop but Route 1B operates in the opposite direction providing bi-directional service.	45 minutes during weekday AM/PM peak only.	Only certain trips meet pulse at Milton GO Rail Station since no clockfaced headways.	Milton GO Rail Station, Downtown Milton, and industrial and office parks north of Steeles Avenue/401	Operates along Main Street between Milton Go Rail Station and Ontario Street.
1B	Milton GO Rail Station	No clockface headways - operates during AM/PM peak only at 40-minute headways.	Operates as large loop but Route 1A operates in the opposite direction providing bi-directional service.	40 minutes during weekday AM/PM peak only.	Only certain trips meet pulse at Milton GO Rail Station since no clockfaced headways.	Milton GO Rail Station, Downtown Milton, and industrial and office parks north of Steeles Avenue/401	Operates along Main Street between Milton Go Rail Station and Ontario Street.
1C	Milton GO Rail Station; industrial park along Parkhill Drive in north/north west Milton.	Yes - operates hourly on Saturdays.	Provides bi-directional service between Milton Go Rail Station and north/northwest Milton (industrial park area) via downtown Milton.	60 minutes all day on Saturdays only - no weekday service.	Yes, meets Saturday hourly :10 pulse at Milton GO Rail Station.	Milton GO Rail Station, Downtown Milton, and industrial park at Parkhill Drive in north Milton.	Operates along Main Street between Milton Go Rail Station and Ontario Street.

ROUTE	TERMINI	CLOCKFACE HEADWAYS	ROUTE DIRECTNESS	HIGH FREQUENCY	PULSE OPERATION	CONNECTIVITY	TRANSIT PRIORITY
2	Milton GO Rail Station; Crossroads Centre (Walmart); Milton Hospital	Yes, operates every 30 minutes all day on weekdays and Saturdays.	Provides bi-directional service between Milton Go Rail Station (serves twice as it is located in middle of route), Crossroads Centre (Walmart), and Milton GO Rail Station and Milton Hospital.	30 minutes all day on weekdays and Saturdays.	Yes, meets every weekday and Saturday pulse (twice hourly).	Milton GO Rail Station, downtown Milton, Milton Hospital (7,8,10), Crossroads Centre (Walmart); Maple Crossing Riocan Plaza (1A/B).	Operates along Main Street between Maple Avenue and Bronte Street.
3	Milton GO Rail Station, Beaty Library (east Milton)	Yes, operates every 30 minutes during weekday AM/PM peaks and every 60 minutes during midday and Saturdays.	Provides bi-directional service between Milton GO Rail station and residential areas in east Milton.	30 minutes during weekdays AM/PM peaks and every 60 minutes during midday and Saturdays.	Yes, meets every pulse (twice hourly) during weekday AM/PM peaks and :10 pulse during midday and Saturdays.	Milton GO Rail Station and Beaty Library (4).	None.
4	Milton GO Rail Station, Beaty Library (east Milton)	Yes, operates every 30 minutes all day on weekdays and every 60 minutes on Saturdays.	Provides general bi-directional service between Milton GO Rail Station and residential areas in east Milton with loop at east end.	30 minutes all day during weekdays and every 60 minutes on Saturdays.	Yes, meets every pulse (twice hourly) during weekdays and :40 pulse on Saturdays.	Milton GO Rail Station; Beaty Library (3); Thompson Avenue (8, 10).	Operates along Thompson Road between Milton GO Rail Station and Kennedy Circle.

ROUTE	TERMINI	CLOCKFACE HEADWAYS	ROUTE DIRECTNESS	HIGH FREQUENCY	PULSE OPERATION	CONNECTIVITY	TRANSIT PRIORITY
5	Milton GO Rail Station, Coates neighbourhood Park South	Yes, operates every 30 minutes during weekday AM/PM peaks and every 60 minutes during midday and Saturdays.	Provides general bi-directional service between Milton GO Rail Station and residential areas in east Milton with loop at east/southeast end.	30 minutes during weekdays AM/PM peaks and every 60 minutes during midday and Saturdays.	Yes, meets every pulse (twice hourly) during weekday AM/PM peaks and :10 pulse during midday and Saturdays.	Milton GO Rail Station; Ontario Street (7, 9), and Holly Avenue (8, 10).	Operates along Ontario Street between Childs Drive and Laurier Avenue.
6	Milton GO Rail Station, Milton Sports Centre	Yes, operates every 60 minutes during midday and Saturdays. However, operates every 15-20 minutes during weekday AM/PM peaks.	Provides general bi-directional service between Milton GO Rail Station and residential areas in south Milton with loop at south end.	15-20 minutes during weekday AM/PM peaks and 60 minutes during midday and Saturdays.	Yes, generally meets every pulse (twice hourly) during weekday AM/PM peaks and :40 pulse during midday and Saturdays.	Milton GO Rail Station; Milton Sports Centre (7)	Operates along Main Street between Milton GO Rail Station and Scott Boulevard.
7	Milton GO Rail Station, Milton Sports Centre	Yes, operates every 60 minutes during midday and Saturdays. However, operates every 15-20 minutes during weekday AM/PM peaks.	Provides general bi-directional service between Milton GO Rail Station and residential areas in south Milton with loop at south end.	15-20 minutes during weekday AM/PM peaks and 60 minutes during midday and Saturdays.	Yes, generally meets every pulse (twice hourly) during weekday AM/PM peaks and :10 pulse during midday and Saturdays.	Milton GO Rail Station; Milton Sports Centre (6)	Operates along Main Street between Milton Go Rail Station and Ontario Street.

ROUTE	TERMINI	CLOCKFACE HEADWAYS	ROUTE DIRECTNESS	HIGH FREQUENCY	PULSE OPERATION	CONNECTIVITY	TRANSIT PRIORITY
8	Milton GO Rail Station; Willmott neighbourhood (southeast Milton)	Yes, operates every 30 minutes during weekday AM/PM peaks and every 60 minutes during midday and Saturdays.	Provides general bi-directional service between Milton GO Rail Station and residential areas in southeast Milton with loop at southeast end.	30 minutes during weekdays AM/PM peaks and every 60 minutes during midday and Saturdays.	Yes, meets every pulse (twice hourly) during weekday AM/PM peaks and :40 pulse during midday and Saturdays.	Milton GO Rail Station; Milton Hospital (2,7,10); Holly Avenue (5); Louis St Laurent Avenue (9)	Operates along Thompson Road between Milton GO Rail Station and Derry Road.
9	Milton GO Rail Station, Boyne neighbourhood (south Milton)	Yes, operates every 30 minutes during weekday AM/PM peaks and every 60 minutes during midday and Saturdays.	Provides general bi-directional service between Milton GO Rail Station and new residential areas in south Milton with loop at south end.	30 minutes during weekdays AM/PM peaks and every 60 minutes during midday and Saturdays.	Yes, meets every pulse (twice hourly) during weekday AM/PM peaks and :40 pulse during midday and Saturdays.	Milton GO Rail Station; Ontario Street (7); Derry Street (8); Farmstead Drive (8, 10).	Operates along Main Street between Milton Go Rail Station and Ontario Street; operates along Ontario Street between Main Street and Britannia Road.
10	Milton GO Rail Station; Ford neighbourhood (south Milton)	Yes, operates every 60 minutes during PM peak, midday and Saturdays. However, operates every 50 minutes during weekday AM peak.	Operates as large loop but Route 8 operates in the opposite direction providing some level of bi-directional service.	50 minutes during weekday AM/PM peaks and 60 minutes during midday and Saturdays.	Yes, generally meets every pulse (twice hourly) during weekday AM/PM peaks and :10 pulse during midday and Saturdays.	Milton GO Rail Station; Holly Road (5); Ontario Street (7,9); Derry Road (2, 7, 8)	Operates along Thompson Road between Milton GO Rail Station and Derry Road.

ROUTE	TERMINI	CLOCKFACE HEADWAYS	ROUTE DIRECTNESS	HIGH FREQUENCY	PULSE OPERATION	CONNECTIVITY	TRANSIT PRIORITY
30	Milton GO Rail Station	Yes, operates every 40 minutes during PM peak only.	Operates as flex service.	30 minutes during PM peak only.	No, operates off-pulse.	Operates as flex service.	Operates as flex service.
31	Milton GO Rail Station	Yes, operates every 40 minutes during PM peak only.	Operates as flex service.	30 minutes during PM peak only.	No, operates off-pulse.	Operates as flex service.	Operates as flex service.
32	Milton GO Rail Station	Yes, operates every 40 minutes during PM peak only.	Operates as flex service.	30 minutes during PM peak only.	No, operates off-pulse.	Operates as flex service.	Operates as flex service.
50	Various Milton Schools.	No, operates 3 trips per school day.	Operates in one-way direction to transport school kids between school and home.	Operates 3 trips per school day.	No, does not operate with pulse or to Milton GO Rail Station.	Operates in one-way direction to transport school kids between school and home.	Operates in one-way direction to transport school kids between school and home.
51	Various Milton Schools.	No, operates 3 trips per school day.	Operates in one-way direction to transport school kids between school and home.	Operates 3 trips per school day.	No, does not operate with pulse or to Milton GO Rail Station.	Operates in one-way direction to transport school kids between	Operates in one-way direction to transport school kids between school and home.

ROUTE	TERMINI	CLOCKFACE HEADWAYS	ROUTE DIRECTNESS	HIGH FREQUENCY	PULSE OPERATION	CONNECTIVITY	TRANSIT PRIORITY
						school and home.	
52	Various Milton Schools.	No, operates 1 trip per per school day.	Operates in one-way direction to transport school kids between school and home.	Operates 3 trips per school day.	No, does not operate with pulse or to Milton GO Rail Station.	Operates in one-way direction to transport school kids between school and home.	Operates in one-way direction to transport school kids between school and home.

Table 34 I Milton Conventional Transit Service Design Guidelines Review

PERFORMANCE RANKING

ALL-DAY FIXED-ROUTE

Table 35 through Table 37 provide annual boardings, boardings per revenue hour, and boardings per revenue kilometre in the year 2018 for each fixed-route service and rank them from high to low.

- Route 2 was the most heavily used route, at 124,616 boardings it was more than twice the second highest route – Route 3, at 68,526
- However, when it comes to productivity, Route 2 was only close to better than the median in Milton Transit's fixed-route system, at 14.6 boardings per revenue hour and 0.67 boardings per kilometre
- Route 3 was the most productive route, followed by Route 4
- Route 10 was the poorest performing route in the system. Although it only operated 98 days in 2018, its productivity only reached 4.2 boardings per revenue hour (lowest in the system) and 0.24 boarding per kilometre (second lowest in the system).

ROUTE	TOTAL ANNUAL BOARDINGS (2018)	RANK
2	124,616	1
3	68,526	2
7	66,873	3
4	64,266	4
6	53,403	5
	48,455	**Median**
8	43,506	6
5	38,173	7
1	31,501	8
9	18,619	9
10	7,896*	10

Table 35 I Ranking based on Total Annual Boardings (2018) by Route, for All-Day Fixed-Routes

ROUTE	BOARDINGS PER REVENUE HOUR	RANK
3	20.2	1
4	16.5	2
7	14.8	3
2	14.6	4
8	13.9	5
	13.2	**Median**
6	12.5	6
5	10.1	7
1	8.8	8
9	5.5	9
10	4.2	10

Table 36 I Rankings based on Boardings per Revenue Hour by Route, for All-Day Fixed-Routes

ROUTE	BOARDINGS PER REVENUE KILOMETRE	RANK
3	0.88	1
4	0.79	2
2	0.67	3
7	0.57	4
8	0.56	5
	0.55	**Median**
6	0.54	6
5	0.46	7
1	0.29	8
10	0.24	9
9	0.22	10

Table 37 I Rankings based on Boardings per Revenue Kilometre by Route, for All-Day Fixed-Routes

EVENING GO DROP-OFF SERVICE

Shown in Table 38 through , the evening GO drop-off service was another under-utilized service. Only Route 32 reached 10 boardings per revenue hour, which is still under the system median. Route 30 and 31 were among the lowest performed routes in the system, at 3 boardings per revenue hour and 4.6 boardings per revenue hour.

ROUTE	TOTAL ANNUAL BOARDINGS (2018)	RANK
32	4,344	1
31	**1,268**	**2**
30	856	3

Table 38 I Rankings based on Total Annual Boardings by Route, for Evening GO Drop-Off Services

ROUTE	BOARDINGS PER REVENUE HOUR	RANK
32	11.5	1
31	**5.1**	**2**
30	2.3	3

Table 39 I Rankings based on Boardings per Revenue Hour by Route, for Evening GO Drop-Off Services

ROUTE	BOARDINGS PER REVENUE KILOMETRE	RANK
30	N/A	-
31	N/A	-
32	N/A	-

Table 40 I Rankings based on Boardings per Revenue Kilometre by Route, for Evening GO Drop-Off Services

SCHOOL SPECIAL SERVICE

The three school special routes were the best performing routes for Milton Transit in 2018, with Route 52 topped at 66.1 boardings per revenue hour, as shown in Table 41 through Table 43. Most of these routes operates only 3 trips per day (Route 52 only operates one afternoon trip).

ROUTE	TOTAL ANNUAL BOARDINGS (2018)	RANK
50	11,810	1
51	**8,940**	**2**
52	6,181	3

Table 41 I Rankings based on Total Annual Boardings (2018) by Route, for School Special Services

ROUTE	BOARDINGS PER REVENUE HOUR	RANK
52	66.1	1
50	**47.4**	**2**
51	36.8	3

Table 42 I Rankings based on Boardings per Revenue Hour by Route, for School Special Services

ROUTE	BOARDINGS PER REVENUE KILOMETRE	RANK
50	3.15	1
51	**2.66**	**2**
52	2.48	3

Table 43 I Rankings based on Boardings per Revenue Kilometre by Route, for School Special Services

Table 44 and Table 45 show the percentage of total daily boardings for best and the worst performing routes in terms of both ridership and service productivity (number of boardings per revenue hour), respectively, and Figure 47 shows the difference in productivity.

ROUTE	AVERAGE WEEKDAY BOARDINGS (2018)	% OF AVG. WEEKDAY BOARDINGS	BOARDINGS PER REVENUE HOUR
1A/B Industrial	126	6%	8.8
2 Main	496	24%	14.6
3 Trudeau	273	13%	20.2
4 Thompson / Clark	256	12%	16.5
5 Yates	152	7%	10.1
6 Scott	213	10%	12.5
7 Harrison	266	13%	14.8
8 Wilmott	173	8%	13.9
9 Ontario South	74	4%	5.5
10 Farmstead	67	3%	4.2

Table 44 I Percentage of daily boardings by route – the best performing routes

ROUTE	AVERAGE WEEKDAY BOARDINGS (2018)	% OF AVG. WEEKDAY BOARDINGS	BOARDINGS PER REVENUE HOUR
1A/B Industrial	126	6%	8.8
2 Main	496	24%	14.6
3 Trudeau	273	13%	20.2
4 Thompson / Clark	256	12%	16.5
5 Yates	152	7%	10.1
6 Scott	213	10%	12.5
7 Harrison	266	13%	14.8
8 Wilmott	173	8%	13.9
9 Ontario South	74	4%	5.5
10 Farmstead	67	3%	4.2

Table 45 I Percentage of daily boardings by route - the worst performing routes

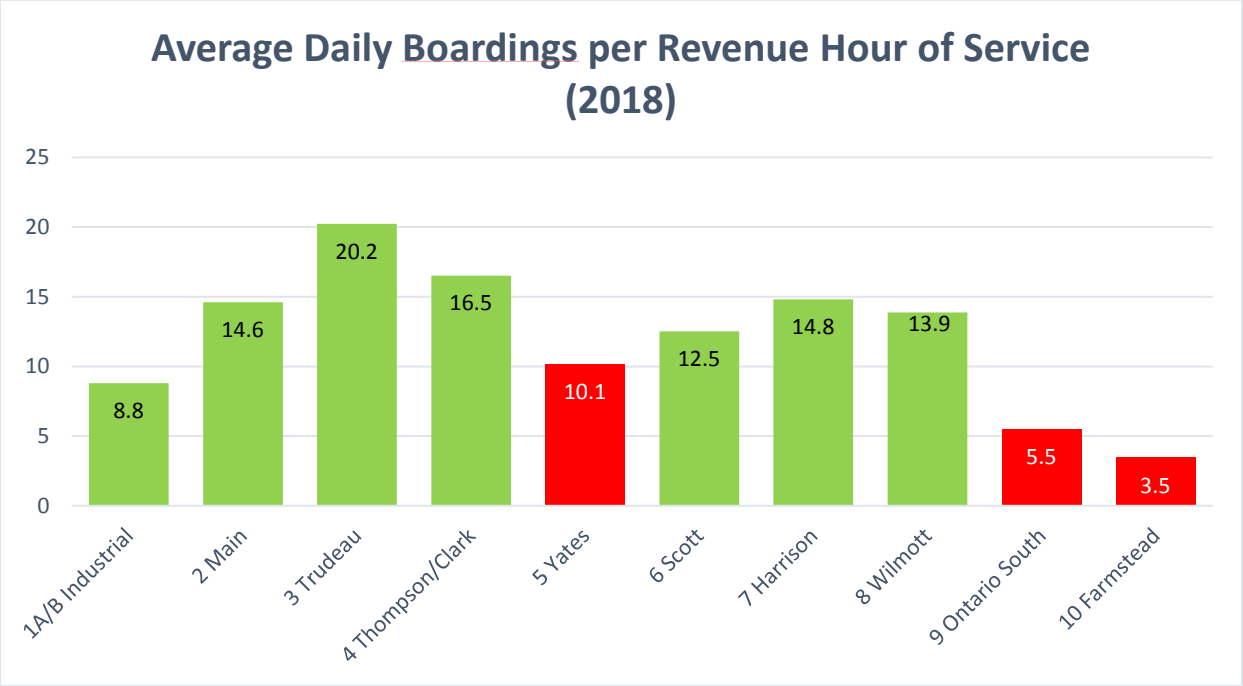


Figure 47 I Average daily boardings per revenue hour by route, 2018

RIDERSHIP BY STOP BY ROUTE

WSP also conducted a ridership analysis utilizing Milton Transit's recently implemented Automated Passenger Count (APC) system. The maps presenting derived average daily boardings from total boardings by route by stop for 2018 are shown in **Appendix 2**. The list below summarizes the assumed operating days based on schedules and public holidays between the final APC installment date March 14th, 2018 and December 31st, 2018 for each route:

- Route 1A / 1B: 199 days
- Route 1C: 42 days
- Route 2 – 9: 241 days
- Route 10: 98 days
- Route 50 – 52: 146 days

This analysis reveals several insights about ridership patterns in Milton:

- For most of the routes, the stops that had the highest boardings was the Milton GO Station and secondary schools
- The Milton Public Library, Drew Centre, and the Milton Leisure Centre along Main Street east of Thompson Road also generated high level of boardings

- Boarding activities on arterials were generally worse than neighborhood roads within subdivisions

FIXED-ROUTE SERVICE FREQUENCIES

Figure 48 and Figure 49 present peak frequency and midday frequency on the existing Milton Transit fixed-route system, respectively. During peak hours, most routes operate a 30-minute headway, with Route 6 and 7 up to 15-minute headway from 6:10am to 7:20am, and from 5:43pm to 6:58pm. Only Route 2, 4, and 6 operates at 30-minute headway during middays while other routes operate at an hour headway. Route 1A and 1B operates at a constant 45-minute headway during peak hours and cease operation during middays. Midday transportation demands into the 401 Business Park area is fulfilled by Trans-Cab. Route 10 operates at a constant 50-minute headway till 9:55am then reduces to an hour headway till the end of day. GO Train service only operates during peak hours.

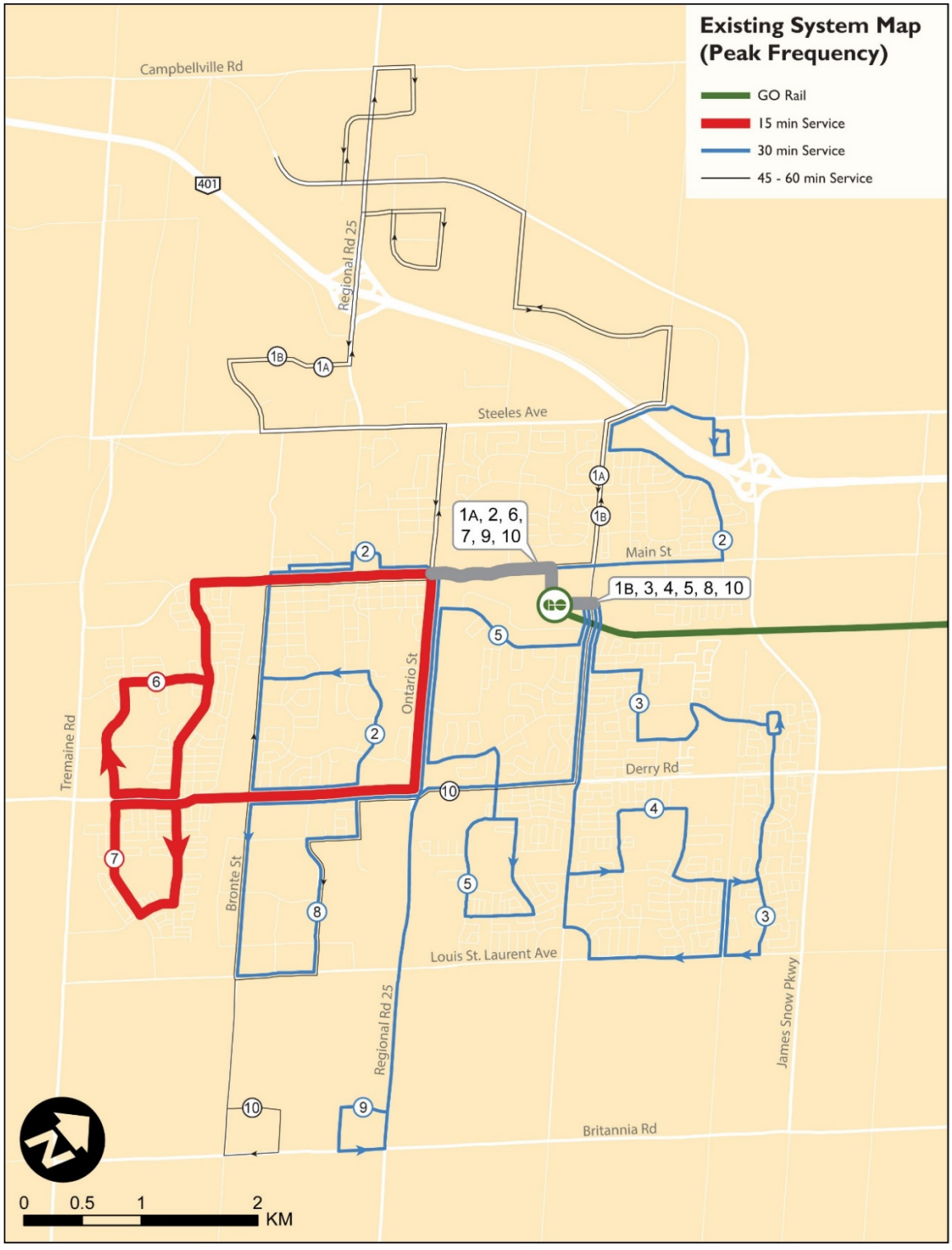


Figure 48 I Map of Milton's Existing Fixed-Route Transit System (Peak Frequency)

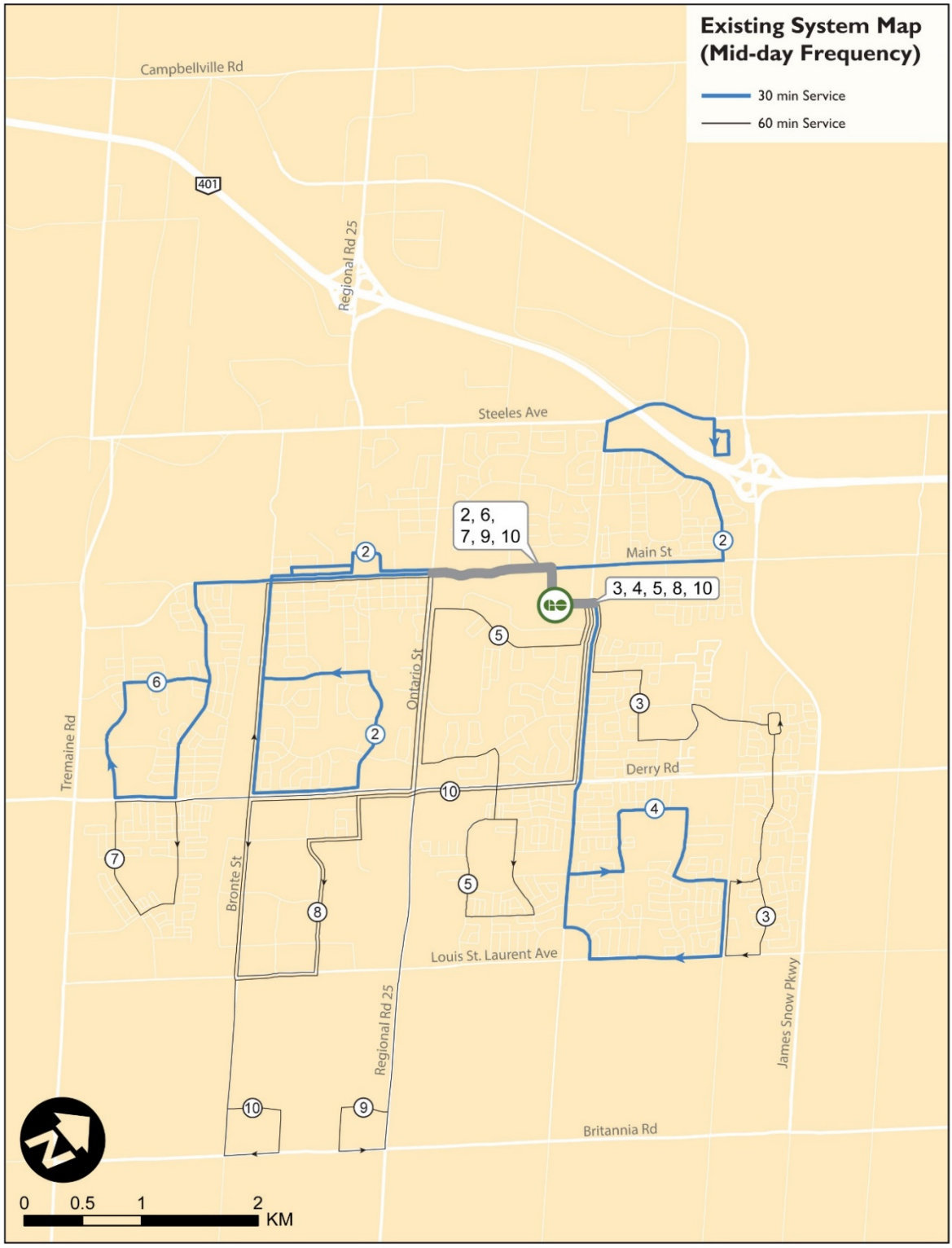


Figure 49 I Map of Milton's Existing Fixed-Route Transit System (Mid-day Frequency)

CONVENTIONAL ROUTE NETWORK PEER REVIEW

IDENTIFICATION OF PEERS

To better position Milton Transit's service in the context of "a smaller operation in a larger system" and to provide a picture of Milton's future transit service, a group of transit agencies across Canada has been selected. Peers are selected based on the following criteria:

- Operates fixed-route services
- Similar current population, or similar to Milton's projected population in 2031 by Halton Region BPE
- Has a college or university
- Suburb of a major city and served by regional transit/GO Transit

In addition, Burlington, Ontario and Oakville, Ontario were selected as Halton Region peers.

Below is a list of selected peer agencies based on the criteria, and are mapped in Figure 50. A few key indicators of transit operations for Milton Transit and its peers are presented in Table 46.

- Burlington, Ontario
- Oakville, Ontario
- Guelph, Ontario
- Peterborough, Ontario
- Barrie, Ontario
- Brantford, Ontario
- Nanaimo, British Columbia
- Chilliwack, British Columbia
- Airdrie, Alberta
- St. Albert, Alberta
- Strathcona County, Alberta

Figure 50 I Map of Selected Peer Agencies

City/Town	Service Area Population	Service Area Size (Sqkm)	Active Vehicles	Number of Fixed Routes	Revenue Vehicle Hours	Revenue Vehicle Kms	Boardings	Revenue Passengers	Regular Service Passenger Revenue	Total Operating Revenues	Total Direct Operating Expenses	Revenue to Cost Ratio	Total Direct Operating Cost per Passenger	Operating Expense/Revenue Hr.	Operating Expense/Revenue Km	Passengers/Revenue Vehicle Hour	Revenue Kms/Revenue Passenger
Milton, ON	103,922	38.5	23	9	38,341	1,079,643	541,053	494,209	$1,235,008	$1,403,457	$4,373,549	32%	$8.85	$114.07	$4.05	12.89	0.46
Oakville, ON	194,000	103.5	95	39	212,008	5,412,309	3,962,375	2,945,877	$7,511,419	$8,167,673	$25,514,135	32%	$8.66	$120.35	$4.71	13.90	0.54
Burlington, ON	179,236	98.0	52	26	162,898	3,746,937	3,087,114	1,952,624	$4,924,439	$5,471,494	$15,756,139	35%	$8.07	$96.72	$4.21	11.99	0.52
Guelph, ON	131,794	87.0	102	30	205,820	3,853,130	6,982,802	6,476,108	$11,696,803	$12,137,418	$27,054,852	45%	$4.18	$131.45	$7.02	31.46	1.68
Peterborough, ON	81,000	67.4	53	19	133,808	2,448,340	4,193,013	3,845,224	$5,021,958	$5,247,440	$12,279,576	43%	$3.19	$91.77	$5.02	28.74	1.57
Nanaimo, BC	105,863	0.0	52	-	121,598	-	3,077,620	3,077,620	$4,458,401	$4,458,401	$10,910,833	41%	$3.55	$89.73	-	25.31	-
Barrie, ON	135,543	113.0	48	11	171,130	3,372,947	2,707,396	2,677,396	$5,569,103	$5,854,180	$19,027,367	31%	$7.11	$111.19	$5.64	15.65	0.79
Strathcona County, AB	71,541	70.6	75	23	112,219	3,373,810	1,624,806	1,624,806	$4,621,654	$4,783,010	$16,601,801	29%	$10.22	$147.94	$4.92	14.48	0.48
Brantford, ON	98,225	75.1	30	15	77,400	1,857,121	1,900,703	1,435,449	$2,371,809	$2,930,153	$8,878,427	33%	$6.19	$114.71	$4.78	18.55	0.77
St. Albert, AB	65,589	49.4	0	25	95,227	2,224,096	1,437,566	1,105,820	$4,079,823	$4,348,621	$11,661,798	37%	$10.55	$122.46	$5.24	11.61	0.50

City/Town	Service Area Population	Service Area Size (Sqkm)	Active Vehicles	Number of Fixed Routes	Revenue Vehicle Hours	Revenue Vehicle Kms	Boardings	Revenue Passengers	Regular Service Passenger Revenue	Total Operating Revenues	Total Direct Operating Expenses	Revenue to Cost Ratio	Total Direct Operating Cost per Passenger	Operating Expense/Revenue Hr.	Operating Expense/Revenue Km	Passengers/Revenue Vehicle Hour	Revenue Kms/Revenue Passenger
Chilliwack, BC	58,505	0.0	12	-	35,236	-	651,978	651,978	$876,495	$876,495	$3,165,844	28%	$4.86	$89.85	-	18.50	-
Airdrie, AB	64,922	33.1	10	5	27,676	820,000	341,953	297,350	$1,392,103	$1,465,393	$2,658,772	55%	$8.94	$96.07	$3.24	10.74	0.36

Table 46 I Peer Comparison – Conventional Transit, 2017 CUTA

SPECIALIZED SERVICE SYSTEM REVIEW

INTRODUCTION

Milton Access+ provides specialized door-to-door transit service for seniors or persons with disabilities for trips that originate/destined for the Milton urban area but are wholly within the Town of Milton. Approval of an application, designed to determine the passenger's eligibility, is needed for him/her to utilize this service. Applications are reviewed on a case-by-case basis within 14 calendar days upon recipient. The passenger has the option to apply for specialized transit service in Burlington and Oakville while filing the application. The reviewing and approval process of the specialized transit application is handled by Oakville Transit. The service is contracted to PW Transit, including reservation, scheduling, and operation, using Milton branded mini-buses.

Milton Access+ operates from 5:00am to 11:00pm on weekdays and from 7:00am to 7:00pm on Saturdays – there are no Sunday or holiday service. Figure 51 shows the monthly ridership of Milton Access+ from January 2016 to October 2018.

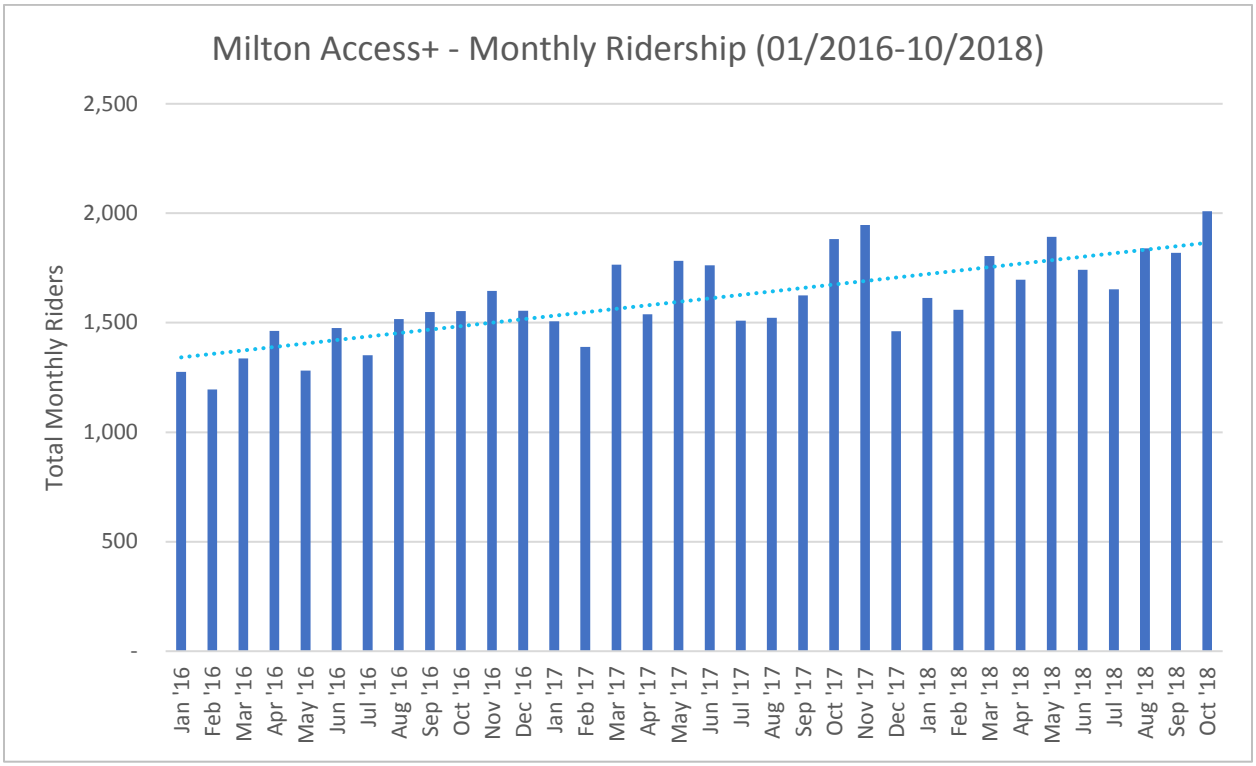


Figure 51 I Milton Access + - Monthly Ridership (2018)

SPECIALIZED SERVICE PEER REVIEW

WSP conducted peer review for Milton Transit's specialized services when compared to its peers, same ones as in the conventional transit peer review, based on 2017 CUTA Specialized Transit Statistics Report, some of the key indicators are presented in Table 47.

City/Town	Service Area Population	Service Area Size (Sqkm)	Total Vehicles	Revenue Vehicle Hrs (Dedicated Service)	Revenue Vehicle Kms (Dedicated Service)	Total Passenger Trips	Cancelled in Advance	Cancelled Late/No-Shows/Cancelled at Door	Passenger Revenues	Total Revenue	Total Operating Expenses	Revenue to Cost Ratio	Total Expense per Passenger	Operating Expense per Revenue Hr. (Dedicated Service)	Passengers per Revenue Vehicle Hour (Dedicated Service)	Revenue Kms per Passenger (Dedicated Service)
Milton, ON	117,667	380.0	-	-	-	19,691	-	-	$51,395	$51,395	$415,372	12.4%	$21.09	-	-	-
Oakville, ON	190,100	103.5	19	27,921	493,823	135,674	8,270	2,363	$288,200	$290,089	$3,638,406	8.0%	$26.82	$62.98	2.07	8.54
Burlington, ON	179,236	98.0	13	14,789	228,257	50,382	5,617	2,820	$74,563	$74,563	$1,690,581	4.4%	$33.56	$57.47	3.35	4.61
Guelph, ON	131,794	87.0	12	13,755	312,519	43,137	9,655	913	$24,105	$24,105	$2,059,520	1.2%	$47.74	$144.82	2.88	7.89
Peterborough, ON	81,000	67.4	10	17,706	258,189	37,472	3,744	1,048	$100,788	$100,788	$1,245,787	8.1%	$33.25	$59.39	2.12	6.89
Nanaimo, BC	133,815	-	-	25,317	-	67,905	-	-	$177,306	$177,306	$1,777,045	10.0%	$26.17	-	2.57	-
Barrie, ON	152,000	113.0	15	24,359	339,863	56,153	8,668	818	$52,243	$52,243	$1,187,948	4.4%	$21.16	$38.19	2.31	6.05
Strathcona County, AB	98,044	1,265.0	10	9,844	240,694	22,572	5,459	157	$112,174	$112,174	$1,199,529	9.4%	$53.14	$66.98	2.23	10.95
Brantford, ON	98,225	75.1	17	22,693	335,189	55,305	13,956	1,836	$105,329	$105,329	$1,605,038	6.6%	$29.02	$69.95	2.44	6.06

City/Town	Service Area Population	Service Area Size (Sqkm)	Total Vehicles	Revenue Vehicle Hrs (Dedicated Service)	Revenue Vehicle Kms (Dedicated Service)	Total Passenger Trips	Cancelled in Advance	Cancelled Late/No-Shows/Cancelled at Door	Passenger Revenues	Total Revenue	Total Operating Expenses	Revenue to Cost Ratio	Total Expense per Passenger	Operating Expense per Revenue Hr. (Dedicated Service)	Passengers per Revenue Vehicle Hour (Dedicated Service)	Revenue Kms per Passenger (Dedicated Service)
St. Albert, AB	64,645	49.4	5	9,363	128,557	18,100	2,834	448	$51,229	$51,229	$841,037	6.1%	$46.47	$69.64	1.84	7.46
Chilliwack, BC	84,790	-	-	11,623	-	44,964	-	-	$72,826	$140,186	$934,696	15.0%	$20.79	-	2.82	-
Airdrie, AB	64,922	33.1	-	1,445	13,964	5,120	-	-	$15,213	$89,742	$405,125	15.3%	$19.46	$51.30	3.28	2.95

Table 47 I Peer Comparison – Specialized Transit, 2017 CUTA

TRANSPORTATION NETWORK

Milton Transit operates on the same local and regional roads as other vehicular traffic, and is affected by the same traffic congestion. Both Milton and Halton Region have planned improvements to the roadway network, to meet the diverse needs of their growing populations and workforces.

ROADWAY LEVEL OF SERVICE

Figure 52, Figure 53, and Figure 54 show existing and 2031 estimated roadway volume-to-capacity and two different future traffic growth scenarios, labeled 2A and 2B. These future scenarios accounting for both traffic growth in response to local and regional population and employment growth, and planned and programmed improvements to the roadway network.

Scenario 2A is the preferred alternative that includes the construction of 5 ½ Line and a new interchange on Highway 401, in addition to the extension of Main Street to Trafalgar Road and the extension of Louis St. Laurent Avenue to Sixth Line. Table 48 below summarizes the proposed road improvements in Scenario 2A.

NO.	ROAD	FROM	TO	ADDITIONAL LANES PER DIRECTION		K.M.
				WIDENING	EXTENSION	
1	Fifth Line	Main Street East	Britannia Road	2	-	4.93
2	Savoline Boulevard	Pringle Avenue	Derry Road	1	-	1.04
3	Louis St. Laurent Avenue	James Snow Parkway	Regional Road 25	2	-	3.43
4	Ontario Street South	Derry Road	Main Street East	-2 (convert to H.O.V)	-	1.84
5	Main Street East	Fifth Line	Trafalgar Road	-	2	2.76
6	Louis St. Laurent Avenue	James Snow Parkway	Sixth Line	-	4	2.11

Table 48 I Proposed road improvement in Scenario 2A

Scenario 2B is recommended if a new interchange at 5 ½ Line and Highway 401 will not be constructed. Under this scenario, 5 ½ Line would be recommended between Main Street and Britannia Road, and Fifth Line would be widened as a main arterial. Table 49 below summarizes the proposed road improvements in this scenario.

NO.	ROAD	FROM	TO	ADDITIONAL LANES PER DIRECTION		K.M.
				WIDENING	EXTENSION	
2	Savoline Boulevard	Pringle Avenue	Derry Road	2	-	1.04
3	Louis St. Laurent Avenue	James Snow Parkway	Regional Road 25	2	-	3.43
4	Ontario Street South	Derry Road	Main Street East	-2 (convert to H.O.V)	-	1.84
7	5 1/2 Line	Main Street East	Britannia Road	-	4	4.93
5	Main Street East	Fifth Line	Sixth Line	-	4	1.39
6	Louis St. Laurent Avenue	James Snow Parkway	Sixth Line	-	4	2.11

Table 49 I Proposed road improvement in Scenario 2B

In both 2031 scenarios, the volume to capacity ratio on Main Street, Derry Road, Britannia Road, Trafalgar Road, and all the north-south roads in the established urban area indicate traffic congestion may be an issue. Transit priority treatment is proposed on Steeles Avenue, Britannia Road, Regional Road 25, and Trafalgar Road, but some level of transit priority should be considered on all of these corridors to promote transit operating speed and reliability as traffic volumes grow in the coming years.

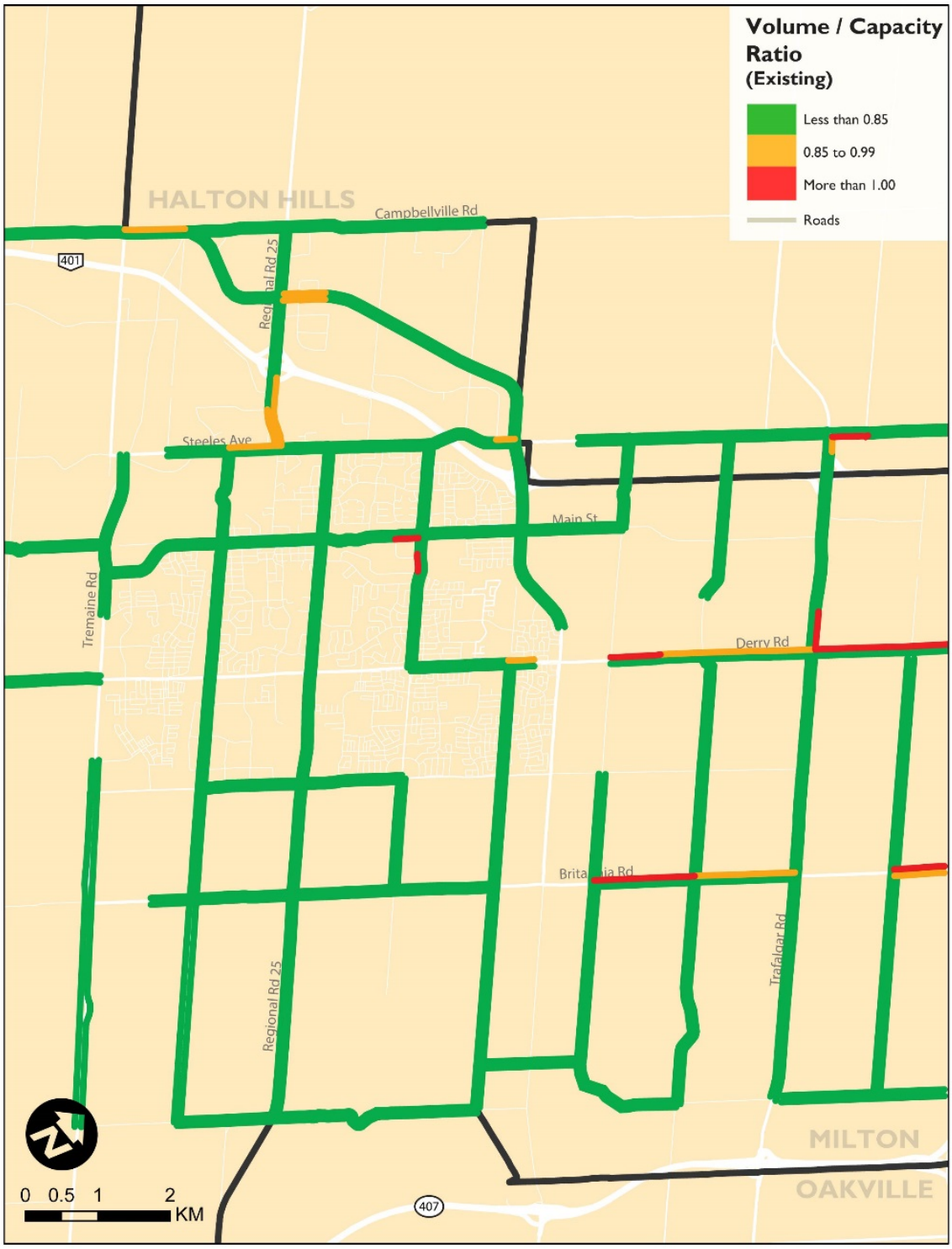


Figure 52 I Existing volume to capacity ratio in Milton Urban Area

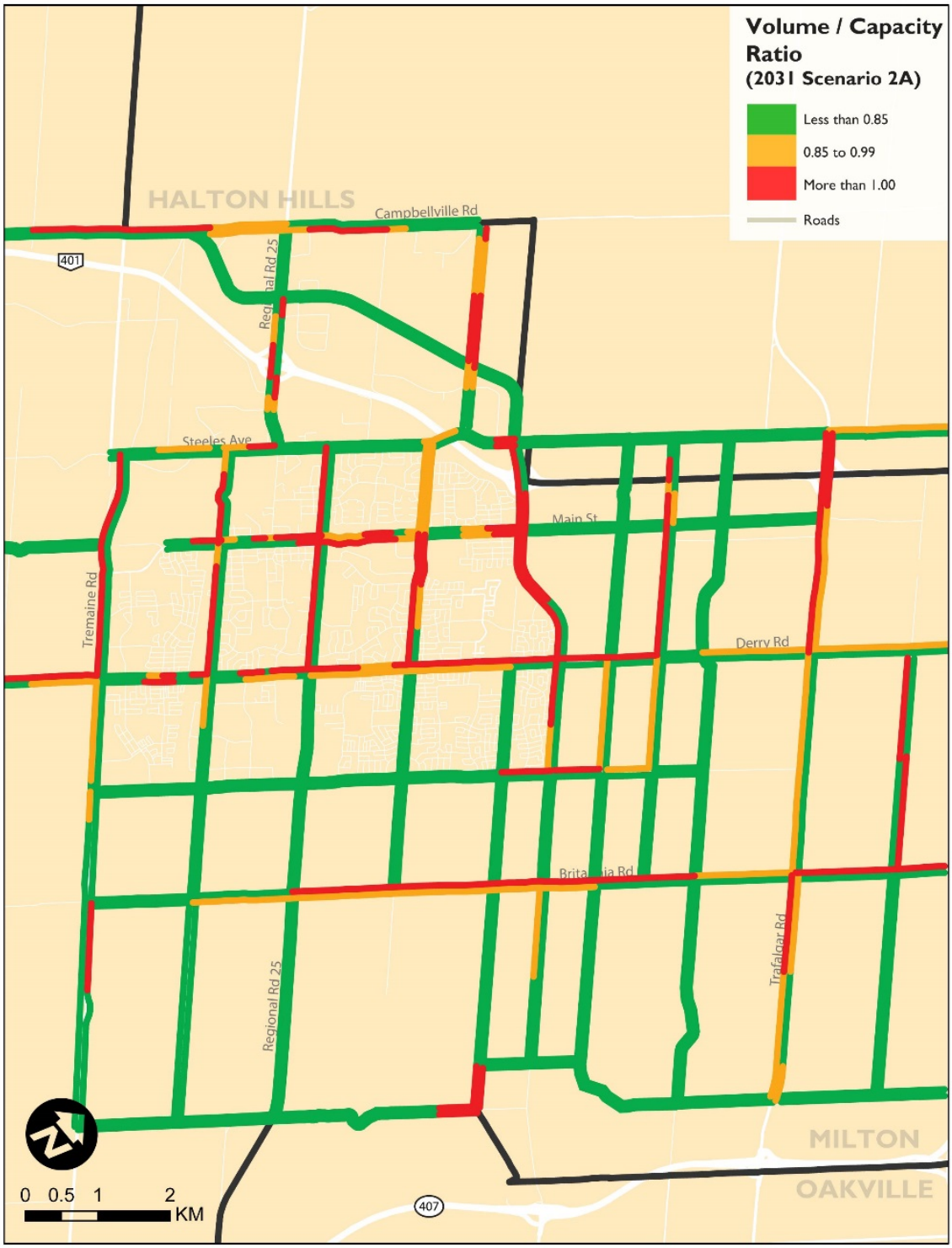


Figure 53 I Volume to capacity ratio under Scenario 2A in Milton Urban Area

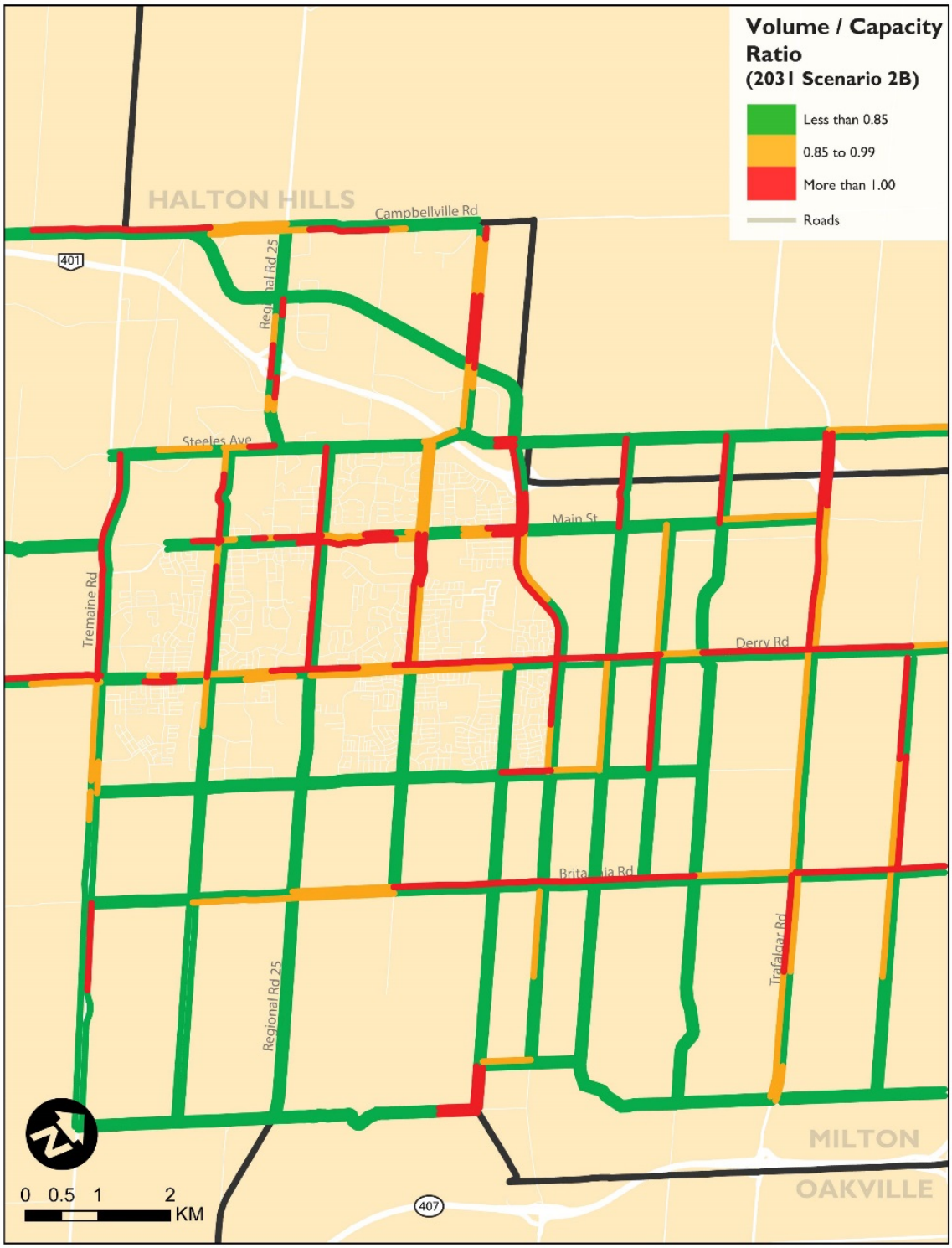


Figure 54 I Volumes to capacity ratio under Scenario 2B in Milton Urban Area

EXISTING FARE STRUCTURE AND POLICY REVIEW

EXISTING MILTON TRANSIT FARE STRUCTURE

Milton Transit adopted its current Fare Structure/Table in January 2018, shown in Table 50 below. Prior to this change, fares changed on an 'as needed basis', usually linked to an increase in services.

FARE CATEGORIES	PRICE
Adult: 20 – 64 years	
Exact Cash Fare	$3.75
Tickets (book of 10-ride)	$30.00
Monthly Pass (unlimited rides)	$81.00
Youth: 6 – 19 years	
Exact Cash Fare	$3.75
Tickets (book of 10-ride)	$22.00
Monthly Pass (unlimited rides)	$60.00
Senior: 65+ years	
Exact Cash Fare	$3.75
Tickets (book of 10-ride)	$21.00
Monthly Pass (unlimited rides)	$52.00
Other	
Day Pass: All ages One adult or senior and up to three youth ages 6-19 years	$8.50
Child: 5 years and under Must be accompanied by a fare paying passenger	Free
Person with Vision Loss CNIB card holder with valid ID	Free
Transfers: All ages Issued upon request to cash and ticket paying customers upon boarding. A transfer is required if you need more than one bus to get to your destination. The cut end of the transfer indicates the expiry time to board your second bus. Stopovers are not permitted.	Free

GO Transit Fare Integration	
Cash Fare	$0.75
Monthly Pass (unlimited rides)	$30.00

Table 50 | Milton Transit Fare Structure as of January 2018

Table 51 shows Milton Transit's adult cash fare along with a few transit agencies in the surrounding communities. Most of these agencies have set their cash fare at or close to Milton Transit's fare at $3.75.

City/Town	Adult Cash Fare
Milton	$3.75
Burlington	$3.50
Brampton	$4.00
Guelph	$3.00
Halton Hills*	$3.00
Mississauga	$3.75
Oakville	$4.00

**Halton Hills only operates specialized transit service*

Table 51 | Adult cash fare in surrounding communities as of January 2018

The Plan evaluated the current fare structure with 2017 year-ending data from operating reports provided by Milton Transit. That analysis revealed that the agency has achieved a credible 65% of riders using pre-paid fare products (pass and tickets), but a significant percentage (35%) of Milton Transit's ridership still pay using cash. Those paying cash pay the highest fares because they receive no discount. The hidden costs of accepting cash are the cost of collecting, handling and reconciling cash as well as fare evasion especially shorting the fare, which was mentioned by Milton Transit drivers as a common occurrence and, most importantly, the dwell time costs that each bus expends when riders pay their fares with cash. Transport for London has eliminated cash fares and San Francisco Muni and Washington's WMATA have piloted programs to eliminate cash on their systems for these same reasons. Concurrent with the adoption of an advanced revenue collection system, Milton Transit should also consider eliminating cash fare payment.

Eliminating cash should only be considered to coincide with the implementation of an advanced fare payment and revenue collection system that would provide multiple payment options to seniors, the disabled, students and low-income riders. In particular, an account-based fare payment option should be developed that meets the special needs of riders of accessible services compliant with the Accessibility for Ontarians with Disabilities Act (AODA).

Students and Seniors comprise more than 44% of Milton Transit's ridership and both categories of those riders ride on discounted or concession fares. While these discounts drive up ridership, they also drive down the average fare per passenger ($2.55 vs. $3.75 cash fare)[10]. This 32% discount from the full cash fare is also 30% of Milton Transit's cost of a single passenger trip ($8.49)[11].

The analysis of Milton Transit's Fare Sales by Category showed that Bus Tickets have been the largest selling fare products in both the Adult and Youth categories. High ticket sales are commendable because they are pre-paid products, although under the current Fare Policy and Revenue Collection Strategy, these tickets are paper requiring that they be verified, inventoried, distributed, collected and reconciled adding additional costs to sell and control. Advanced revenue collection systems that are account-based handle the distribution, sale and transaction of tickets electronically eliminating these costs while still offering tickets as a concession fare.

It is important for a system of Milton Transit's size to keep its fare structure simple. This allows for the adoption of a revenue collection system that would enhance the rider experience by being convenient, easy to use and result in a lower revenue collection cost for Milton Transit.

[10] CUTA – Canadian Transit 2017 Fact Book

[11] CUTA – Canadian Transit 2017 Fact Book

TRANSIT MARKET ANALYSIS

Understanding the demographic and socio-economic patterns helps in understanding the existing and potential transit market in a given area. A review of these patterns can identify areas with the greatest propensity for transit demand, as transit use tend to correlate with certain development and/or population characteristics, including but not limited to high population and employment density, lower auto ownership and household income, and concentrations of senior.as well as youth population. WSP analyzed the transit market in Milton and forecast market changes over the next five years, ten years, and beyond, as Milton continues to develop. This section includes a review of the Town's current and projected population and employment density, demographics, existing and future land use, on-going and future development, the locations of key travel destinations (both within and outside Milton) and input from Town staff and leaders, stakeholders, transit users and members of the public. WSP also reviewed the many previous transit, transportation, land use and other plans and studies whose goals, analysis and recommendations are relevant to developing plans for Milton's transit system over the next five years. This analysis also includes a review of alternative service delivery models, many of which address both conventional and special transportation needs, and new vehicle types and their applicability to Milton's existing and future transit market needs.

MILTON POPULATION

Milton is one of the fastest growing places in Canada. In 2017, Maclean's identified Milton as the sixth fastest growing city in Canada, and the fastest growing in Ontario, with a population of 107,247[12] and an annualized five-year growth rate of 3.3%. As the graph in Figure 55 shows, Milton's population has grown 50% since 2009, from 80,000[13] in 2009 to an estimated 120,230[14] in 2018. This works out to an annualized growth rate of 4.9% over the period. On average, the town added about 4,470 residents every year between 2009 and 2018.

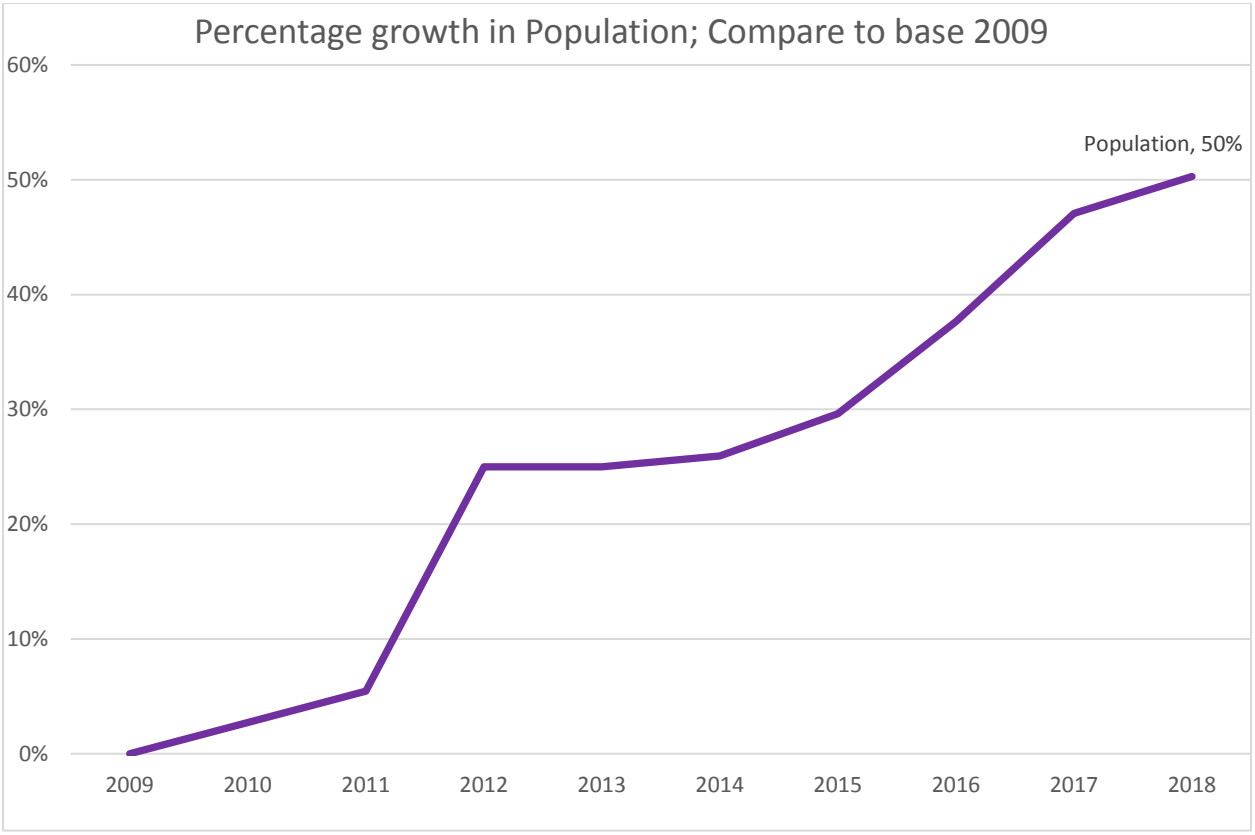


Figure 55 I Percentage of population growth compared to 2009

POPULATION DENSITY

[12] From article: *Canada's Fastest Growing Cities 2017*, posted on Maclean's https://www.macleans.ca/economy/canadas-fastest-growing-cities-2017/

[13] From Milton Transit CUTA submission

Estimated population density in 2016 is shown in Figure 56, derived from total population in 2016 Statistics Canada Census data. Density for most of Milton's urban area exceeds 10 persons per hectare, with density in some areas in the range of 50 – 100 persons per hectare, including the following areas served by Milton Transit:

- Thompson Road and James Snow Parkway, currently served by Milton Transit routes 3 and 4, and;
- Bronte Street and Tremaine Road, currently served by routes 6 and 7.

A few areas in Milton have a population density that exceeds 100 persons per hectare, including the following specific areas:

- Millside Drive, including residential apartment units located east of the historic downtown, currently served by route 2;
- Bollingbroke Drive, including southern residential, currently served by route 5; and
- Scott Boulevard at Derry Road, residential areas, currently served by route 7.

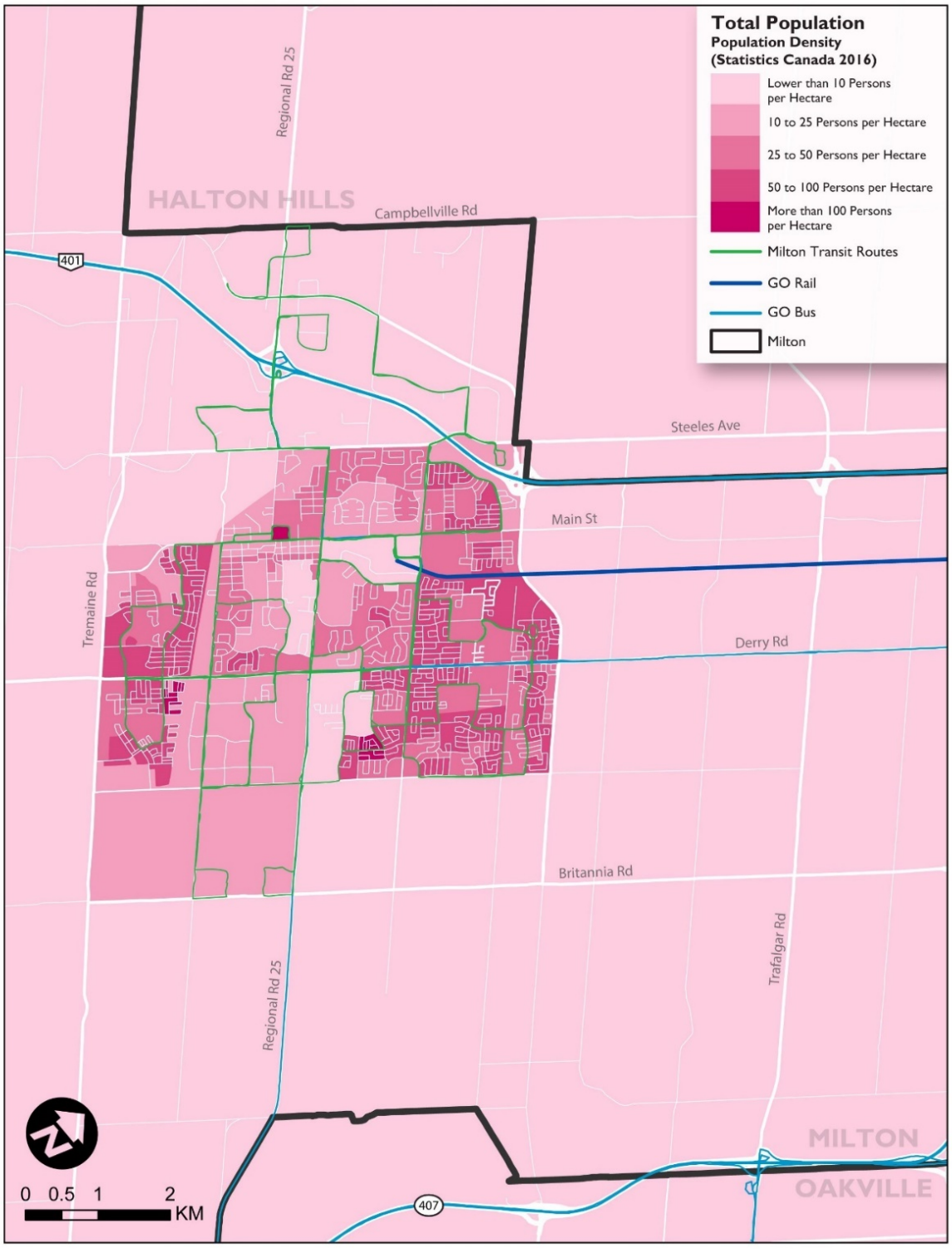


Figure 56 | Total population density per hectare, Statistics Canada (2016)

POPULATION GROWTH

To further examine the trend of population growth in Milton, WSP reviewed the Halton Region's Best Planning Estimates (BPE) data, which provides estimations for population, employment, and the number of dwelling units to 2031, to the best knowledge and understanding possible by Regional and Local Municipal, at the time when the estimates were made. Due to the nature of estimation, these numbers represent only trends and possibilities rather than solid numbers committed by Regional and Local Municipalities, and therefore could show a certain level of inconsistency when compared to the Census data. This is examined in more detail later in this section. Figure 57 is a graph showing projected population for 2016, 2021, 2026 and 2031, based on the BPE data. Milton's population is projected to grow by 83.0% through 2031, from 124,645 in 2016 to 228,084 in 2031. This represents and annualized growth rate of 4.1 percent, or, in practical terms, the addition of about 6,900 new residents, on average, every year from 2016 to 2031.

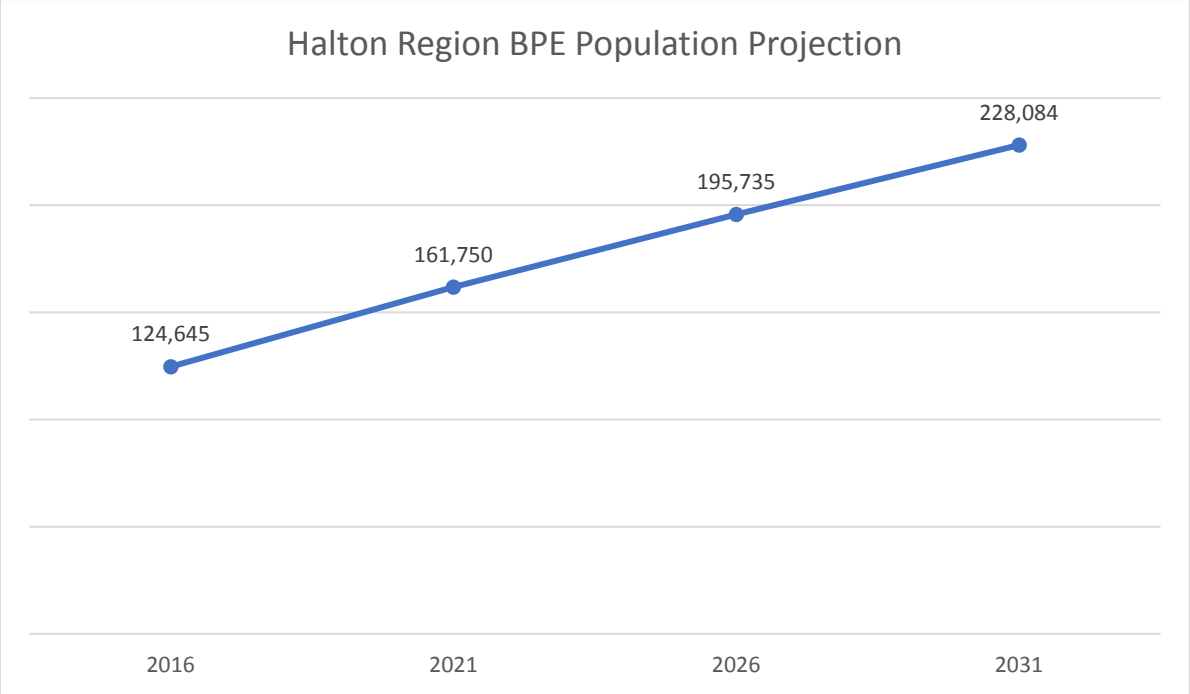


Figure 57 I Halton Region BPE population projection, from 2016 to 2031

Figure 58 shows the number of dwelling units in Milton through 2031. Milton is projected to have 80,293 dwelling units in 2031, up from 41,963 in 2016. This represents an 91.3% increase, or 4.4% annual increase over the 2016-2031 period. Through this period, Milton is projected to add about 2,555 dwelling units, on average, every year.

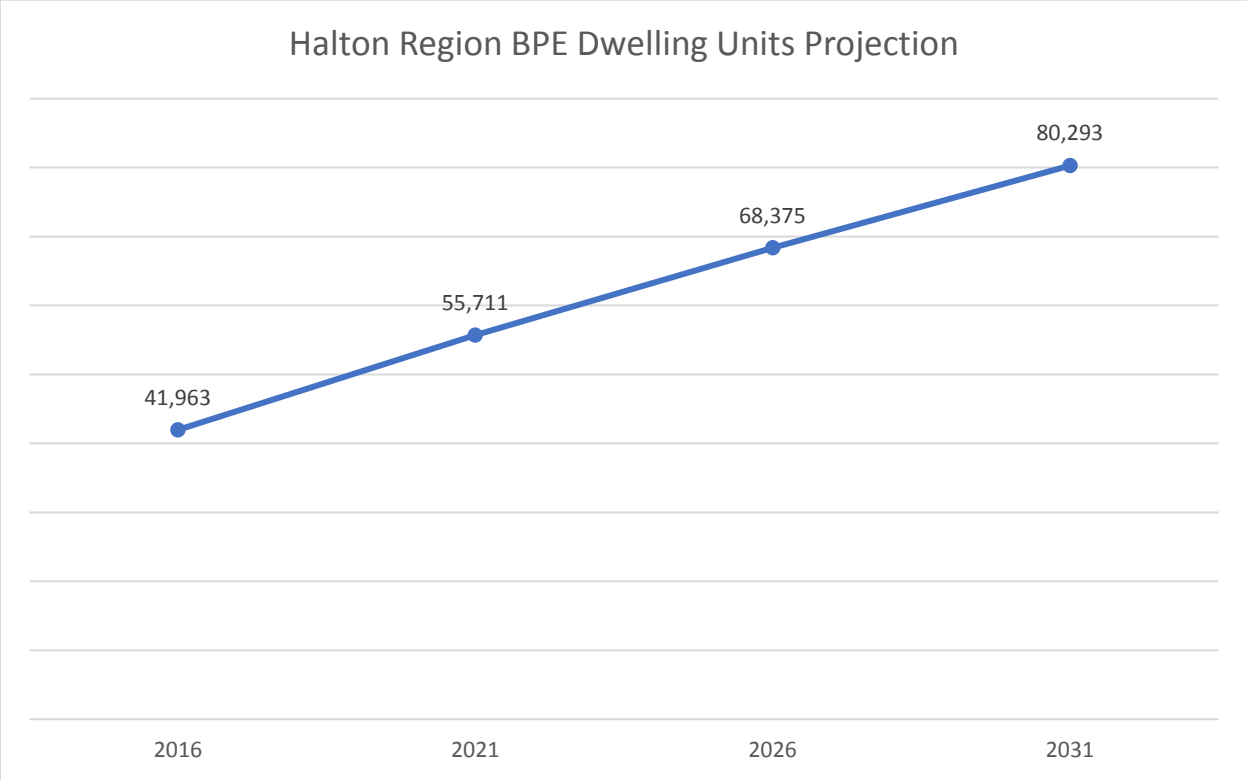


Figure 58 I Halton Region BPE dwelling units projection, from 2016 to 2031

The population density projection of 2016, 2021, 2026, and 2031 are mapped in Figure 59 through Figure 62. Comparing to 2016 Census data, the BPE projections match the density pattern for most of Milton, excluding some undeveloped areas within the 401 Industrial Park- Highway 401, Peru Road, Steeles Avenue, and Tremaine Road- as well as density in the Boney Survey area, which was not as high as projected by the BPE.

According to the BPE projections, intensification around the GO Station area will be evident, and the infill development in the Boney Survey area will be completed, by 2021. For 2026 and 2031, development will expand into the outer periphery of the existing urban area along Britannia Road and along Trafalgar Road. Although having hit some obstacles, planning of Milton Education Village is ongoing in 2019, and is projected to be part of future development in Milton.

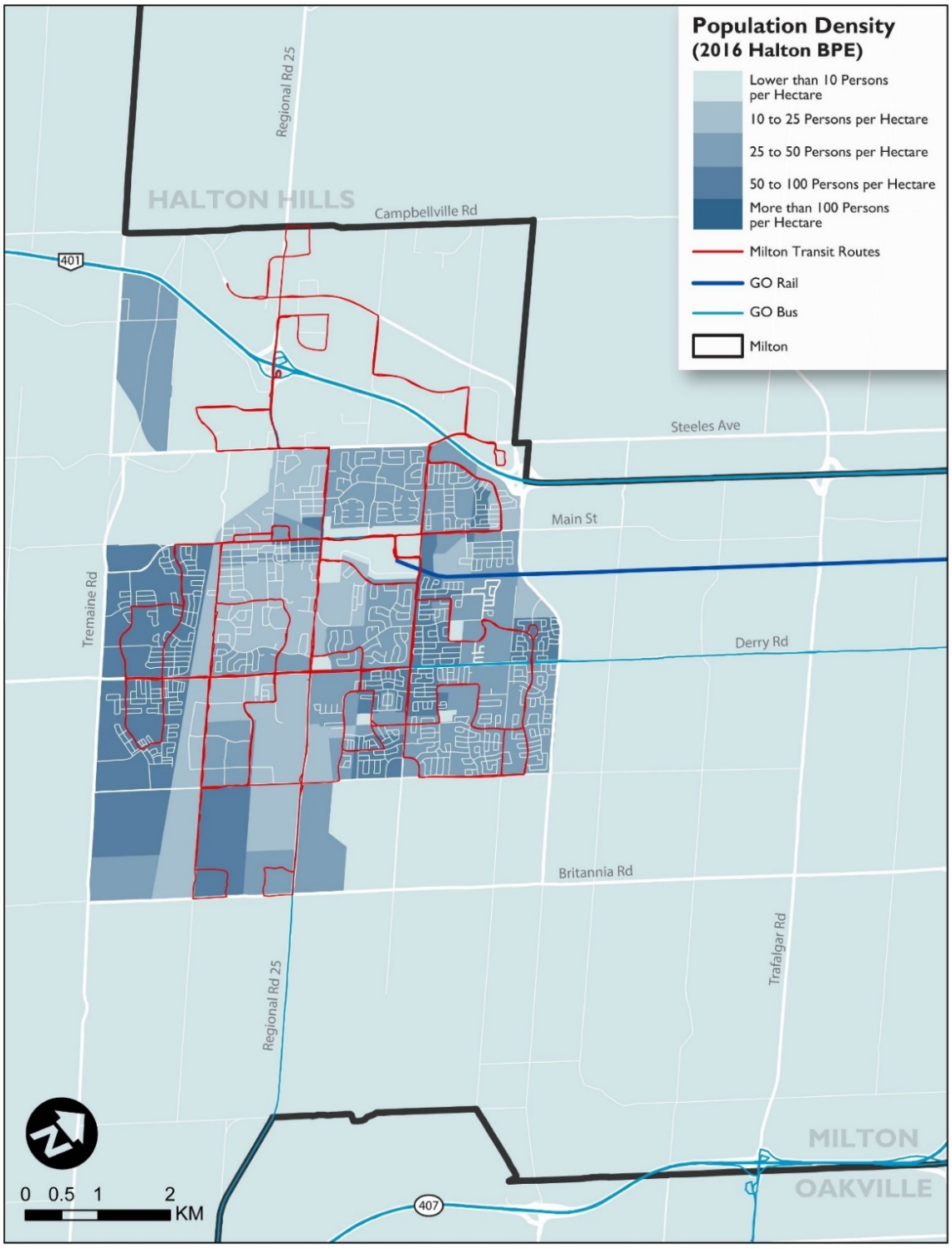


Figure 59 | Population density per hectare, Halton BPE (2016)

Figure 60 | Population density by hectare, Halton BPE (2021)

Figure 61 | Population density per hectare, Halton BPE (2026)

Figure 62 | Population density by hectare, Halton BPE (2031)

The most fundamental implication of Milton's projected population growth is that it will drive increased transit demand. As noted in Chapter 2, transit ridership in Milton increased at more than three times the rate of population growth since 2009. Even if the rate of transit demand growth were to slow, and simply matched the rate of projected population growth, transit demand would still double over the next ten-to-fifteen years. But the increased population density projected in much of Milton suggests that transit ridership will continue to grow at a higher rate than population growth. The increasing size of Milton's developed area, extending south of Britannia Road and east of James Snow Parkway likewise will require the town to extend existing bus routes, or develop new bus routes or other services, to connect these areas. Finally, Milton's population growth must be considered in the context of the projected population growth in other Halton Region communities and across the GTHA, which will generate increasing demand for connections between Milton and other communities, and demand for travelers from other communities to access jobs and other destinations within Milton. All of these trends point to a larger demand for transit than exists in Milton today.

DEMOGRAPHICS

AGE

The male-to-female ratio in Milton is well balanced at 50.5% female and 49.5% male, according to the 2016 Census Profile from Statistics Canada. Empirically, in households of two or more with only one employed and own only one vehicle, often the men take the car to work and the women rely on transit to fulfill their transportation need. Milton's population is also relatively young when compared to Halton Region, Ontario, and Canada. The median age of all Milton population is 5 years younger than the median in the Halton Region, and 6 years younger than the provincial and national median. Table 52 below summarizes the average and median age for the entire population, female population, and male population for Milton, Halton Region, Ontario, and Canada.

	ALL	FEMALE	MALE
Milton			
Average Age	34.3	34.9	33.7
Median Age	35.3	35.6	35.1
Halton Region			
Average Age	39.4	40.4	38.4
Median Age	40.5	41.3	39.6
Ontario			
Average Age	41.0	41.9	40.0
Median Age	41.3	42.4	40.2
Canada			
Average Age	41.0	41.9	40.1
Median Age	41.2	42.2	40.2

Table 52 I Average and median age of females and males in Milton (Statistics Canada, 2016)

Figure 63 shows the age cohort chart at every 5 years, from infant to 85 years and over. Again, showing a very balanced the male-to-female ratio for most of the age cohorts. However, the cohorts of age between 25 to 39 years has noticeably more

female than male. There also are more females than males among the senior population (65 years and over). The age cohort chart shows a concentration of adults between the ages of 30 and 45, and children ages 14 and under, with significantly fewer seniors and younger adults.

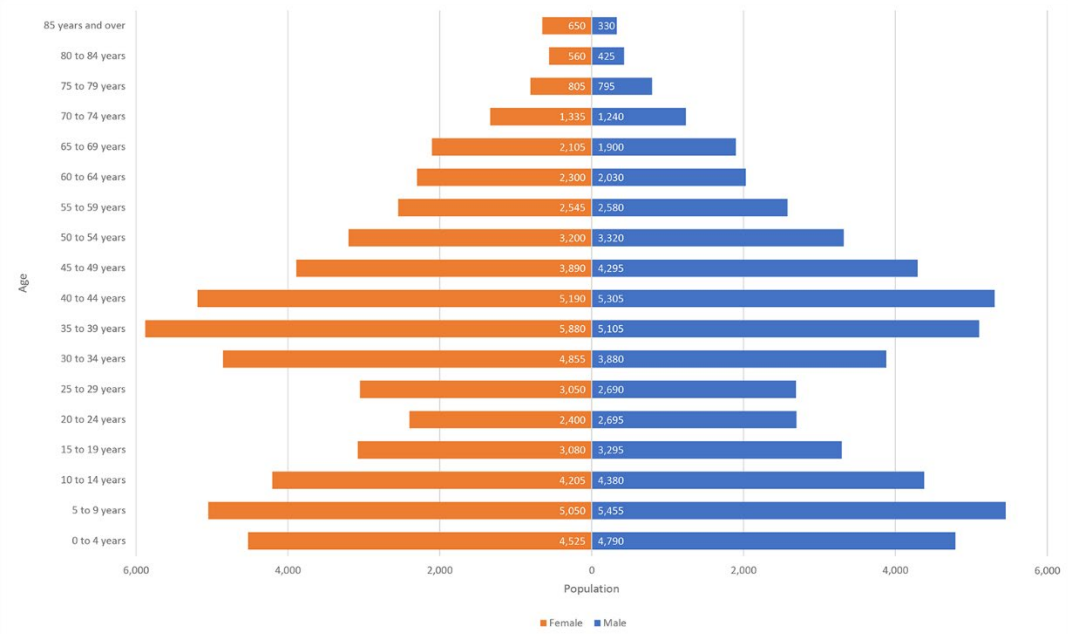


Figure 63 | Age cohort chart for Milton

This high concentration of adults in their child-rearing years, and their children, is typically observed in a growing suburban environment like Milton, where adults seek out various amenities (e.g. homes, schools, etc.) to support quality of life values. Given the projected continuing growth of Milton's population, the number of people in these age groups will grow in absolute numbers while their proportion of the population remains constant. These age groups will continue to be predominate through 2031.

The large and continuing predominance of people in their mid-career years will increase the importance of Milton Transit connections to GO Transit and the need for improved services to employment areas, within Milton and in adjacent municipalities (e.g. Brampton, Mississauga, Oakville, and Burlington) that are not adequately accessible with GO Rail or GO Bus services. The continued growth in youth is likely to continue building demand for transportation to secondary schools throughout Milton. As these students advance to young adulthood, connections to education and training

opportunities and entry-level employment, both within Milton (such as in the planned Education Village) and in adjacent communities, will also continue to grow.

ELDERLY POPULATION DISTRIBUTION

According to the 2016 Census, 9.2% of Milton's population is aged 65 or over, compared to 14.9% of the population of Halton Region, 16.7% of the Ontario and 16.9% of the Canadian population. The percentage of elderly population in each area is shown in Figure 64, while the density of elderly population in shown in Figure 65. As expected, elderly population comprise a higher proportion of the population in the older developed areas of Milton, and in the rural areas. A lower proportion of elderly population are observed in newer areas of development, which are dominated by working age adults and their children. The absolute density of elderly population is moderate in the established areas of Milton and low in most other areas, with the exception of concentrations living in apartments along Millside Drive.

While elderly population make up a relatively small percentage of the current population, the number of them will grow as the population grows. In addition, today's young parents are tomorrow's elders, and significant numbers of Milton's large working-age population will "age in place" in their homes in Milton. Growth in the elderly population will increase the need for basic local transit service within neighbourhoods to support growing demand for shopping/retail, medical, social and entertainment trips. The growth in the older adult population will also generate growth on specialized transit services and the need for connections to medical facilities and other destinations within and outside of Milton.

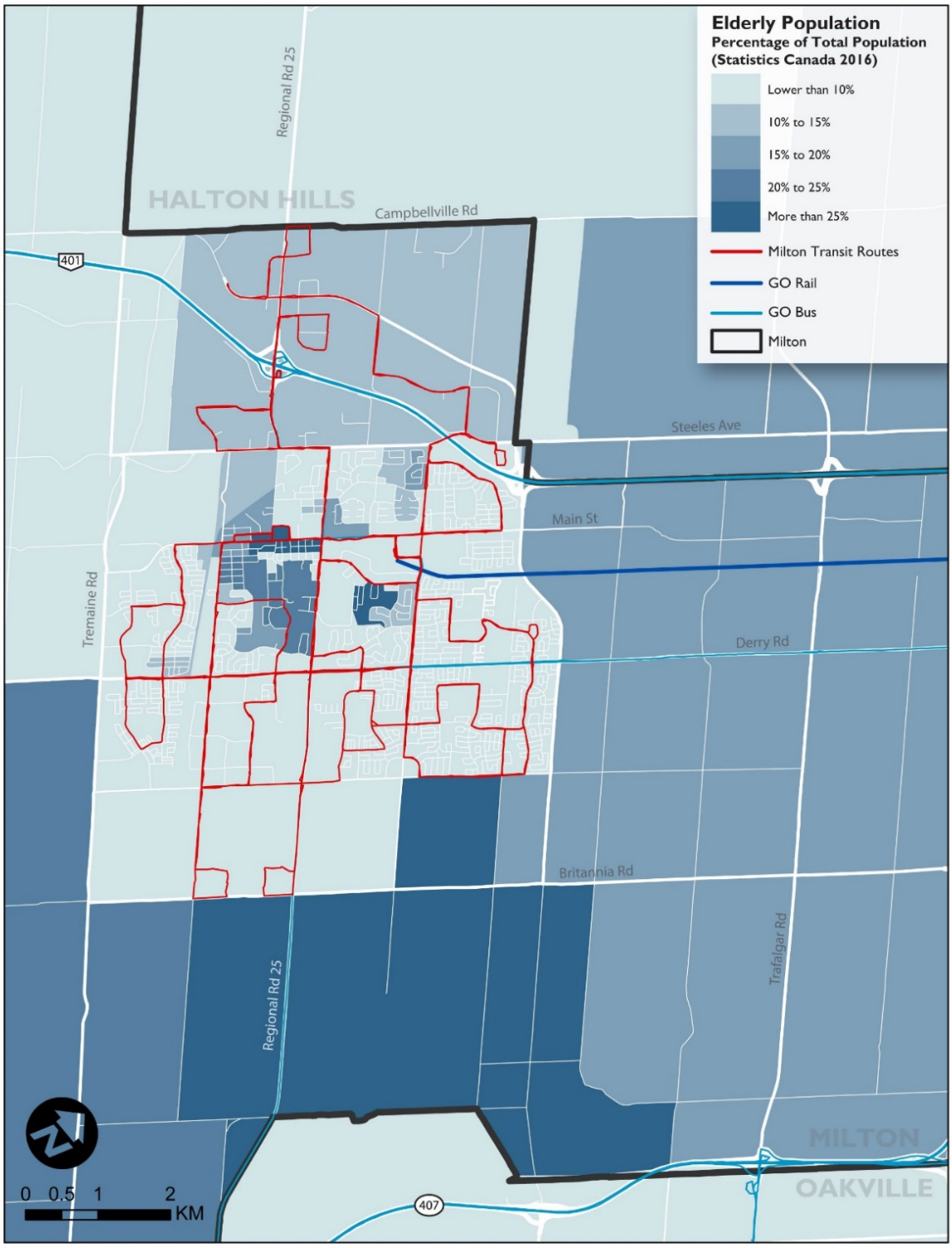


Figure 64 I Percentage of elderly population in Milton Urban Area, Statistics Canada (2016)

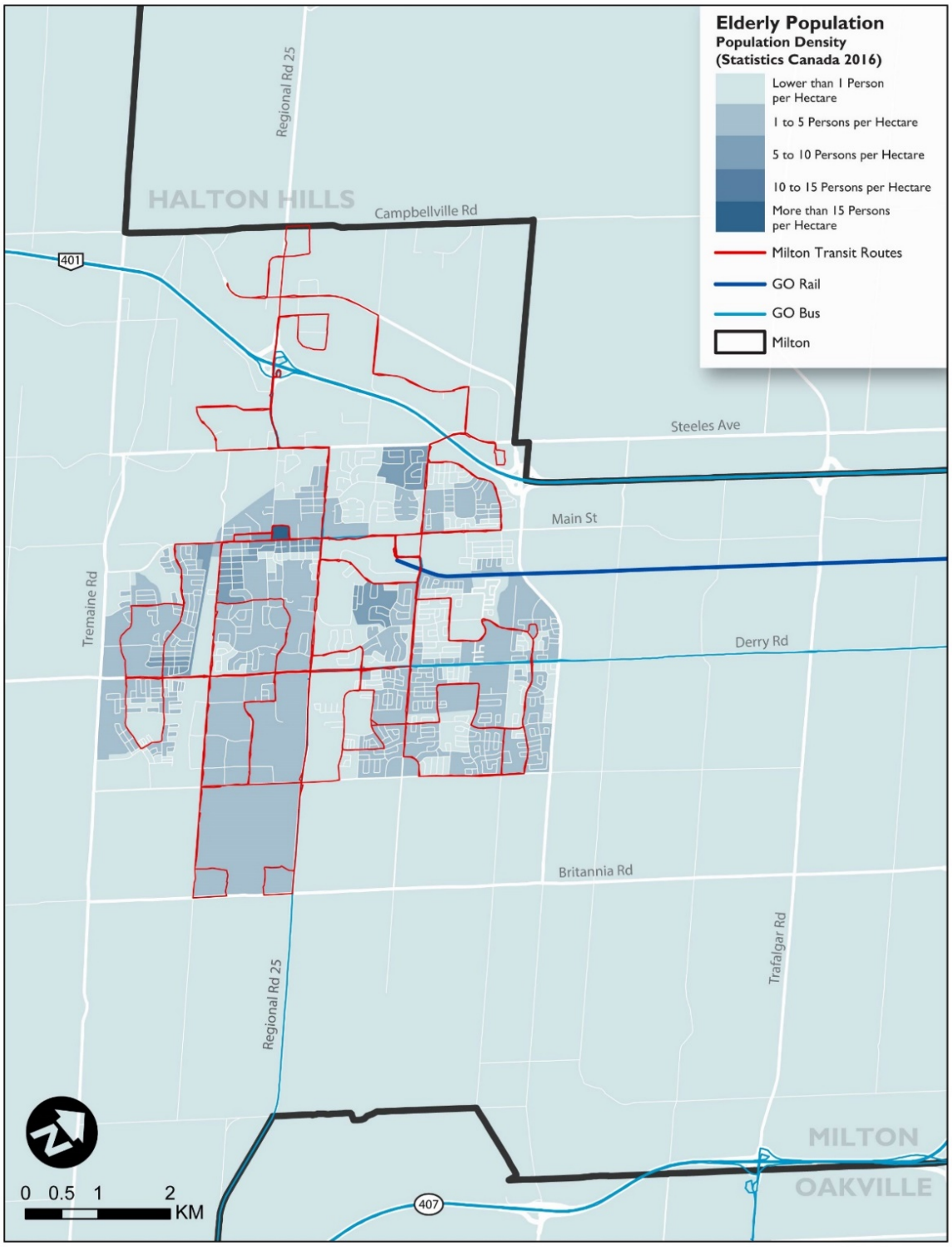


Figure 65 | Density of elderly population in Milton Urban Area, Statistics Canada (2016)

YOUTH POPULATION DISTRIBUTION

The population between ages 10 and 19 makeup 13.6% of Milton's population in the 2016 Census, compared with 13.7% of Halton Region residents and 11.6% and 11.2% of the population of Canada and Ontario, respectively. The percentage of the population represented by youth is shown in Figure 66 , and the density of youth population is shown in Figure 67. The map showing the percentage of youth population is nearly the inverse of the map of senior population, with high percentages of youth in the more recently developed areas of Milton and moderate or low percentages of youth in the rural and established areas. The density map shows that in some of these more recently-developed areas the concentration of youth is quite high (15 youth or more per hectare), especially in the subdivisions within Derry Road, Fourth Line, Louis St. Laurent Avenue, and Regional Road 25. Neighbourhoods immediately south of the Canadian Pacific (CP) rail corridor and along James Snow Parkway also elicit very high concentrations of younger residents.

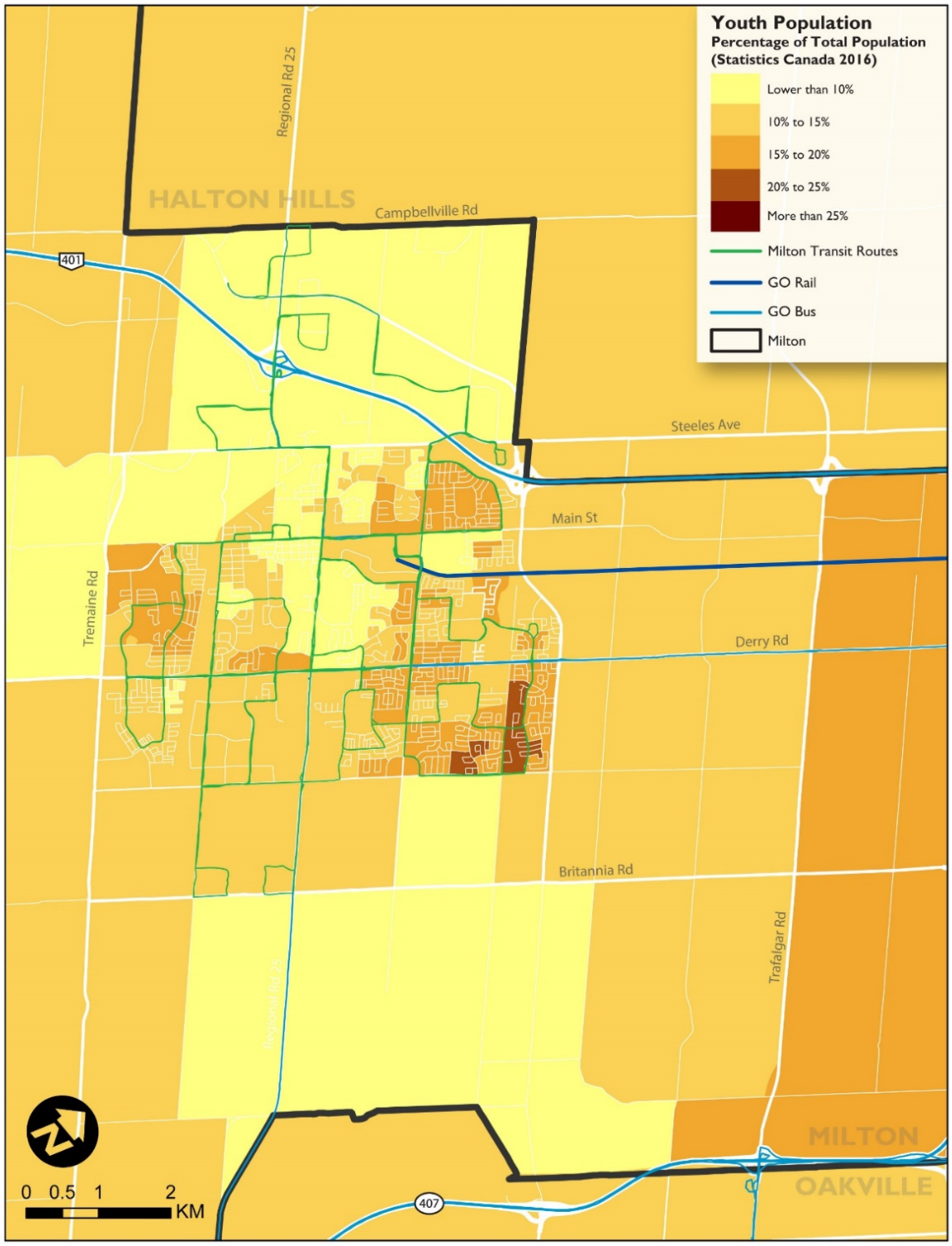


Figure 66 I Percentage of youth population in Milton Urban Area, Statistics Canada (2016)

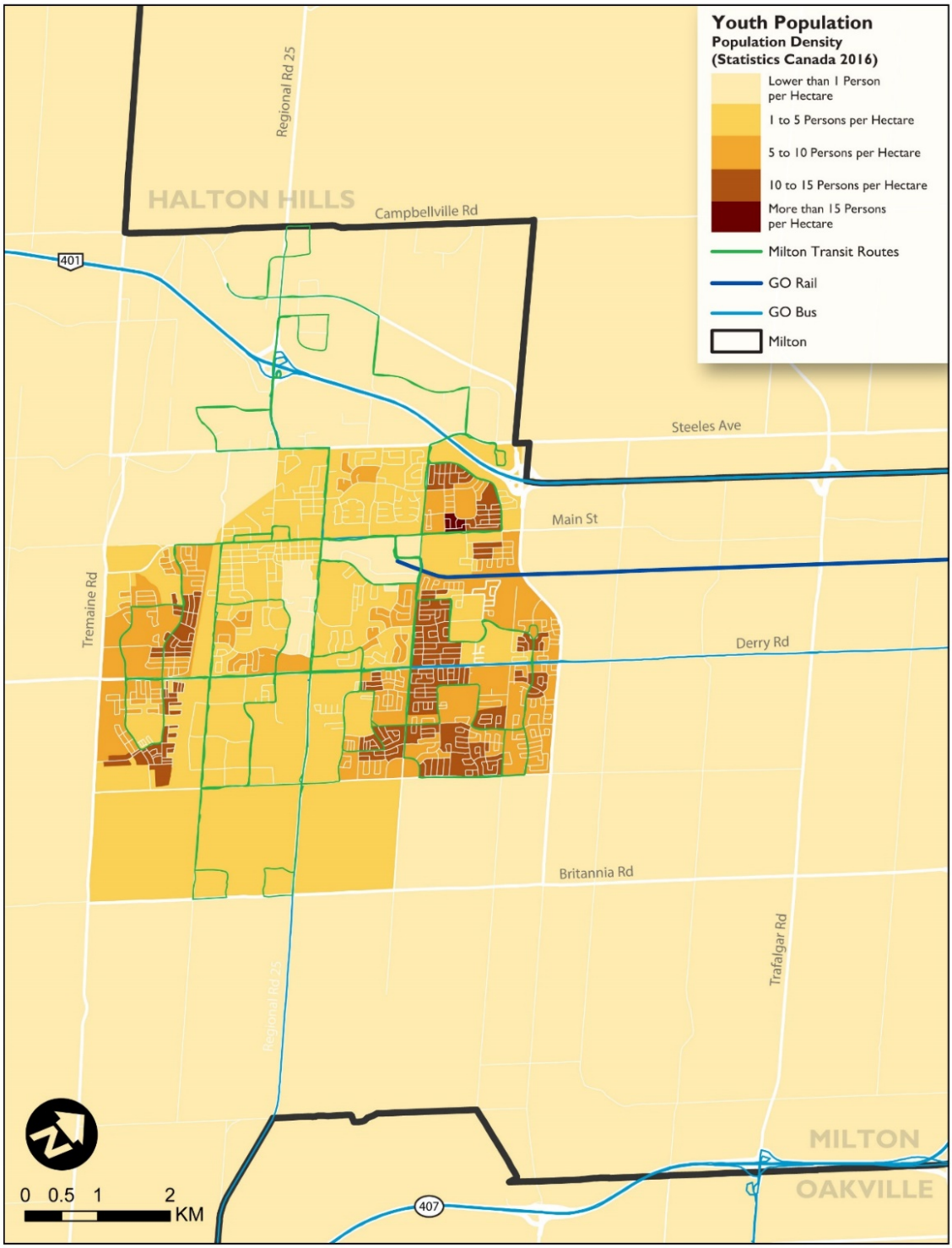


Figure 67 | Density of youth population in Milton Urban Area, Statistics Canada (2016)

INCOME

Milton is a moderately affluent, middle income community. Median total pre-tax household income in Milton is $104,730 in 2015, compared to the Ontario median of $74,287 and the Canadian median of $70,336. Median household income by Milton neighbourhood is mapped in Figure 68. As the map shows, median income in most of the Town is between $50,000 and $150,000, with a few small areas where median income is between $150,000 and $200,000, or even above $200,000. Incomes are slightly higher in the more recently-developed areas of the Town, lower in the older developed and rural areas.

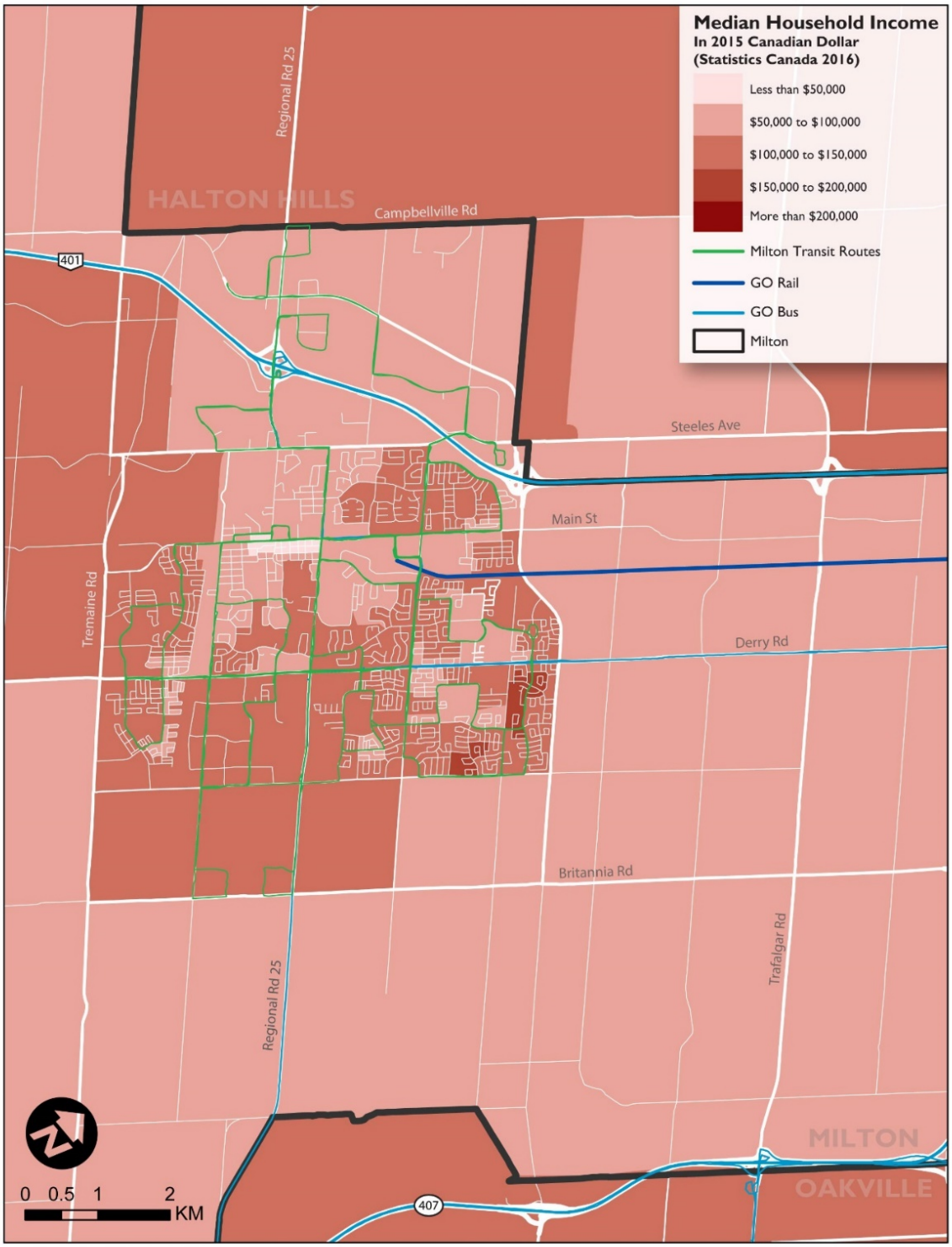


Figure 68 I Median household income in Milton Urban Area, Statistics Canada (2016)

About 8.5 percent of Milton's population is defined as low income (i.e. annual after-tax income of less than $39,854 for a household of three in 2016), compared with 8% in Halton Region, 14% in both the Province and in Canada. Figure 69 shows the percentage and Figure 70 shows the concentration of the lower-income population in Milton. As the map in Figure 69 illustrates, while median income is fairly flat across Milton, there are some areas where low income people are relatively concentrated, including the area around downtown Milton, adjacent to the CP rail corridor south of Main Street, and along the CN (Canadian National) rail line that parallels Bronte Road. As evidenced in Figure 70, there are many parts of the developed area of Milton where the density of lower-income populations is between 5 and 10 persons per hectare, and a few small areas where the density exceeds 15 persons per hectare. This data and trend exhibits that there are populations of low-income people throughout the Milton area, who many of which will require affordable and accessible public transit services.

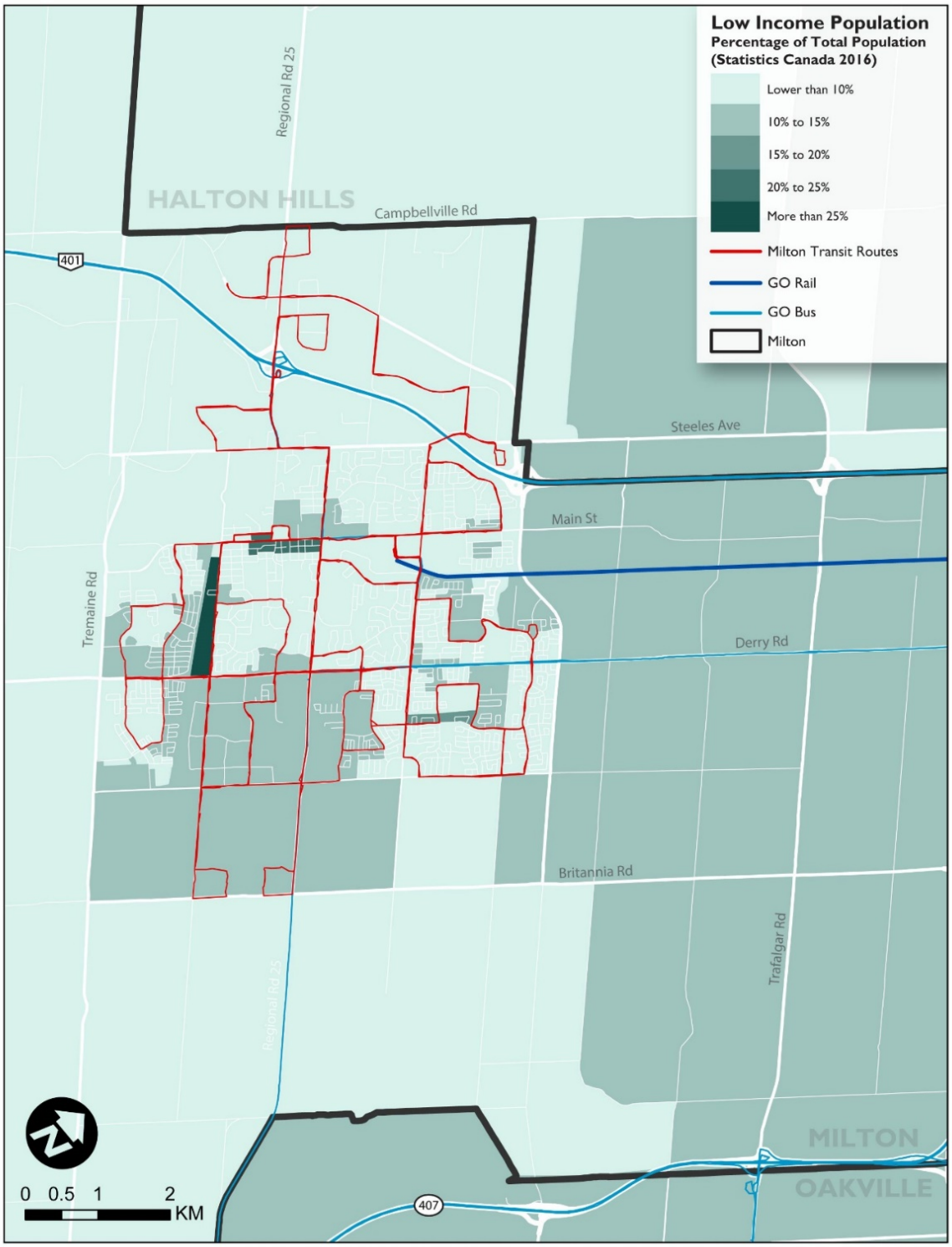


Figure 69 I Percentage of low-income population in Milton Urban Area, Statistics Canada (2016)

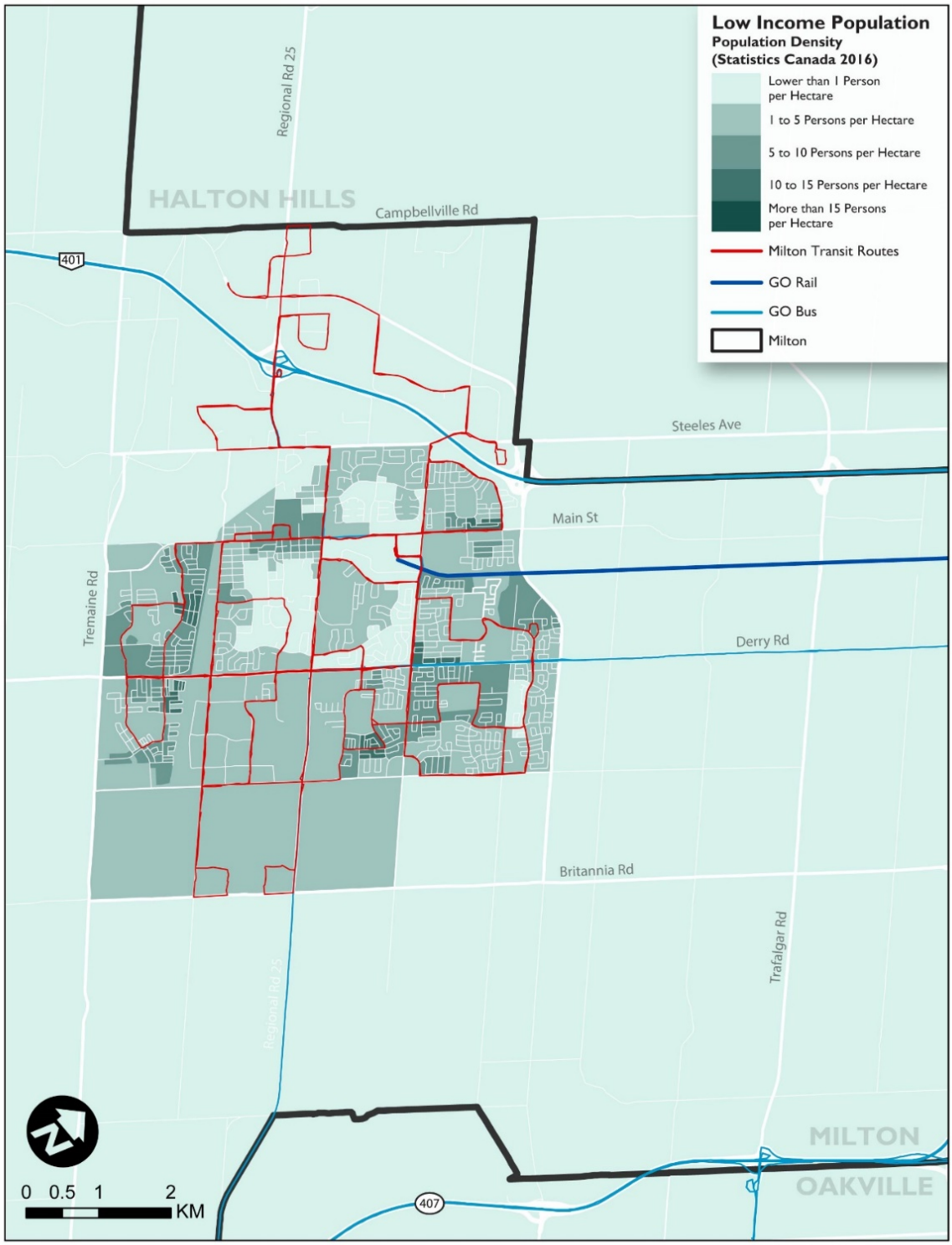


Figure 70 I Density of low-income population in Milton Urban Area, Statistics Canada (2016)

EDUCATION

Milton's residents are slightly more educated than the average resident of Ontario or Canada. About 52% of the adult population in the urban area received at least post-secondary education, a slightly lower proportion than the national and Ontario average of 55%. However, 29% hold at least a Bachelor's degree, compared to the Ontario and national averages of 26% and 23%, respectively. The distribution of educational attainment, at post-secondary and post-bachelor's degree levels, are mapped in Figure 71 through Figure 74. As with age and income, there is a significant difference between some of the established and newer-developed areas of Milton, with populations in newer areas tending to be somewhat more educated than those in the older and rural.

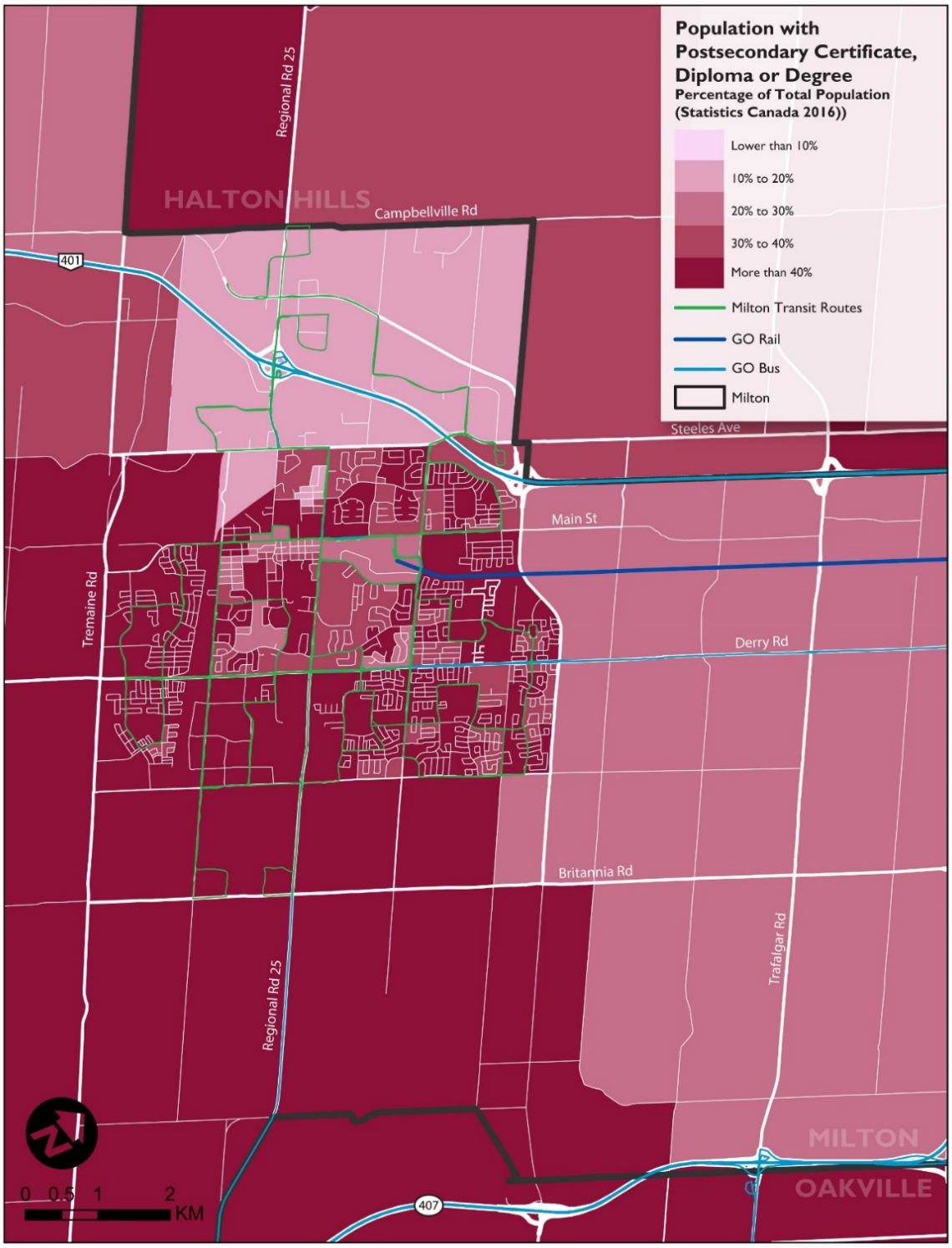


Figure 71 I Percentage of population with postsecondary certificate, diploma or degrees in Milton Urban Area, Statistics Canada (2016)

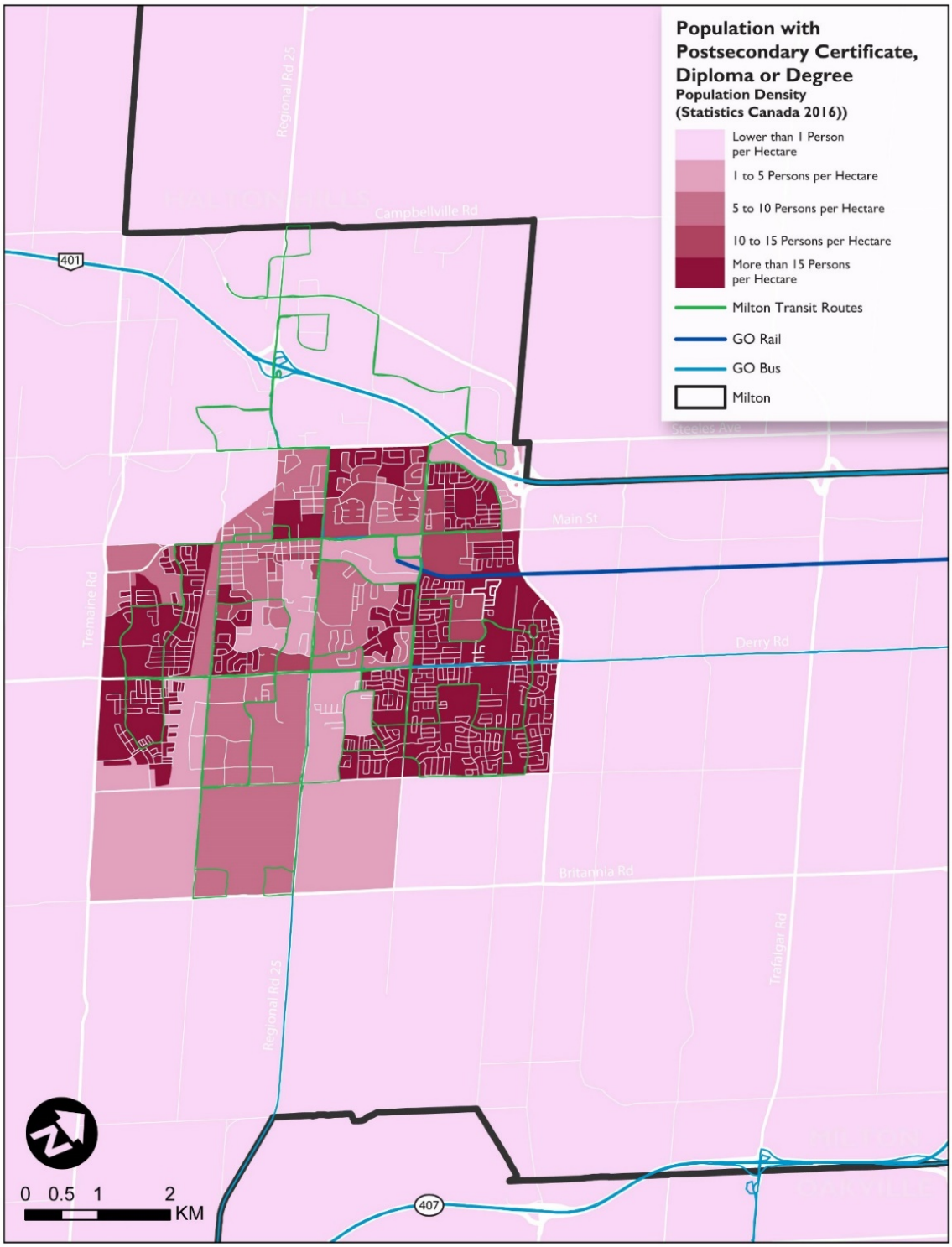


Figure 72 I Density of population with postsecondary certificate, diploma or degrees in Milton Urban Area, Statistics Canada (2016)

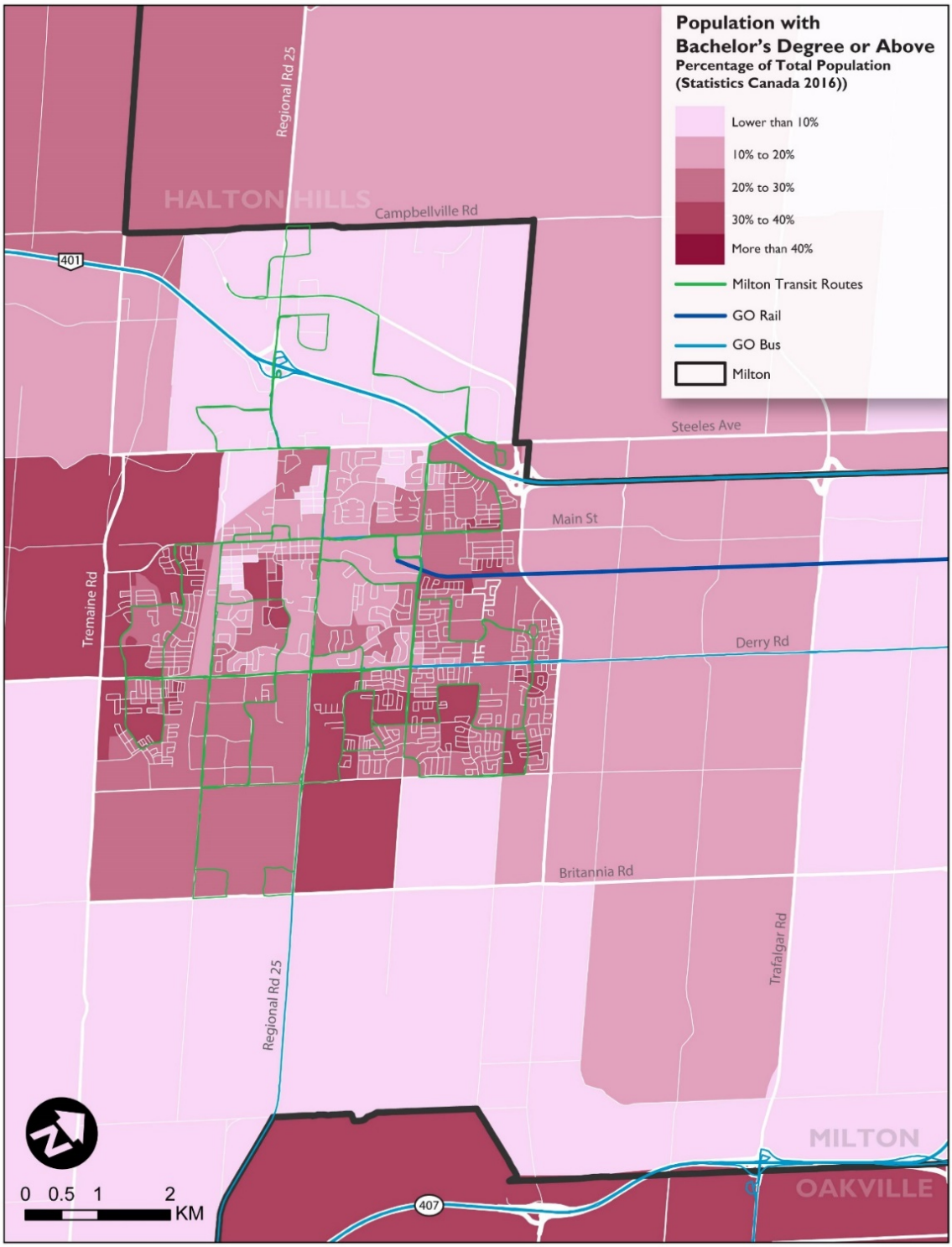


Figure 73 I Percentage of population with bachelor's degree or above in Milton Urban Area, Statistics Canada (2016)

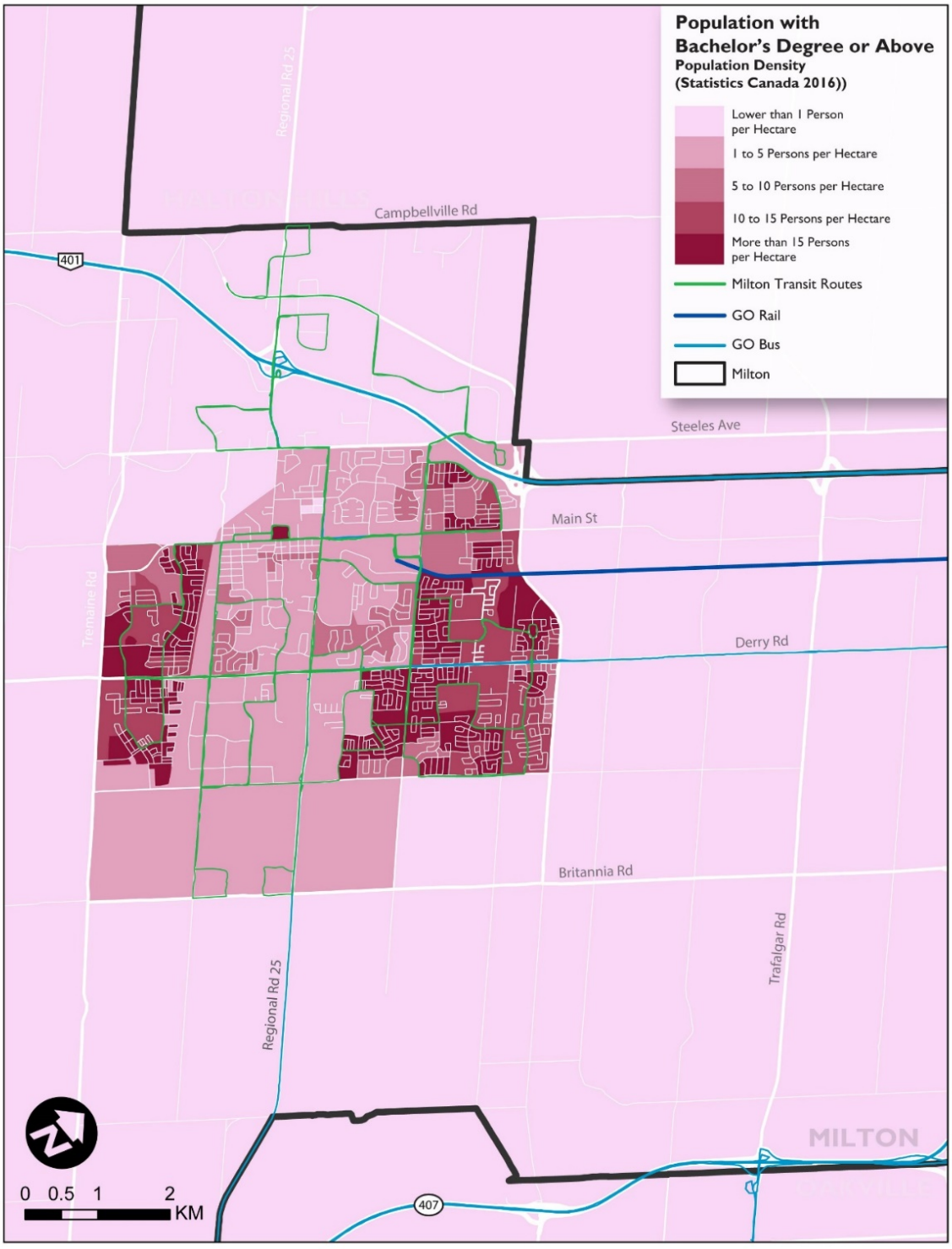


Figure 74 | Density of population with bachelor's degree or above by hectare in Milton Urban Area, Statistics Canada (2016)

VEHICLE AVAILABILITY

Milton residents have high levels of auto ownership typical of a suburban area. Only about two percent of Milton households lack access to an automobile, compared with 4.5% in Halton Region, according to the 2011 Transportation Tomorrow Survey. About 14% of Milton households have *more than two cars*. Percentage of households with no access to a car is mapped in Figure 75, while the percentage that have one or fewer cars is mapped in Figure 76. As the map showing zero-car households indicates, few households in Milton lack assess to a vehicle. The percentage of households that lack access to a car exceeds 10% only in the area north of downtown that includes the senior high-rises on Mill Street. About 33% of households have one car (or fewer), most of these presumably households that include only one adult. The map of households that have only one car resembles the earlier map showing median income levels, with concentrations highest in the established, central area of Milton.

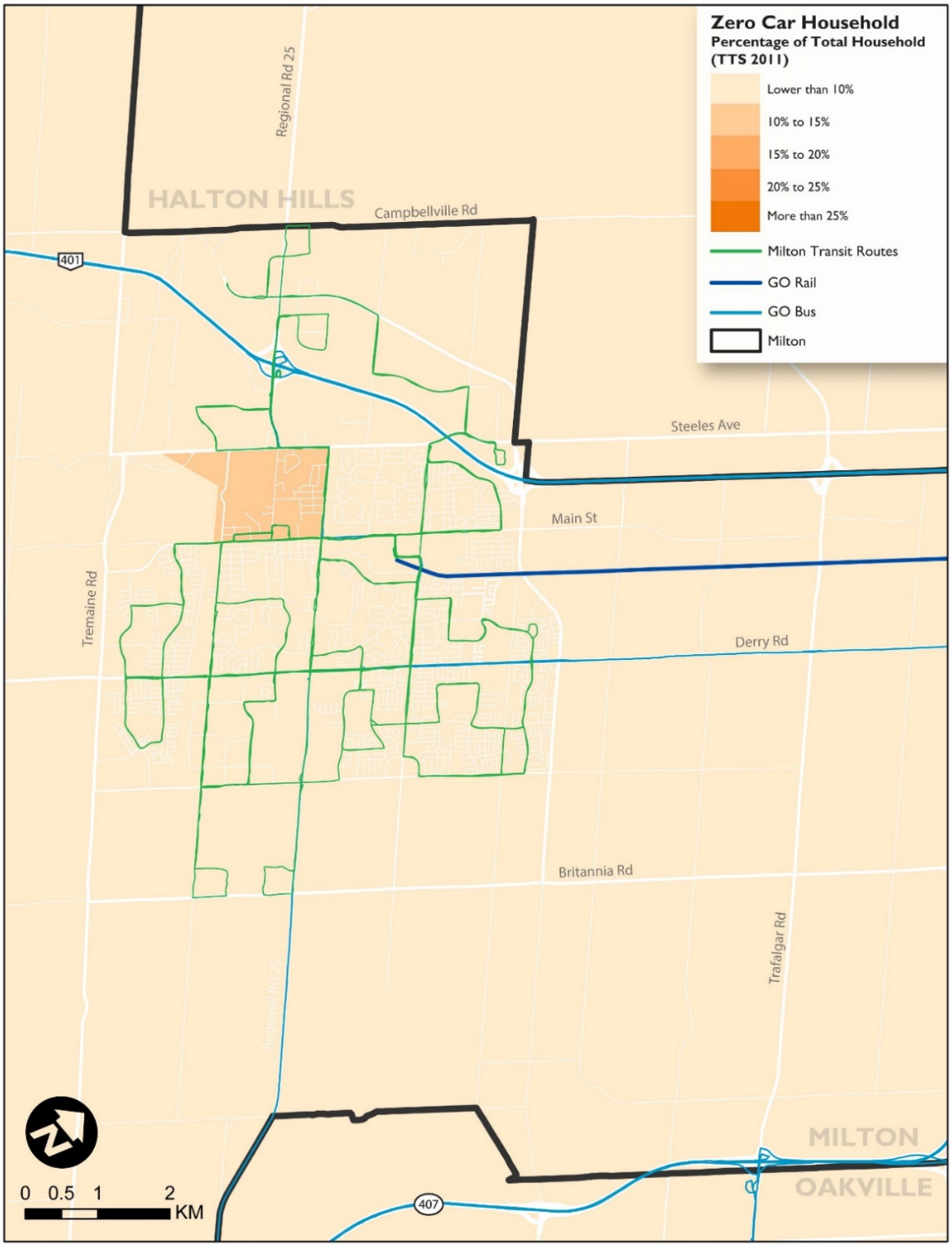


Figure 75 I Percentage of households with no access to a vehicle, Transportation Tomorrow Survey (2011)

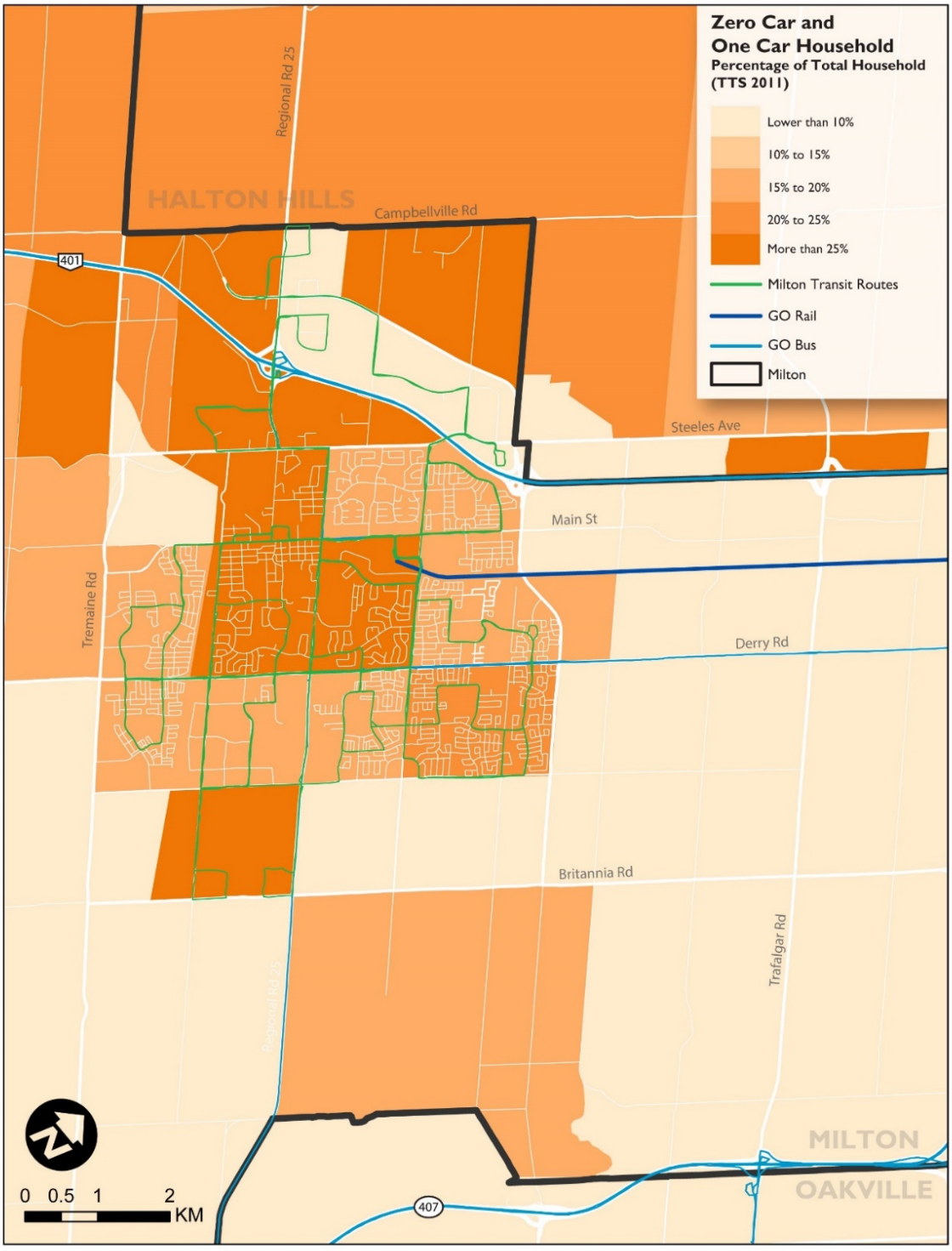


Figure 76 I Percentage of households with access to one vehicle or fewer, Transportation Tomorrow Survey (2011)

VISIBLE MINORITY

The number of visible minority population is often used as an indicator to gauge transit propensity because, empirically, members of racial, ethnic and language minority groups in North America cities tend to ride public transportation in numbers that are disproportionately larger than their relative population share, even when controlling for factors such as income, age, or disability. Milton's population of visible minorities is relatively high, at 42%. This compares with 29% for Ontario and 22% for Canada. The percentage of the population represented by youth is shown in Figure 77, and the density of youth population is shown in Figure 78. As newer residents, members of visible minority groups in Milton tend to live in more recently-developed parts of the town at the periphery of the urbanized portion of Milton. The distribution pattern of visible minorities also largely coincides with the pattern of population who received higher education.

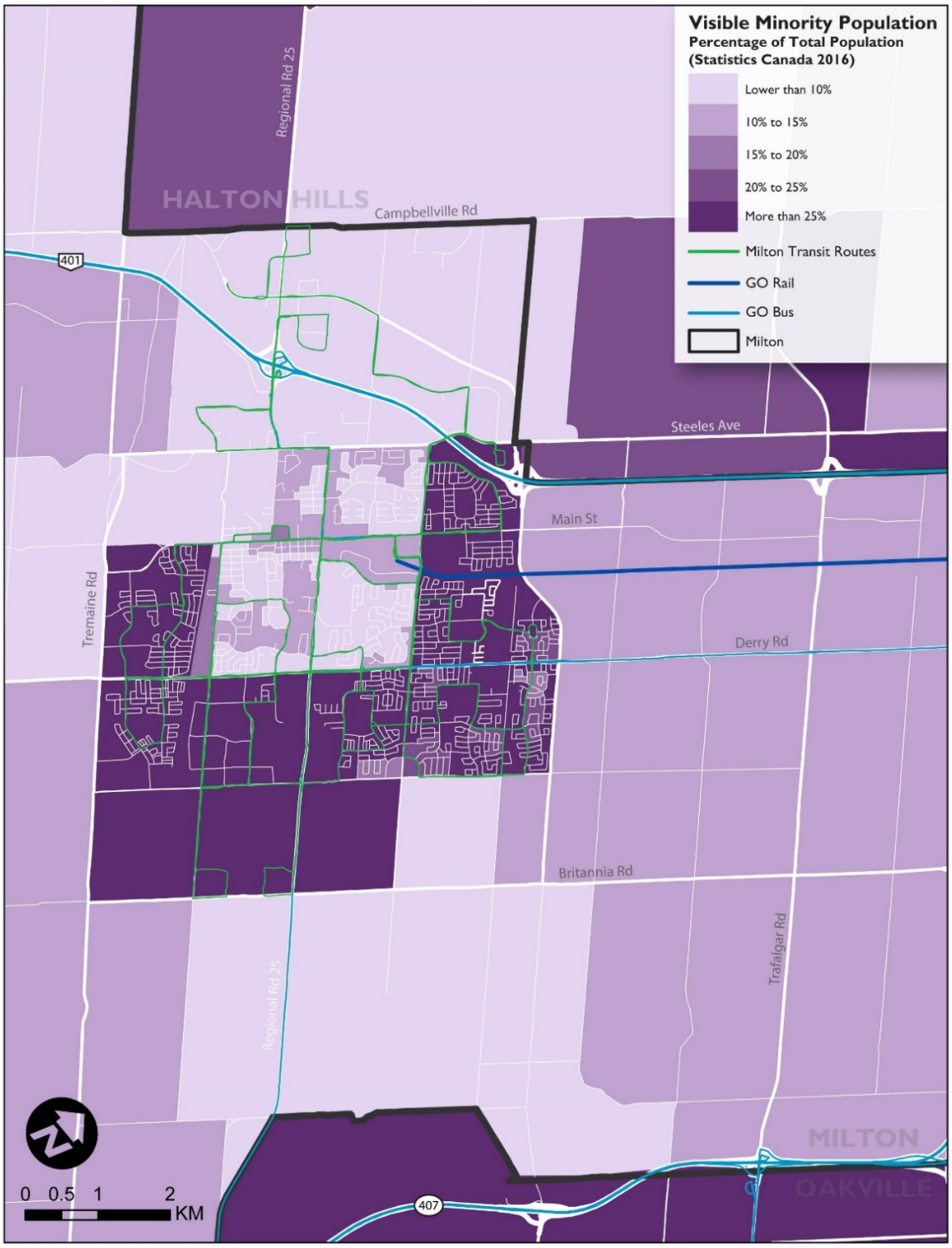


Figure 77 I Percentage of visible minority population in Milton Urban Area, Statistics Canada (2016)

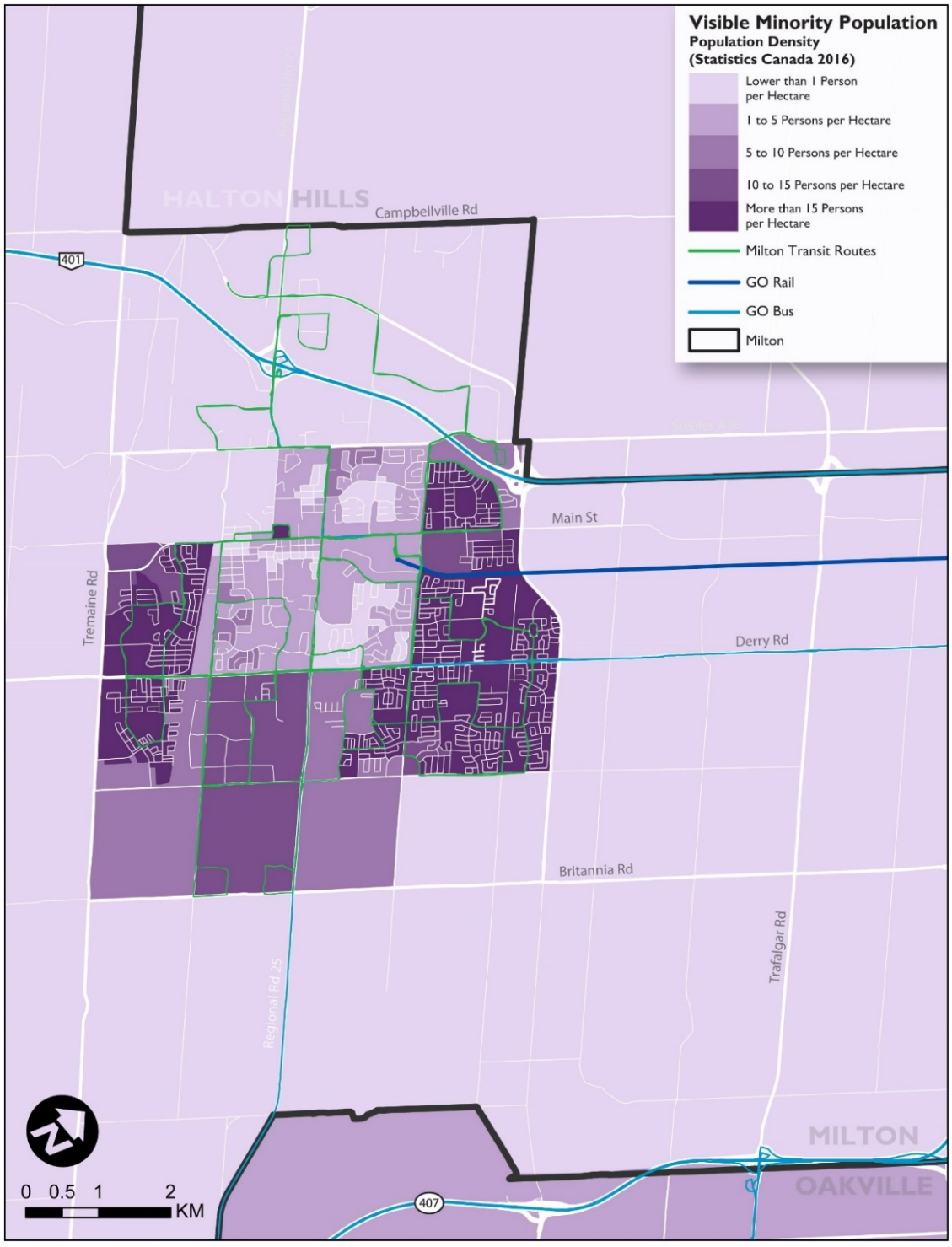


Figure 78 | Density of visible minority population in Milton Urban Area, Statistics Canada (2016)

DEMOGRAPHIC SUMMARY

As a fast-growing suburban environment at the western edge of the GTHA, Milton's population is comfortably and uniformly middle income, comprised of largely working-age adults and their children/youth. While the population of seniors and low-income in Milton are not insignificant, they represent relatively small proportions of the overall population and, except for the cluster of high-rise senior housing north of Main Street, are well distributed throughout the developed area of Milton. Befitting a suburban environment, the number of households without access to one car—again, apart from the senior residents of the high-rises north of Main Street—is insignificant. The number of lower-income, transit-dependent residents that form the core market of urban transit systems is very small. However, beyond the small number of genuinely transit-dependent residents, Milton's demographics identify three potential transit markets on which to build future ridership:

- GO Transit commuters;
- Children and Youth; and
- Post-secondary and New Workers.

GO Transit commuters represent Milton Transit's most significant opportunity to grow the transit market over the next 10-15 years. These commuters, using GO Train and Bus services to connect to downtown Toronto as well as Mississauga and Oakville, are mainly residents in their prime working years between the ages of 30 and 50, representing the largest and fastest growing local population segment. While Milton Transit currently attracts approximately 9% of GO Train commuters, most use GO park-and-ride facilities throughout the region. The park-and-ride lot at Milton GO station is already over-subscribed, with spill-over parking occurring at nearby third-party retail areas and Town facilities on the east side of Thompson Road. Population and development growth continue to stress parking supply. While the planned redeveloped of the Milton GO Station will add additional parking capacity, timelines for development are years away, which will increasing constrain parking supply in the coming years. This outcome presents Milton Transit with an opportunity to better attract this growing market and focus efforts on improving service-level coordination with GO Transit.

The large cohorts of children and youth between the ages of 5 and 14 in Milton point to exponential growth in the number of high-school students in the next five-to-15 years. Milton Transit already has three successful school-oriented bus routes that connect youth to high schools located primarily in Milton's southern growth areas. The service

pattern for school service is highly concentrated and, thus, highly efficient, and Milton Transit's school routes are the most efficient and productive routes in the transit system. In addition, ridership on Route 2, Milton Transit's highest performing bus route, is significantly enhanced by the high volume of students using the route to connect to Bishop Reding High School, located just east of the GO Station on Main Street. With the rapid growth in the middle-and high-school population in the coming years, Milton Transit also has a potential opportunity to grow its ridership through fare partnerships with both the Public and Catholic District School Boards, and by improving and expanding its school-oriented services as more high schools are established.

As these large numbers of youth proceed through high school, many will continue their education in post-secondary/college or vocational training programs, while others will enter the workforce. These students and new workers represent the third most promising market for Milton Transit' services, and one of the more challenging to serve. Milton Education Village, a 162 hectare (400 acre) integrated neighbourhood that will host a university campus, residential, commercial and residential uses would be instrumental in attracting and supporting this market. Subject to future developments, a university campus would be transformational to Milton and act as a catalyst for the subsequent employment uses. Currently, most of the educational opportunities in the Western GTHA are outside Milton. Access to campuses for Sheridan College, Guelph University, York University and many other nearby schools and training programs will require connections to adjacent municipalities and their transit systems, with continued coordination with GO Transit Services. Young people seeking their first adult jobs are also likely to seek employment outside of Milton as within it. Therefore, intra-municipal and regional connections will be vital to creating successful connections between new workers and their places of employment.

FIXED-ROUTE SERVICE COVERAGE

Table 53 below shows the projected number of people living within and outside 500[14] metres of Milton Transit's existing fixed-route services, based on BPE projections. This echoes the maps showing the increasing population density, which indicates that, while Milton will see some infill development and the completion of build out of existing subdivisions, much of the Town's growth will occur in areas outside the existing urbanized area, particularly in the latter part of the next decade. This includes areas south of Britannia Road, and new development in the secondary plan area around Trafalgar Road. As new areas are developed, the proportion of the Town's population that lives within walking distance of Milton Transit's existing bus route alignments will steadily fall. In 2016, more than 80% of Milton residents lived within 500 metres of Milton Transit's existing routes. Assuming that transit service is not extended, by 2026, there will be 20% more people—nearly 25,000 additional residents—living within 500 metres of Milton Transit routes, which will generate significant increases in transit demand. However, the *percentage* of Milton's population that lives within walking distance of transit will have fallen to less than 64%. By 2031, with no expansion of the transit network, nearly 100,000 residents, or nearly 43% of the projected population, will live beyond walking distance of transit. The growing population in the existing urbanized area likely will require Milton Transit to add vehicles and hours of service to existing bus routes, and to expand specialized transit service, merely to keep up with growing demand in those areas. Milton's expanding developed area will require Milton Transit to extend some existing bus routes and add new bus routes, or develop alternative service strategies, to extend service to these developing areas of the Town.

[14] Represents a generalized fictional maximum walking distance, it is slightly more relaxed than the 400-metre CUTA standard to account for Milton's access issue.

YEAR	TOTAL PROJECTED POPULATION	WITHIN 500 METRES OF EXISTING ROUTES	OUTSIDE 500 METRES OF THE EXISTING ROUTES
2016	124,645	100,438 (80.6%)	24,207 (19.4%)
2021	161,750	120,443 (74.5%)	41,307 (25.5%)
2026	195,735	125,157 (63.9%)	70,578 (36.1%)
2031	228,084	130,715 (57.3%)	97,369 (42.7%)

Table 53 | Projected population of Milton within and outside 500 metres of Milton Transit's Fixed-Route Services, between 2016 and 2031

EMPLOYMENT

While Milton Transit primarily serves Milton residents, Milton has a sizeable employment base that is expected to grow over the next 10-15 years. While many of these new jobs will be filled by Milton's existing and future residents, many also will be filled by residents of other communities. The growth in the number and type of jobs in Milton, and their geographic distribution in Milton, will be important considerations in guiding the future growth of the Transit system. In addition, connections to adjacent municipalities and regions is likely to be critical to serving the job growth in Milton.

According to the 2016 Halton Regio Employment Survey Results, an estimated 32,091 people worked in Milton for a total of 1,980 businesses, increased by 1,023 jobs and 30 businesses compared with 2015. The top five largest sectors by number of jobs in Milton is:

- Retail / trade – 4,234 jobs
- Manufacturing – 4,203 jobs
- Wholesale trade – 3,206 jobs
- Educational services – 3,183 jobs
- Accommodation and food services – 2,363 jobs

Jobs in Milton accounted for 14% of Halton Region employment, according to the Survey Results. Among all the jobs in Milton, 70% of were full-time, 22% were part-time, and 8% were seasonal – the highest compared to other local municipalities in Halton.

EMPLOYMENT PROJECTIONS

The BPE estimated employment in Milton to be 114,330 in 2031, up from 62,553 in 2016, an increase of 82.8%. This represents an average annual increase of 4.1%, or nearly 3,500 workers per year. Figure 79 shows the projected number of people working in Milton in 2016, 2021, 2026 and 2031, based on Halton Region's BPE data.

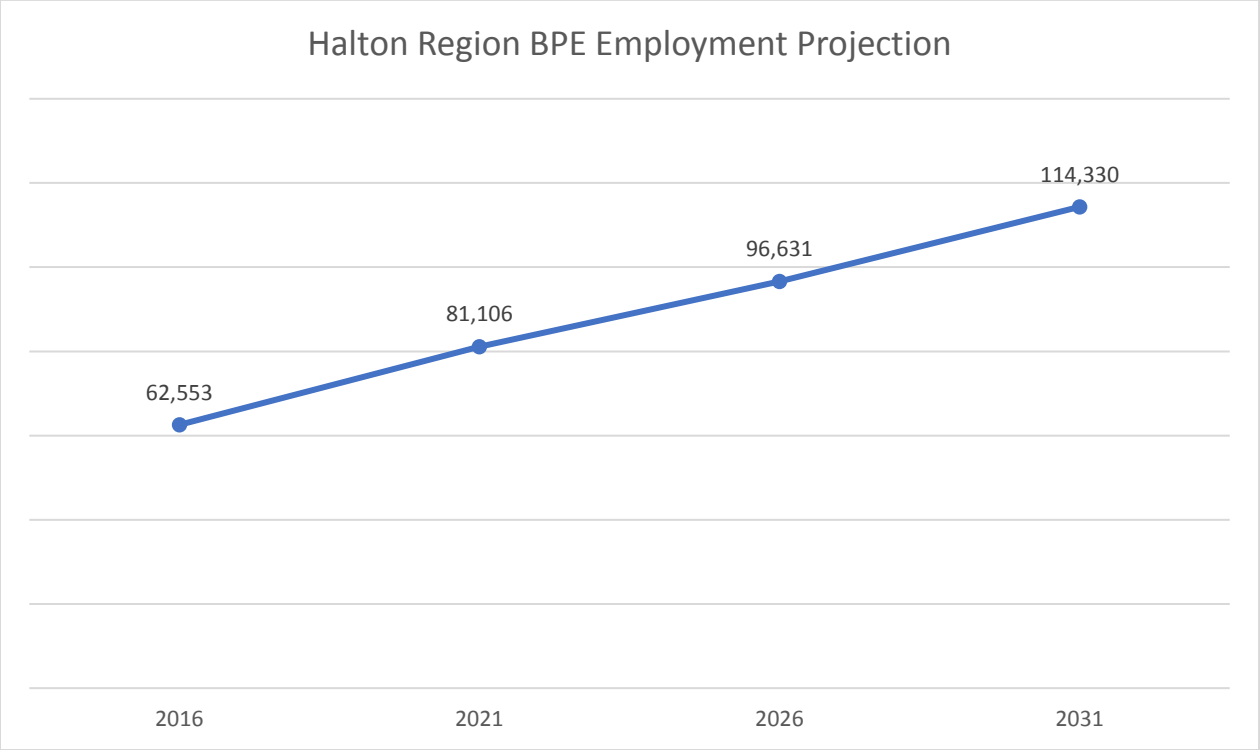


Figure 79 I Halton Region BPE employment projection, from 2016 to 2031

Figure 80 to Figure 83 illustrates projected density of work place employment, for 2016, 2021, 2026, and 2031 based on the BPE. Most of the employment growth is concentrated in the Derry Green Business Park, 401Industrial Area, and Phase 4 Lands on the outer periphery of the existing urban area. There is also significant employment growth projected around the Milton GO Station, north of Main Street, and south of the CP rail corridor. Employment growth also shows a radial pattern from the intersection of Main Street and Ontario Street.

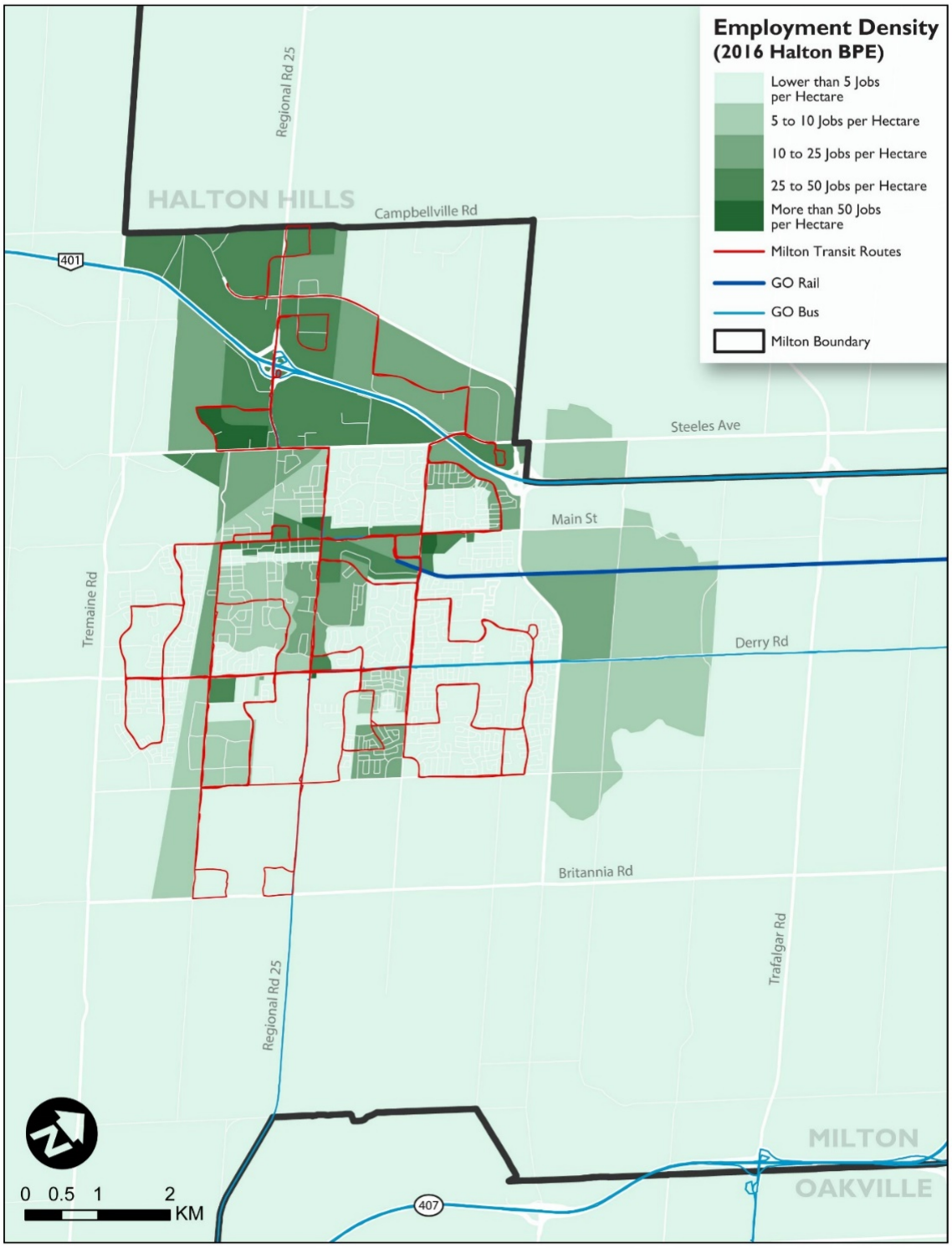


Figure 80 | Employment density in Milton Urban Area, Halton BPE (2016)

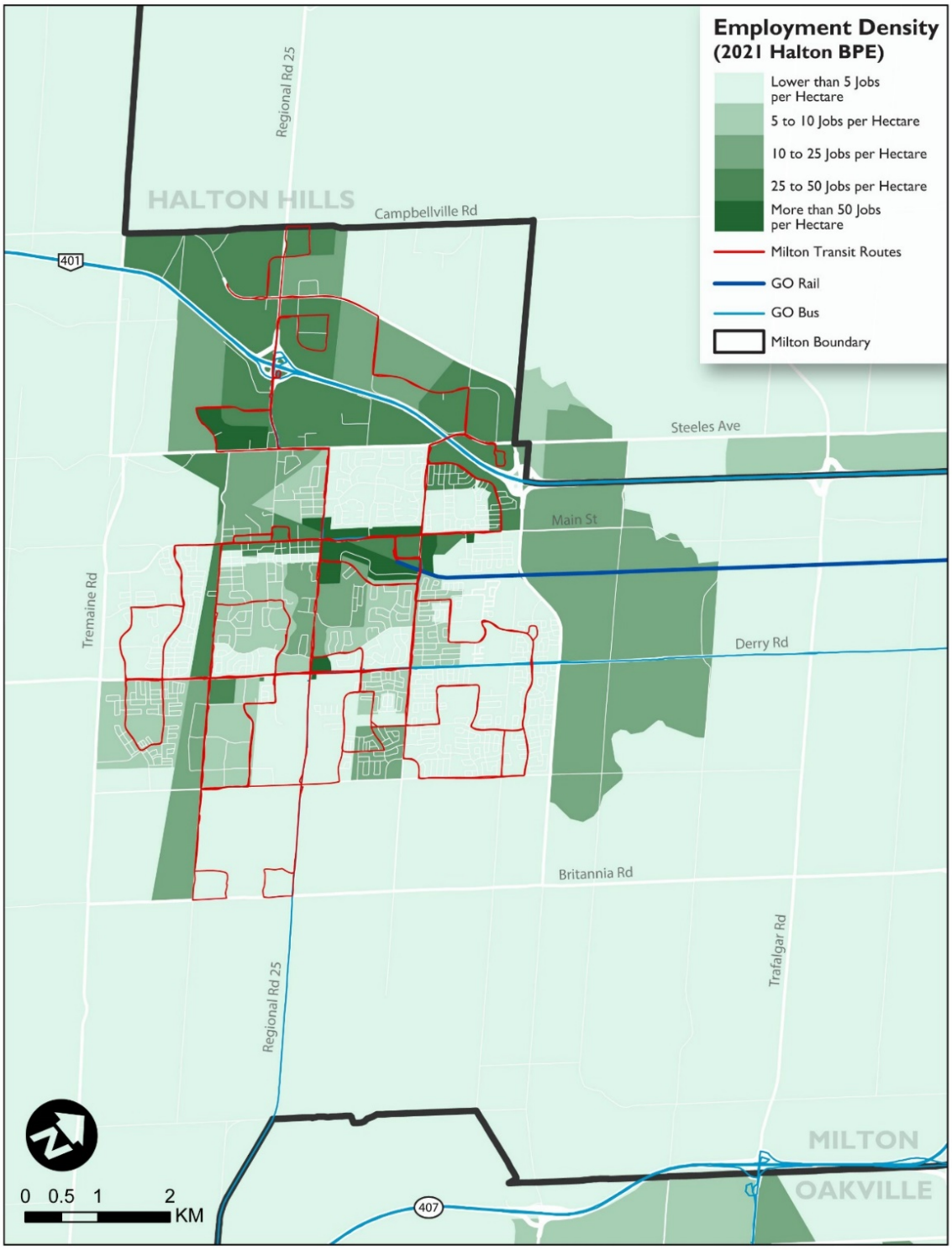


Figure 81 | Employment density in Milton Urban Area, Halton BPE (2021)

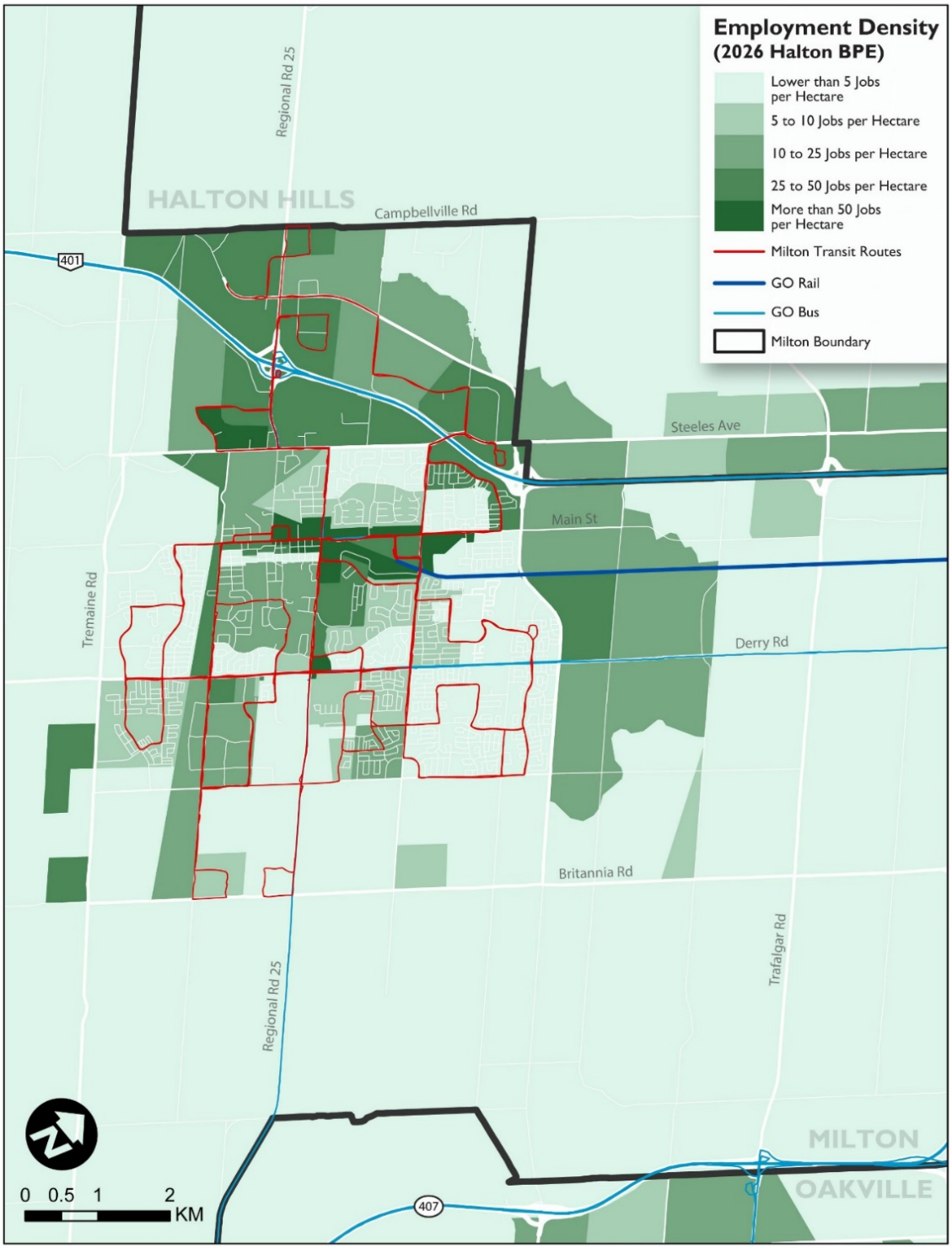


Figure 82 | Employment density in Milton Urban Area, Halton BPE (2026)

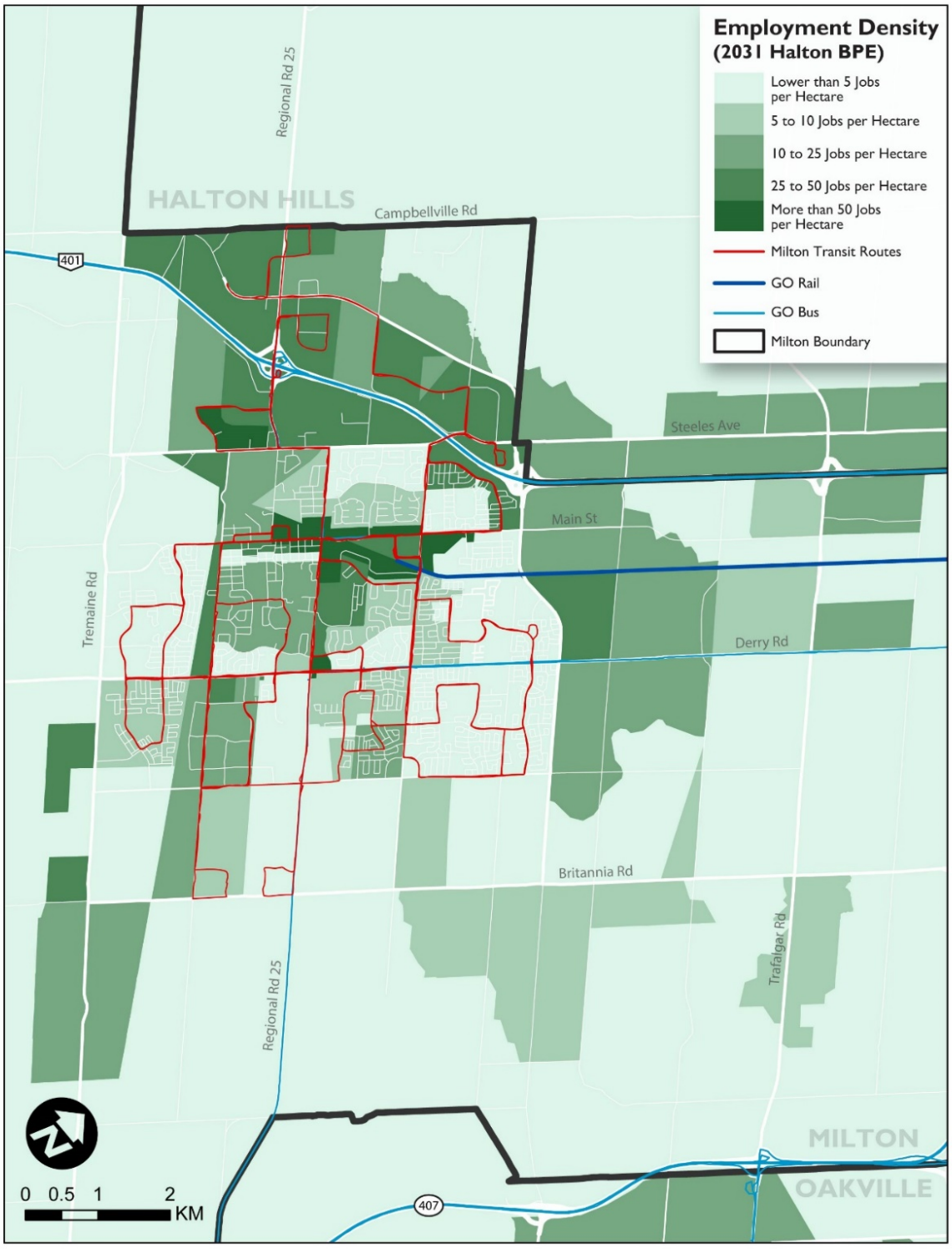


Figure 83 | Employment density in Milton Urban Area, Halton BPE (2031)

UNEMPLOYED POPULATION

Unemployment is a cyclical economic phenomenon, and the unemployment rate has been relatively low during the recent period of economic expansion, not only in Milton but across the GTHA and across Ontario and Canada more generally. According to Statistics Canada, the unemployment rate in Milton stood at 5.6% of the total labour force, compared to a rate of 6.0% in Halton Region, 7.4% in Ontario, and 7.7% in Canada. The variance of the unemployment rate across geographic areas, however, is an indicator of potential economic stress that tends to correlate with lower incomes and lack of access to a car, and, thus, is an indicator of potential transit need in a specific area.

Figure 84 illustrates the percentage of unemployed by geographic area according to the 2016 Census. Figure 85 shows the density of unemployed persons. As the Figure indicates, there is only a slight increase in unemployment density in downtown Milton and in some of the newer-developed areas of Milton. However, the difference among areas is very slight, and the density of unemployed population is low and does not show any indication of concentration anywhere in Milton.

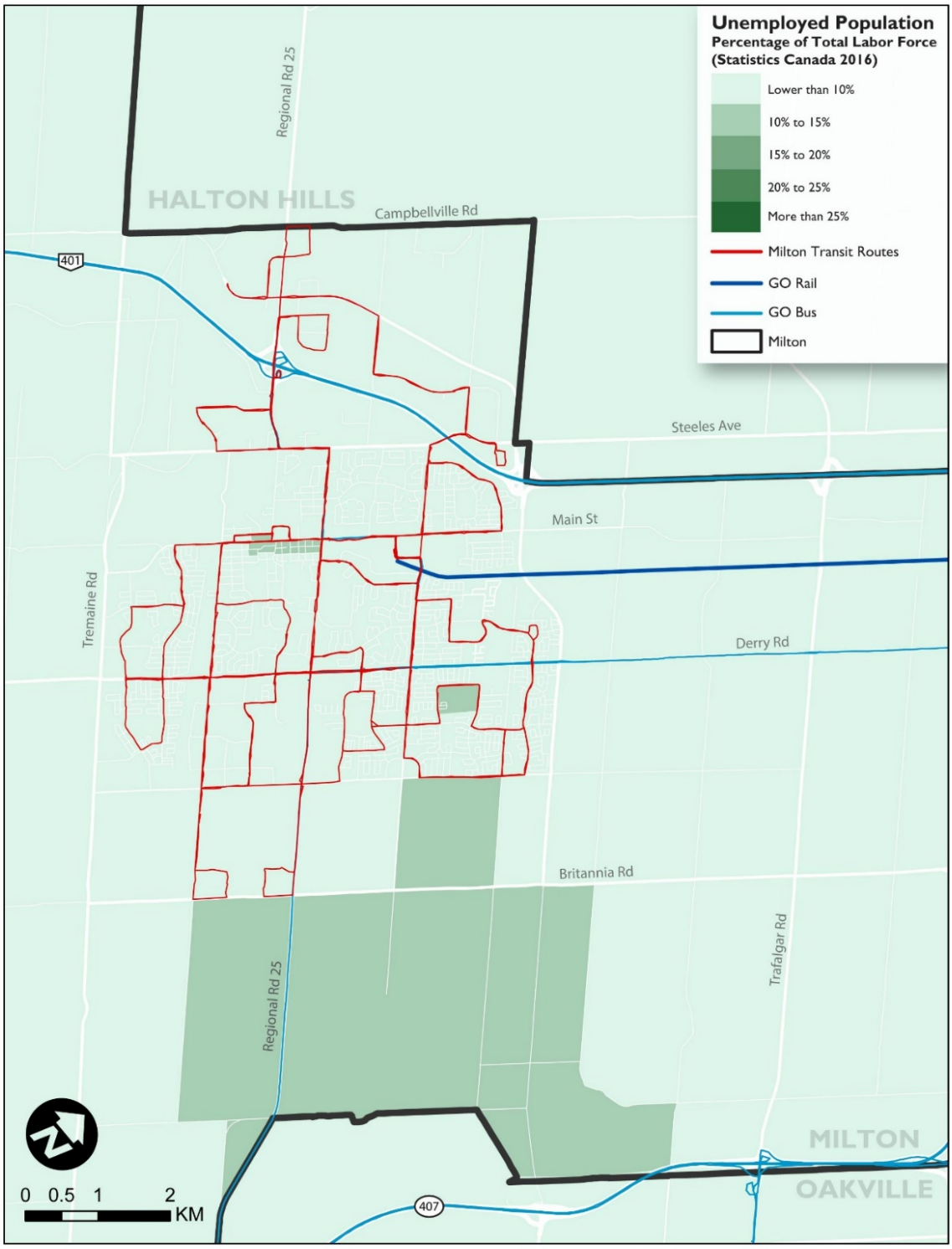


Figure 84 I Percentage of unemployed population in Milton Urban Area, Statistics Canada (2016)

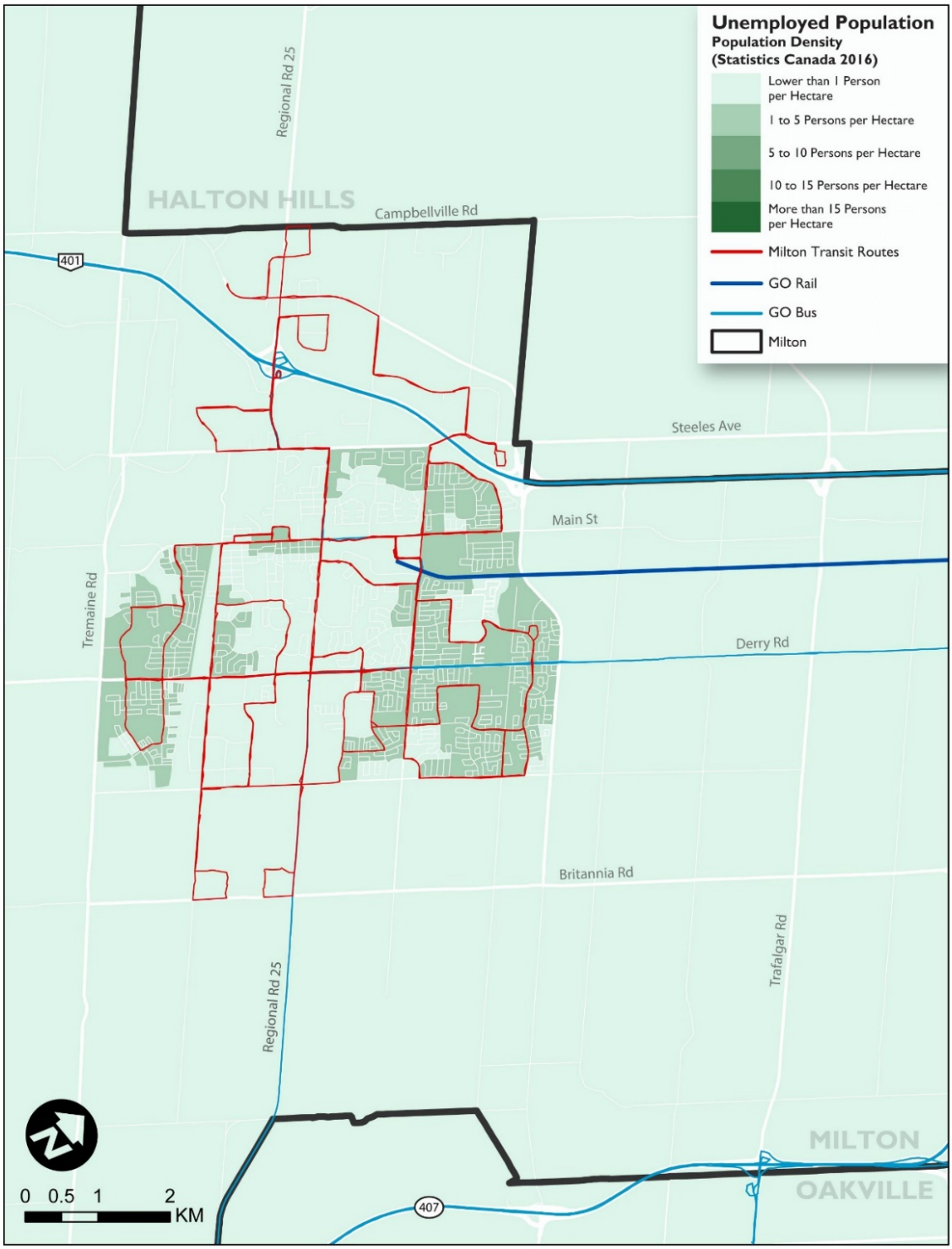


Figure 85 | Density of unemployed population in Milton Urban Area, Statistics Canada (2016)

MAJOR EMPLOYERS & EMPLOYMENT AREAS

Figure 86 presents the location of major employers in Milton, color-coded by industry. Major employers tend to concentrate in 401 Industrial Park north of Steeles Avenue, taking advantage of Milton's two interchanges on Highway 401. Manufacturing and distribution centres are the dominant industries in Milton, and these account for Milton's largest employers. Table 54 lists top employers in Milton and the number of employees (if the information is available), from the 2016 Halton Region Employer Survey Results.

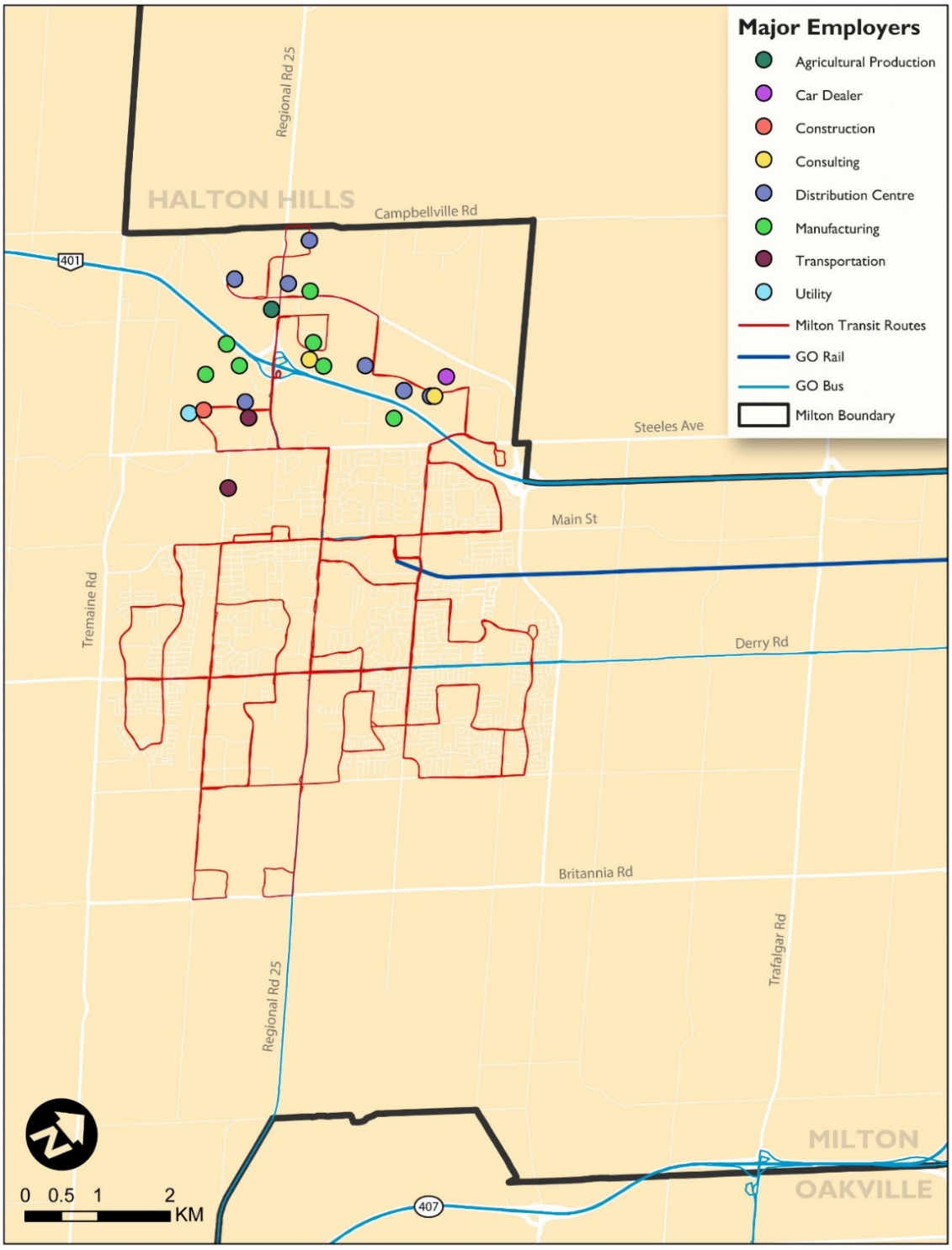


Figure 86 | Map of major employers in Milton Urban Area

EMPLOYER	INDUSTRY	NUMBER OF EMPLOYEES
Gordon Food Service Distribution Centre	Distribution Centre	903
Karmax Heavy Stamping	Manufacturing	902
Monaghan Mushrooms Ltd.	Agricultural Production	396
Manheim Auto Auctions Company	Car Dealer	350
Lowe's Distribution Centre	Distribution Centre	300
Chudleigh's Ltd.	Agricultural Production	288
Uline	Distribution Centre	235
Adient	Manufacturing	220
AFIMAC Global	Consulting	193
EATON Industries (Canada) Ltd.	Utility	180
Amazon Fulfillment Centre	Distribution Centre	125
Fraser Direct	Distribution Centre	120
GENCO	Distribution Centre	100
TD Williamson	Consulting	-
3E Logistics Inc.	Distribution Centre	-
Westrock	Manufacturing	-
Modatek Systems	Manufacturing	-
Roxul Inc.	Manufacturing	-
Active Transportation Inc.	Transportation	-
Canadian Business Machines Ltd.	Manufacturing	-
Peter Hodge Transport Ltd.	Transportation	-
Halton Forming Ltd.	Construction	-
Parker Hannifin Canada	Manufacturing	-

Note: number of employees only reflect the results collected at the time of the survey, the numbers could be highly fluctuated for numerous reasons (e.g. seasonal workers, interns, co-op students, etc.)

Table 54 | Table of *major* employers, industries and number of employees, in Milton Urban Area

The Survey Results defined three categories of jobs – population related jobs, employment land jobs, and knowledge-based and institutional jobs, and are explained as follows:

- Population related jobs: jobs in retail, medical offices, hotels, restaurants or other service related establishments (like dry cleaners and repair shops).

- Employment land jobs: jobs in manufacturing, construction, transportation, and warehousing.
- Knowledge-based and institutional jobs: jobs in finance, law, real estate, government, schools, or hospital.

According to the Survey Results, Milton has 1,980 business that generates more than 32,000 jobs. Among those jobs, 37% are population related, 36% are employment land, and 27% are knowledge-based and institutional. Top five largest sectors by number of jobs are: retail trade, manufacturing, wholesale trade, educational services, accommodation and food services. Figure 87 on the next page shows the location, categories, and size of all the employers in Milton, large and small, that participated in the Survey.

As the map shows, while the largest employers and the majority of the jobs are located in the employment lands area north of Steeles Avenue, and in most cases north of the 401, there are thousands of jobs located among the residential development throughout Milton's urbanized area. Some of these are larger employers in governmental and medical services (Town of Milton; Halton Region; Milton Hospital), but many more are in smaller, private businesses in the retail and services sectors

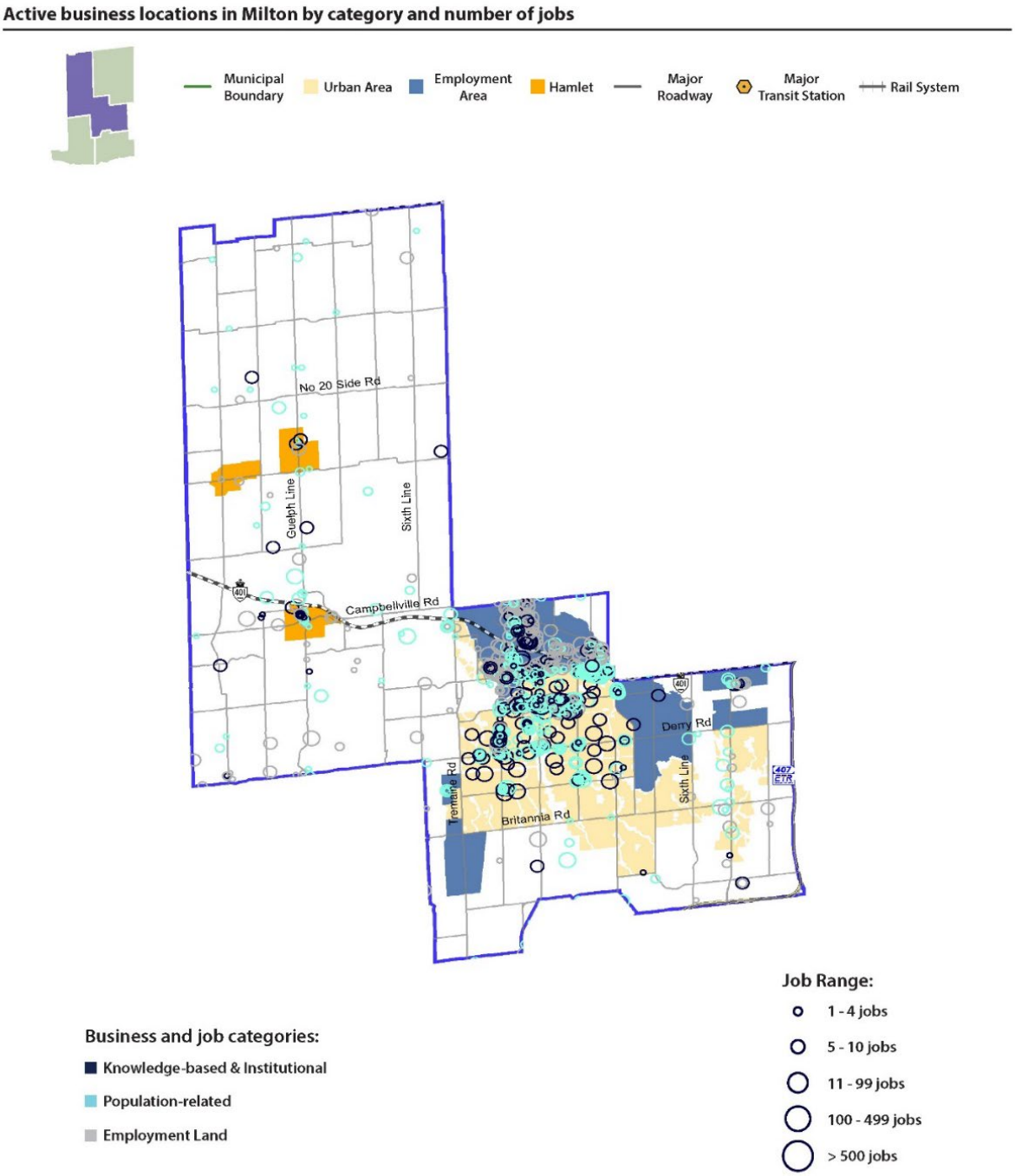


Figure 87 I Active business locations in Milton by category and number of jobs

FIXED ROUTE SERVICE COVERAGE

Table 55 below calculates the number of employees within and outside 500[15] metres of Milton Transit's existing fixed-route bus routes, using BPE projections. As with the population projections, employment is projected to grow within the area currently served by Milton Transit, but to grow even more in locations outside that area. As the table shows, currently about 76% of Milton's jobs lie within 500 metres of a Milton bus route. By 2021, the number of jobs in Milton is projected to grow by 12,000, or by more than 25%, with most of these jobs locating within the existing transit service area. By 2031, however, as the 401 employment area continues to grow and new employment areas like Derry Green Business Park and the Agerton employment area continue to grow, the majority of new jobs will be located outside the existing transit service area. Without new bus routes or extension of existing ones, or development of alternative services, the percentage of jobs served by Milton Transit will fall below 59% by 2031.

YEAR	TOTAL PROJECTED EMPLOYMENT	WITHIN 500 METRES OF THE EXISTING ROUTES	OUTSIDE 500 METRES OF THE EXISTING ROUTES
2016	62,612	47,509 (75.9%)	15,103 (24.1%)
2021	81,186	59,658 (73.5%)	21,528 (26.5%)
2026	96,777	64,519 (66.7%)	32,258 (33.3%)
2031	114,501	67,378 (58.8%)	47,123 (41.2%)

Table 55 I Projected employment within and outside 500 metres of Milton Transit's Fixed-Route Services

EMPLOYMENT SUMMARY

Milton has a strong and growing employment market, with both location and demographic advantages to attract additional employment as the GTHA and Halton Region grows over the next ten-to-fifteen years. However, there are several growing disconnects between Milton's population and employment that have implications for the future of public transit in Milton.

[15] Represents a generalized fictional maximum walking distance, it is slightly more relaxed than the 400-metre CUTA standard to account for Milton's access issue.

A comparison of the population density and employment density maps reveal a growing disconnect between where people live and where people work in Milton, with employment increasingly concentrated in single-use employment lands and industrial parks located at Milton's northern, eastern and western periphery, and residential growth occurring in Milton's centre and new residential areas in the south. Assuming that this development pattern continues, it offers few opportunities for people to travel to work on foot or by bicycle. This will result both in steadily increasing transit demand and increased volumes on Milton's roadway network as the population and employment base continues to increase.

The second disconnect is between Milton's population and employment demographic. Much of the employment in Milton today is in personal services and in industry and warehousing. While many of these jobs pay a middle-income wage, many others pay relatively low wages and require lower levels of education than is typical for Milton residents. Several of Milton's larger employers have complained of being unable to fill lower-wage and entry level jobs, and have asked Milton Transit not only for more connections to transit within Milton, but for connections to Mississauga, Brampton and other surrounding municipalities, to provide these employees with access to these larger and more diverse workforces. As Milton's employment base grows, and the population grows more educated and more affluent, this mismatch will grow worse, increasing demand for transit connections to surrounding municipalities in order to feed the demand for the more wide-ranging workforce required by Milton employers.

TRANSIT PROPENSITY

Figure 88 through Figure 91 present the combined BPE population and employment density projection for 2016, 2021, 2026, and 2031. The combined population and employment in an area is a strong indicator of the volume of travel in an area. As the combined population and employment density rises, the proportion of trips made using public transit tends to increase. Thus, combined population and employment is a strong indicator of an area's potential for public transit service.

From the figures, the existing urban area remains largely unchanged throughout the projection period. Infill development is projected to increase densities in the area around the Milton GO station and the proposed Milton Education Village to levels exceeding 100 residents + jobs per hectare. This is a level of density that can support rail transit service, or very frequent bus service; however, this level is not sustained for any significant distance within Milton, with most of the Town remaining at more moderate levels of density. Expansion to the phase 4 lands around 2026 will see suburban densities extend south of Britannia Road and east of James Snow Parkway. However, these areas only will reach moderate densities in the range of 35 to 75 residents + jobs per hectare. These density levels are sufficient to support a moderate level of transit service (15- to 30-minute frequencies), but is insufficient to support higher levels of transit service. More importantly, areas with density levels below 75 persons + jobs per acre remain essentially transit dependent, with the vast majority of trips made by automobile.

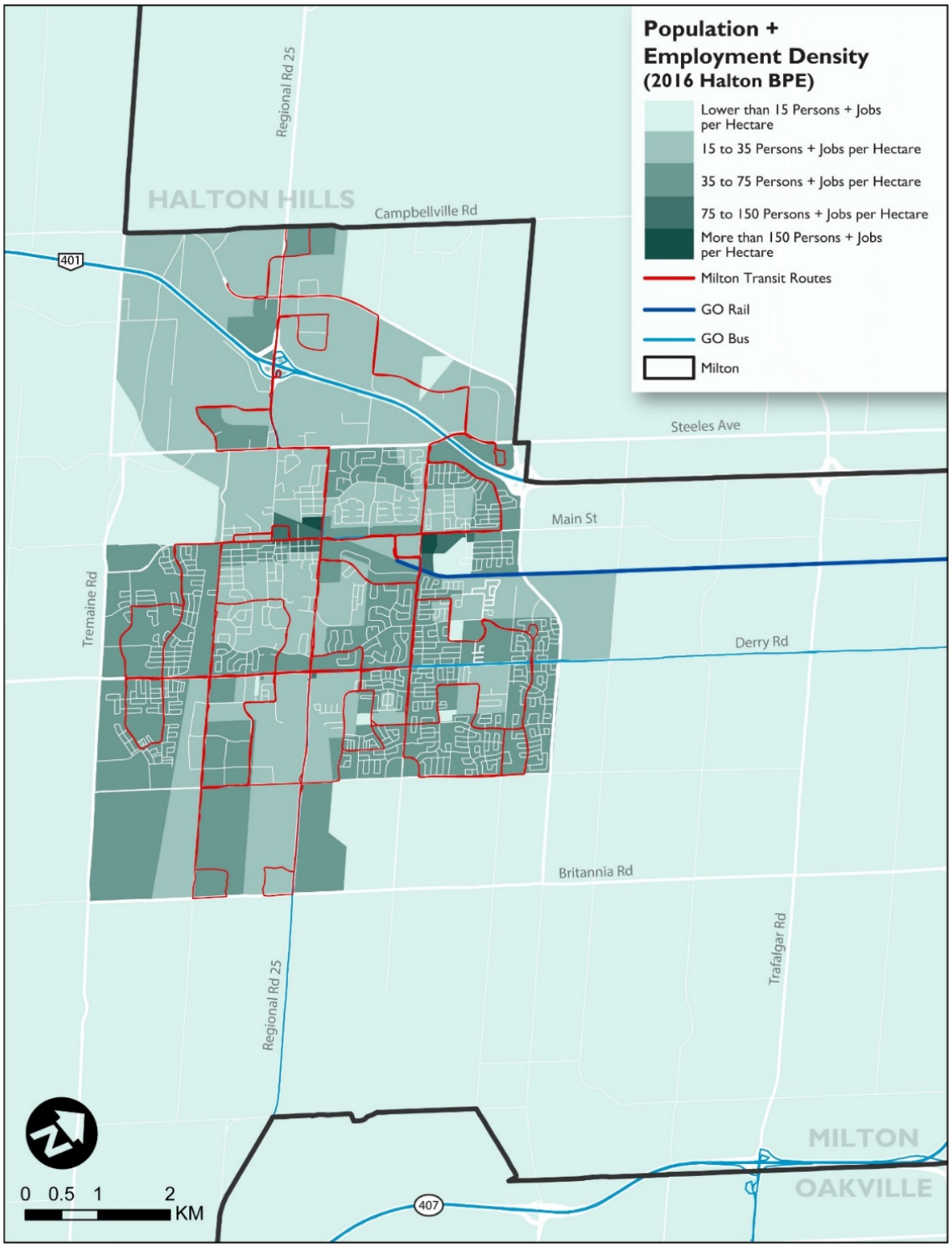


Figure 88 I Population and employment density in Milton Urban Area, Halton BPE (2016)

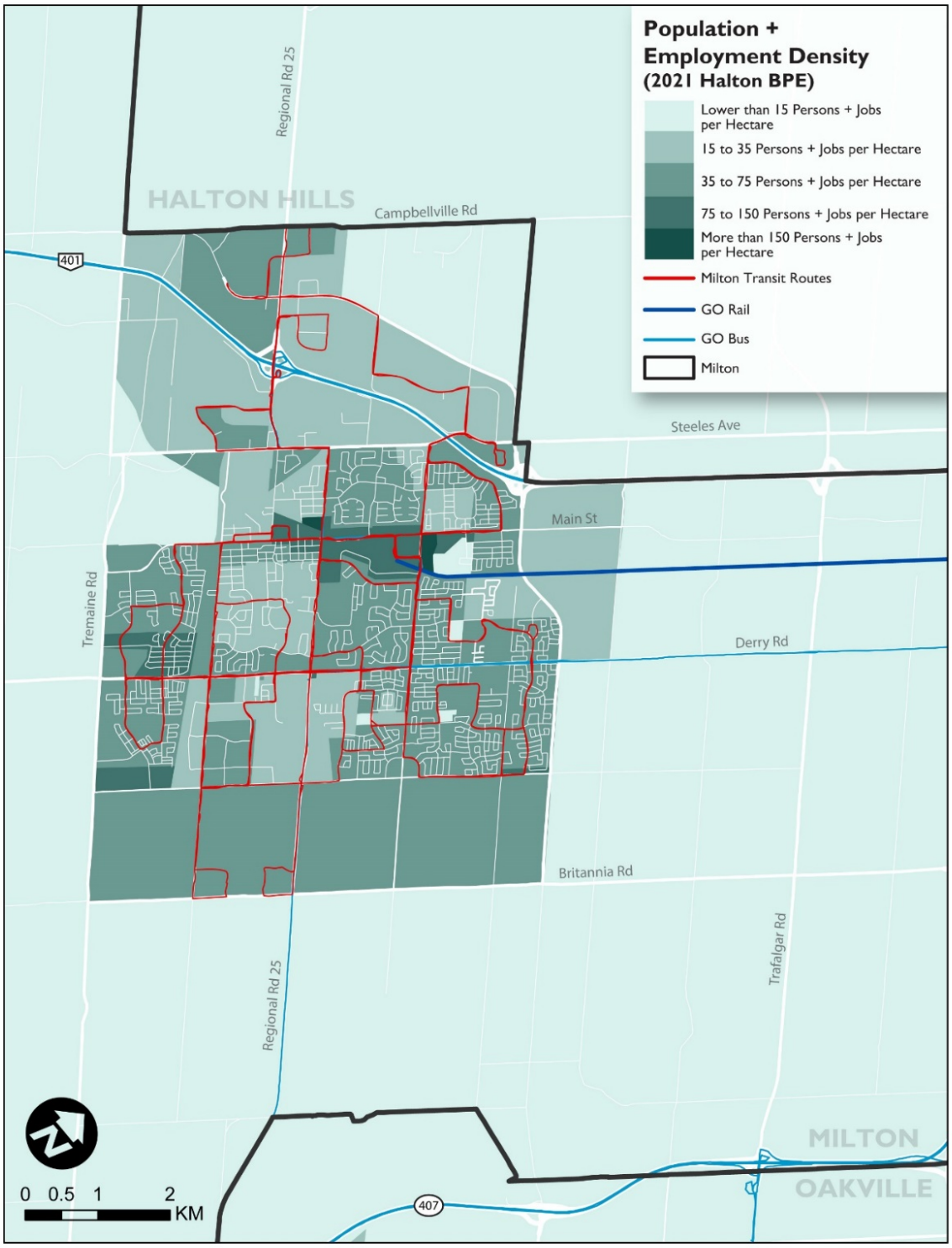


Figure 89 I Population and employment density in Milton Urban Area, Halton BPE (2021)

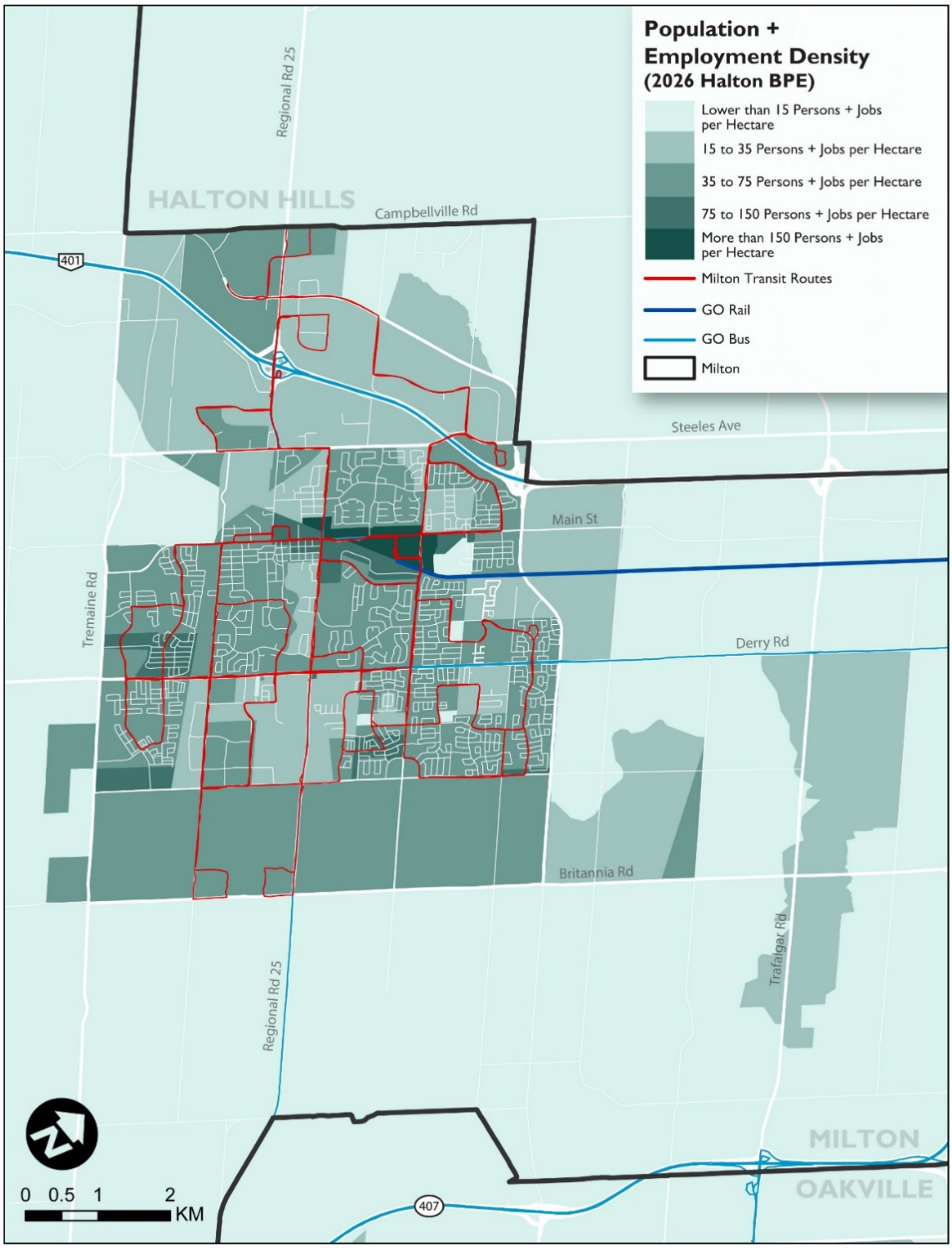


Figure 90 I Population and employment density in Milton Urban Area, Halton BPE (2026)

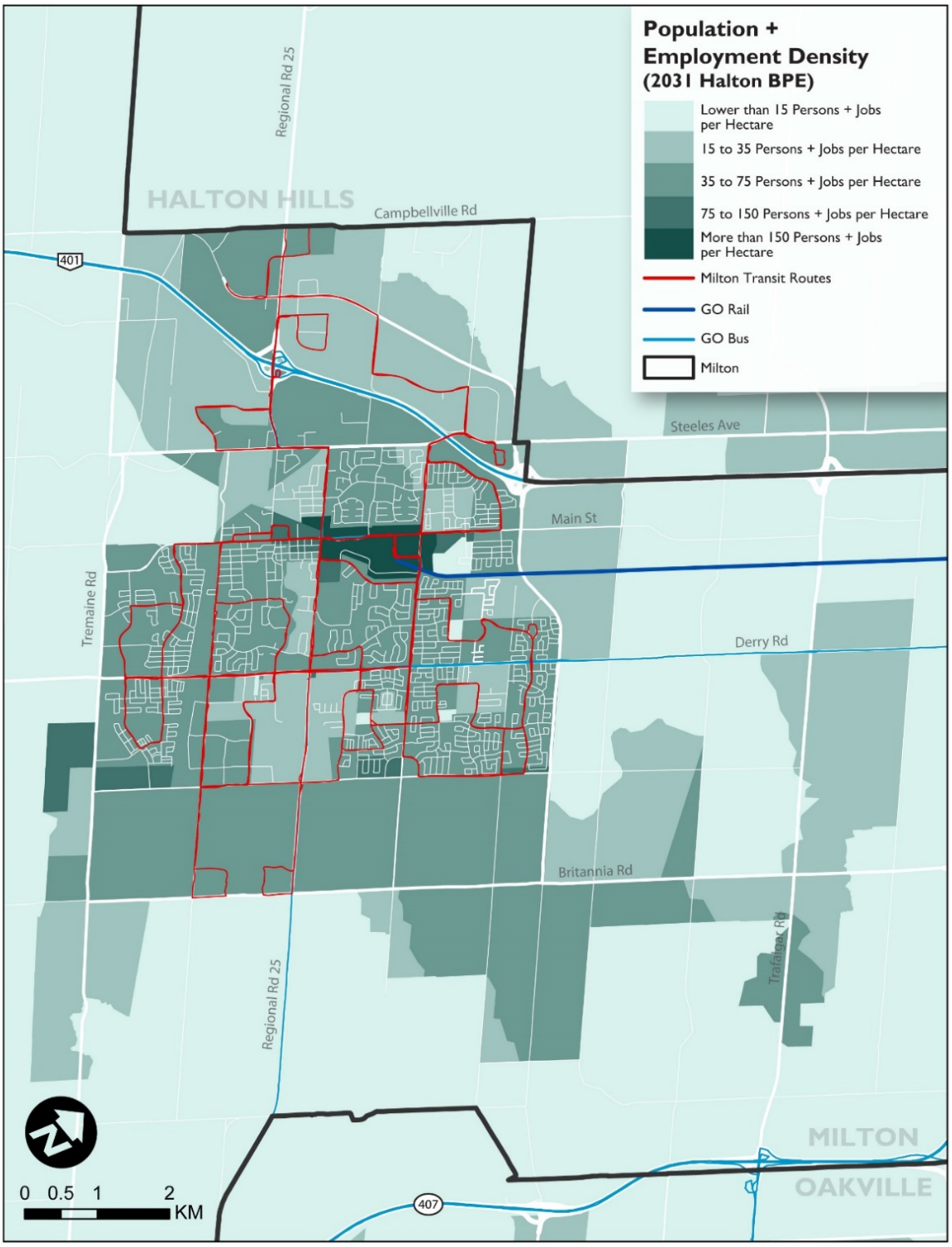


Figure 91 I Population and employment density in Milton Urban Area, Halton BPE (2031)

LAND USE AND DEVELOPMENT

Land use patterns, on a large scale, dictate the form, density, and placement of developments, and therefore have significant influences on how transit operates and how efficient it can be. In addition to density, the mix of land use types and development form and scale influences transit's ability to access and serve an area, and the productivity of transit serving the area.

PLANNED CHANGES TO LAND USE, ZONING

Figure 92 below shows the Land Use Plan from Milton's 2010 Official Plan. From the map, we can see that on a larger scale, Milton follows the typical development pattern for suburban environments, with large continuous single-use area, and clear boundaries between uses, with relatively little mixing or variation of uses. Major employment areas - industrial and business park areas locate primarily along the 401 corridor, in the north and east part of the urban area, separated from almost exclusively residential areas south of Steeles Avenue and west of James Snow Parkway.

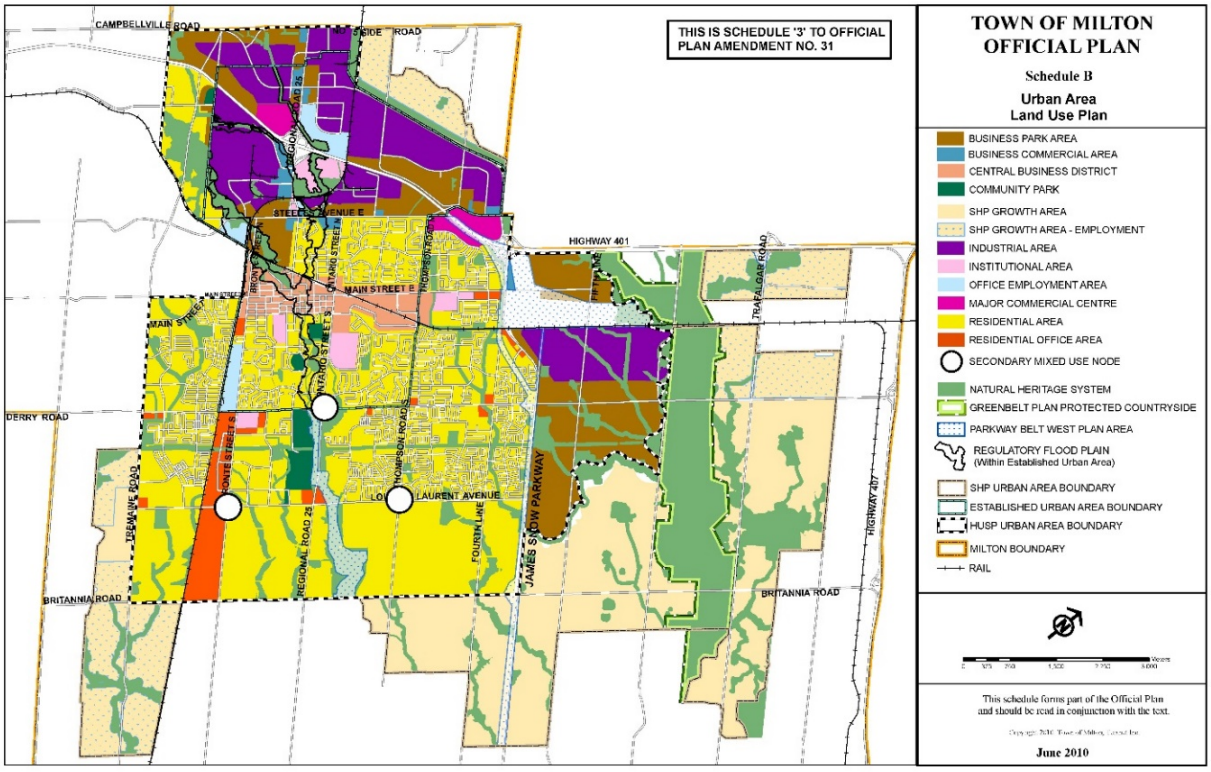


Figure 92 I Town of Milton Urban Area Land Use Plan, Town of Milton Official Plan Schedule B, 2010

PROJECTED DEVELOPMENT

Figure 93 below presents the area of urban expansion and phasing, from Milton's 2008 Official Plan. Outside of the established urban area, the residential portion of both Phase 1 and Phase 2 of Milton's development is mostly built. The 401 Industrial Park is largely built out, while Derry Green Corporate Business Park still awaits future development. Only the portion of the Boyne Survey area between Bronte Street and Regional Road 25 has been developed as of 2019. Although developments are slightly behind schedule, several additional secondary plans and intensification plans have been approved to direct additional development in the established urban area as well as new development in the urban expansion area.

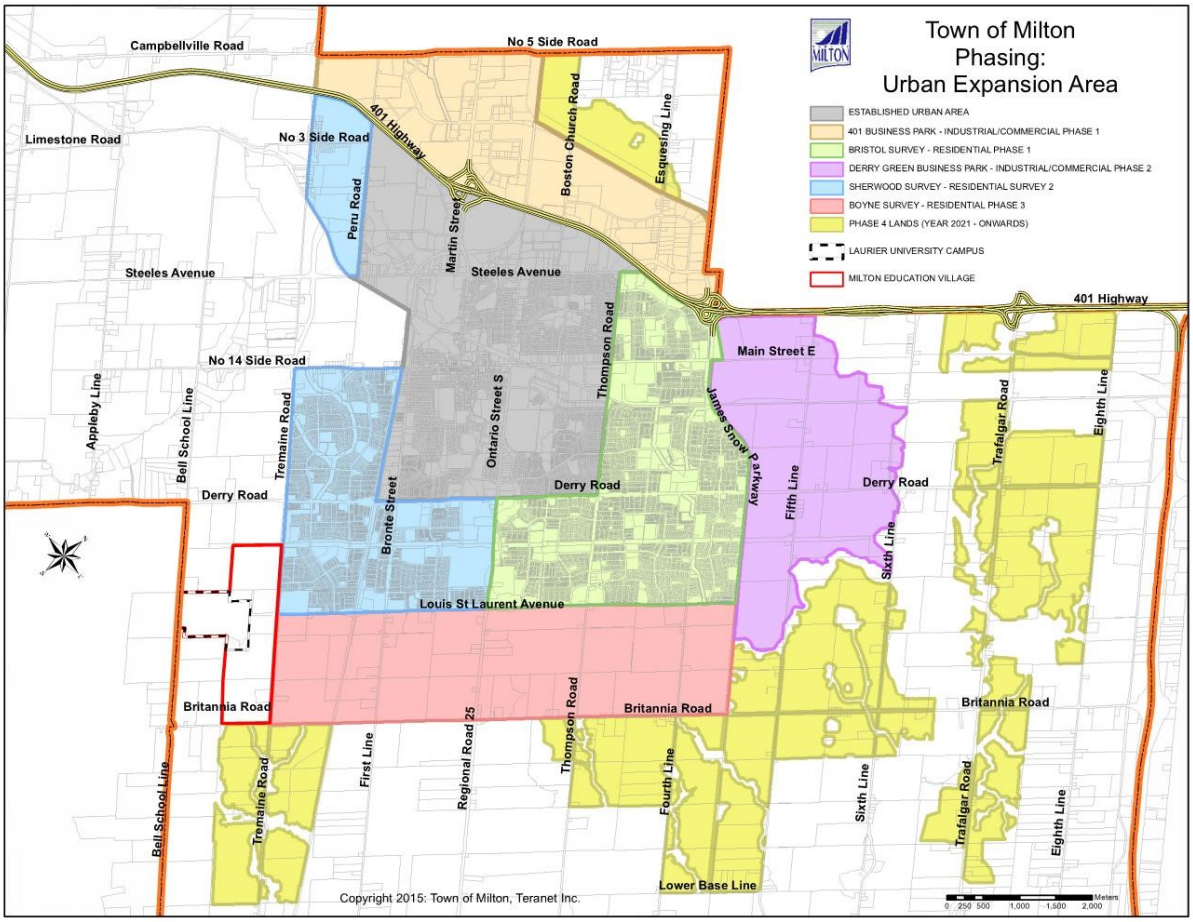


Figure 93 I Town of Milton Phasing: Urban Expansion Area, Town of Milton (2016)

URBAN GROWTH CENTRE

Figure 94 shows the approximate size and scale of the Downtown Milton Urban Growth Centre (UGC), defined by the province, from the Milton Intensification and Infill Study, initiated in 2009. A more precise version defined by the Town of Milton is provided in Figure 95. The area covers the eastern portion of the historic downtown and the entire Milton GO Station area, including Drew Centre. In 2017, the number of people and jobs combined in the UGC has reached 33[16] per hectare. However, the province's Growth Plan has set an aggressive target of at least 27,360 people and jobs combined inside Milton's Urban Growth Centre by 2031, which would represent a density of about 200 persons plus jobs per hectare. As such, the Study proposed that the Town of Milton relax its density restrictions and double the building height allowance from a maximum of 7 to 14 storeys to accommodate high density development in the area immediately surrounding the rail station. Figure 96 illustrates the proposed building height allowance for the entire UGC. Several high-rise structures were under development in the Milton GO station UGC area as of Spring 2019.

[16] According to Milton Major Transit Station Area/Mobility Hub Preliminary Density and Growth Projections Memorandum, published by R.E. Millward+Associates L.T.D. in October 2018

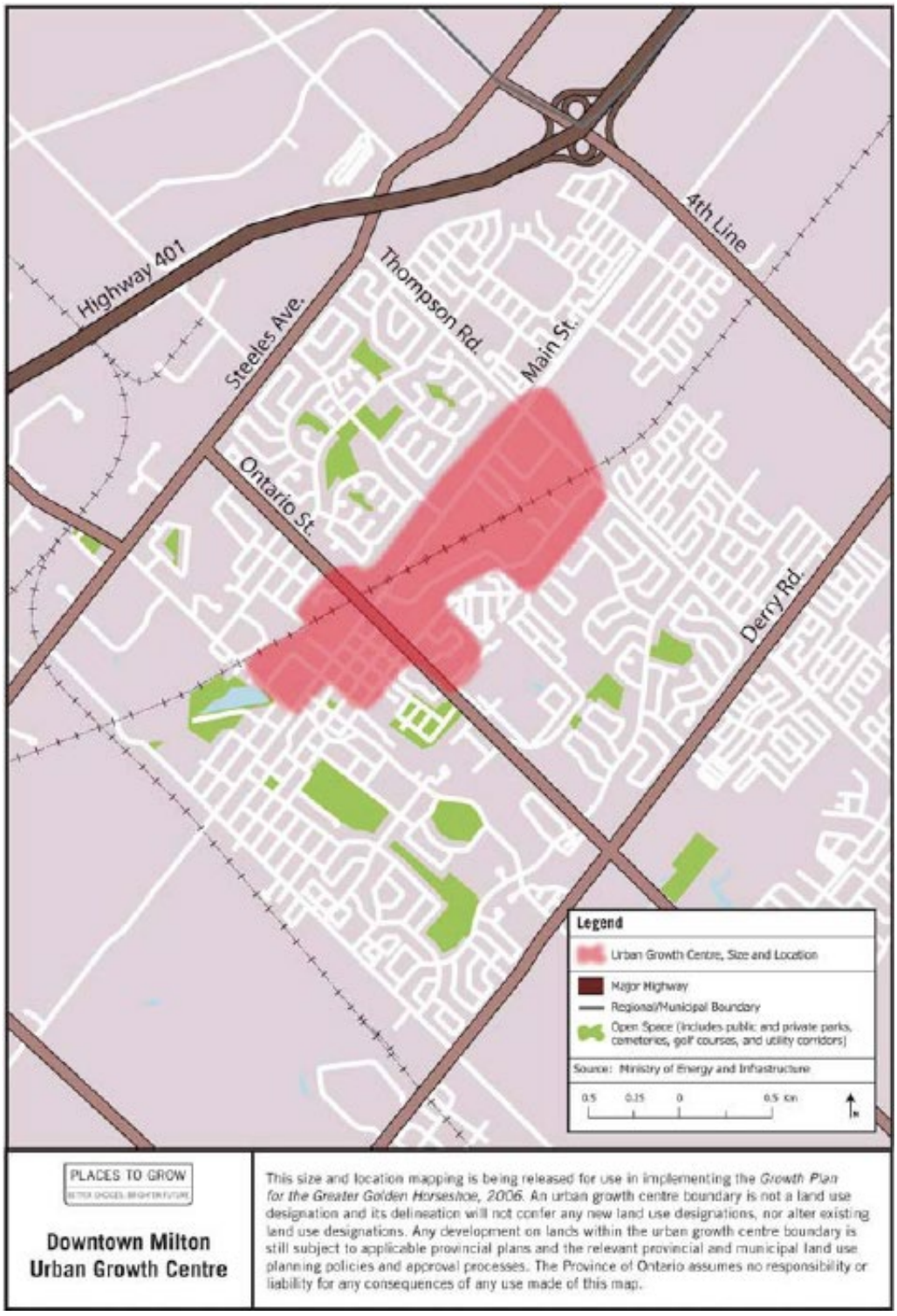


Figure 94 I Downtown Milton Urban Growth Centre, Town of Milton

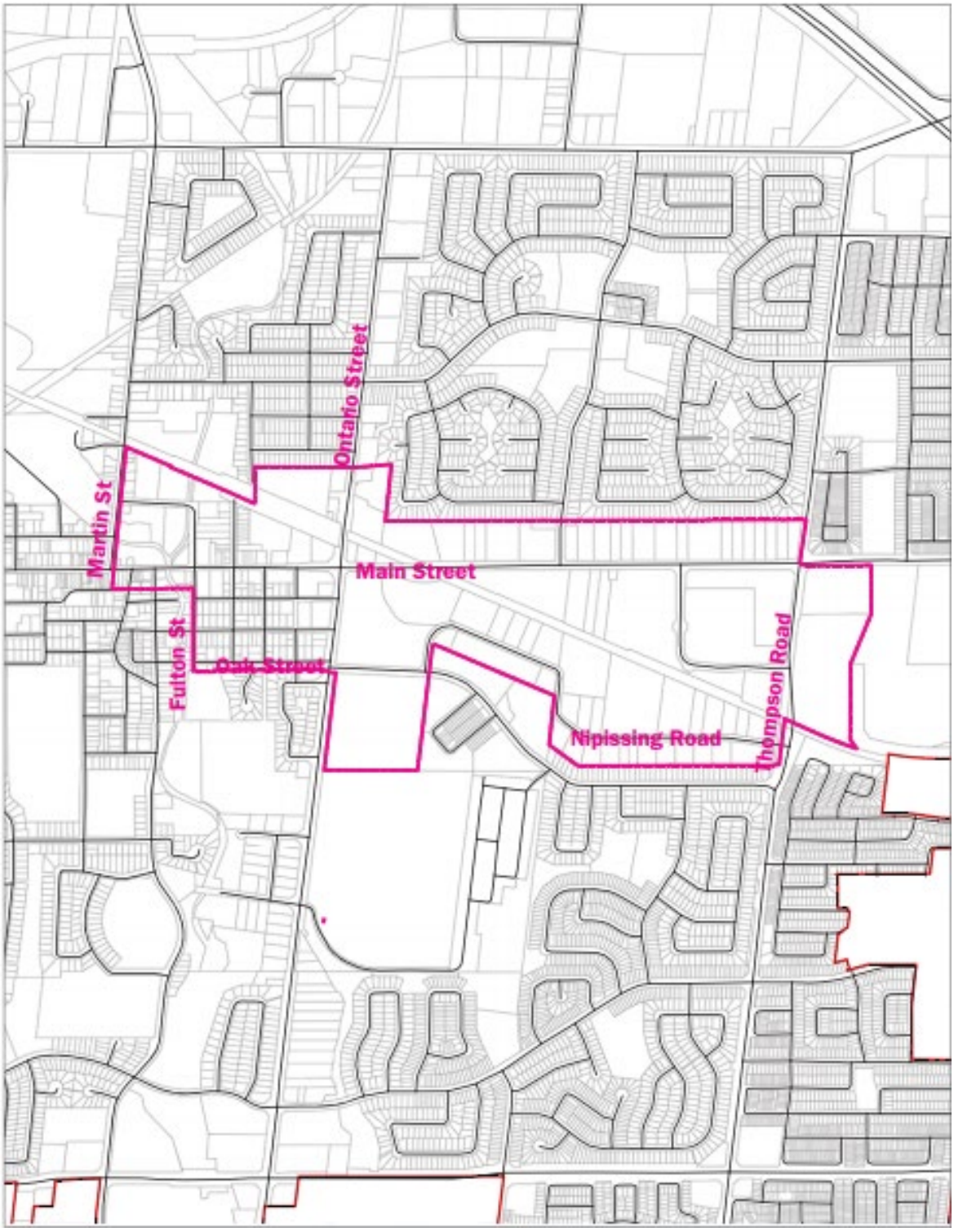


Figure 95 I Downtown Milton Urban Growth Centre, Town of Milton

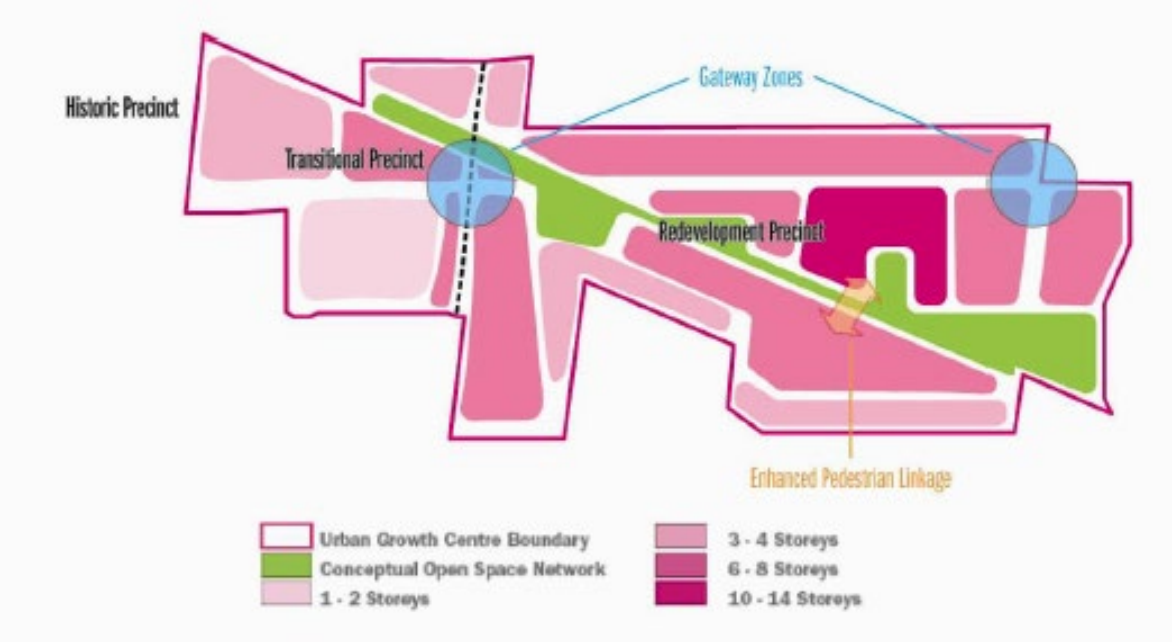


Figure 96 I Downtown Milton Zones

TRAFALGAR CORRIDOR AND AGERTON SECONDARY PLAN

Agerton Employment Area and Trafalgar Corridor Secondary Plan Areas are Milton's next phase of growth and development (2021-2031). These areas will be planned in accordance with Provincial Policies (Growth Plan, Greenbelt Plan, etc.), as well as Regional (Regional Official Plan Amendment 38) and local policies to achieve the vision of a mixed-use intensification, transit supportive corridor. Figure 97 on the next page presents the size and location of both areas.

The Town of Milton approved the Trafalgar Secondary Plan in March 2019 to guide the development of the Trafalgar Corridor. The Secondary Plan envisioned a "*mixed-use, high density corridor*" that is transit supportive, with a new GO Station connecting the area to Toronto and a high-order regional transit connecting north to Georgetown and south to Oakville. The Plan also identified a secondary transit Hub for Milton Transit and GO Bus near the intersection of Derry Road and Trafalgar Road.

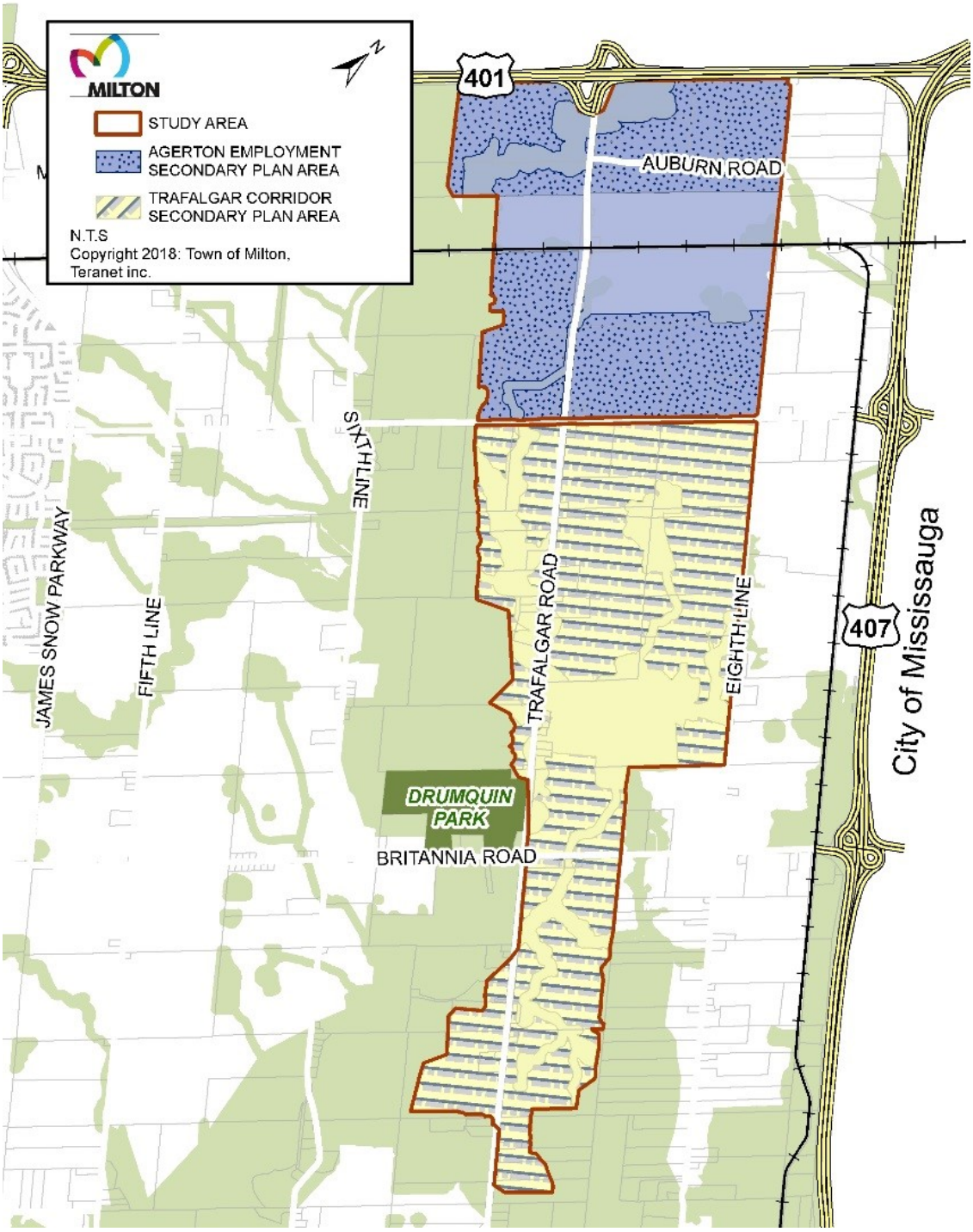


Figure 97 I Agerton Employment Secondary Plan Area and Trafalgar Corridor Secondary Plan Area within the study area in Milton, Town of Milton (2018)

EDUCATION VILLAGE – SECONDARY PLAN

Milton also has developed a secondary plan in collaboration with Wilfrid Laurier University to establish the Milton Education Village (MEV), which is located in the Town's southwestern corridor. As the plan states, *"[t]he Milton Education Village Secondary Plan is Milton's vision for a comprehensively planned complete urban neighbourhood, integrating post-secondary education, residential, commercial, employment and recreational uses into a 400-acre site*." Figure 98 shows the size and location of the MEV site.

Figure 98 I Milton Education Village within the study area in Milton, Town of Milton, 2018

Despite the original approved funding support was retracted by the Province in October 2018, Laurier University, in partnership with Conestoga College, demonstrated

its commitment in moving forward with the MEV with a plan "to expand its footprint at the MEV Innovation Centre and offer a broad range of academic programing", according to the Town of Milton Council Staff Report ES-001-19.

DERRY GREEN CORPORATE BUSINESS PARK

Designated as part of Milton's phase 2 expansion, the Derry Green Corporate Business Park Secondary Plan area is located in the immediate east of Milton's established urban area, bounded by Highway 401 in the north, Sixth Line in the east, Sixteen Milt Creek in the south, and James Snow Parkway in the west. The location of the Derry Green Corporate Business Park is shown in Figure 99 on the next page.

The Derry Green Corporate Business Park Secondary Plan was initially adopted by the Town of Milton Council in 2010, and amendments of the town's Official Plan that determined the structures of the Corporate Business Park was approved and adopted in 2015. It is expected to accommodate up to 18,000 employees, and the town will ensure that the development conform its transit-supportive design criteria and standards in the Urban Design Guidelines.

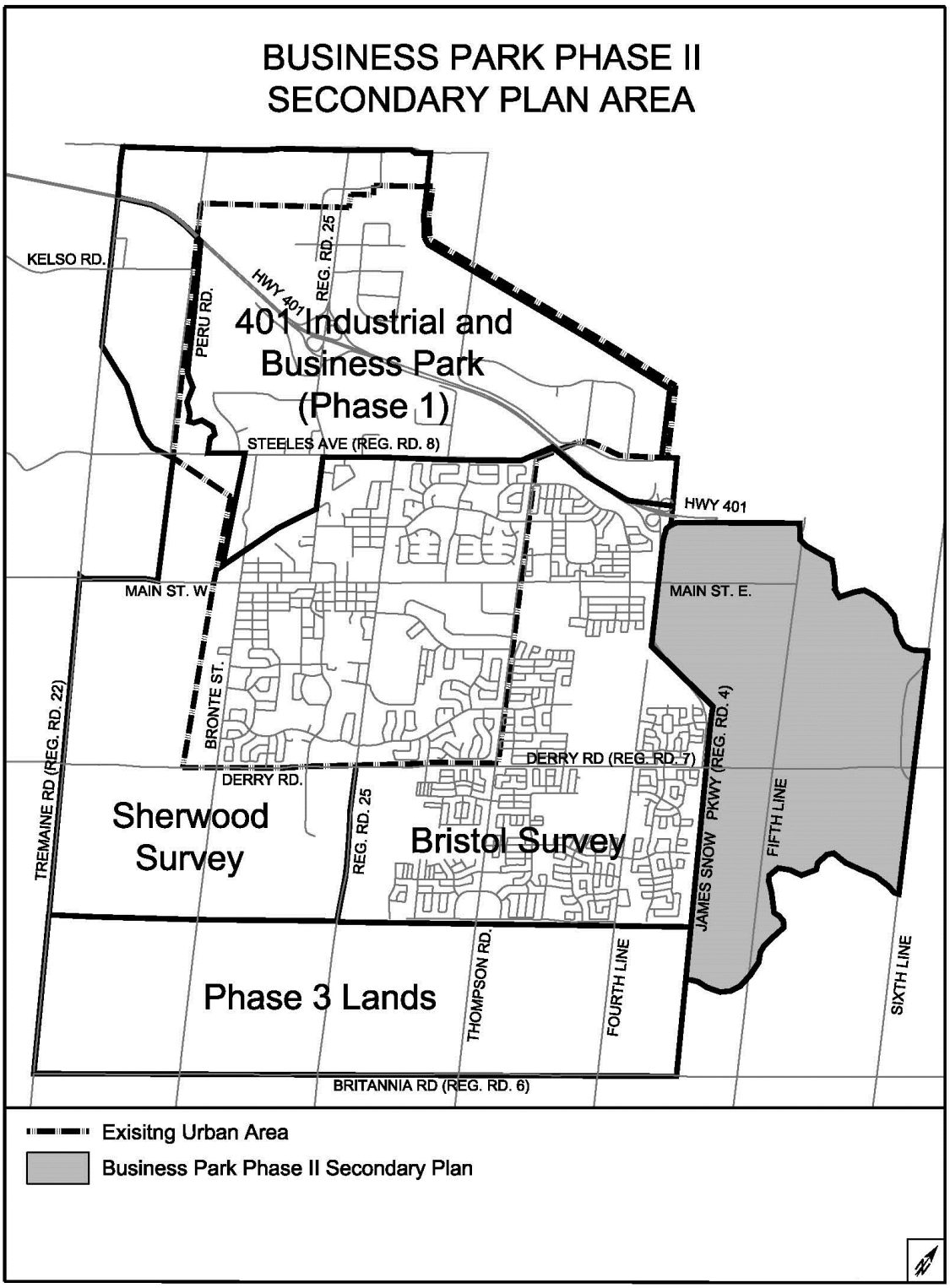


Figure 99 I Business Park Phase II Secondary Plan Area, Town of Milton

KEY TRIP GENERATORS-DESTINATIONS

Trip Generators in and around Milton's urban area were examined to determine if there are concentrations of destinations that are not currently being served by transit. The categories of these destinations are listed below, and are mapped in Figure 100.

- Healthcare
- Libraries
- Milton GO Station
- Schools
- Shopping Centres
- Major Employers

Milton Transit's fixed-route service serves virtually all of the key destinations in Milton, exceptions being some employers in the 401 Business Park area that are beyond the range of bus routes 1A and 1B. Toronto Premium Outlets, a key destination identified by members of the public, both in public consultation and through service requests to the Town, lies outside Milton in the adjacent town on Halton Hills.

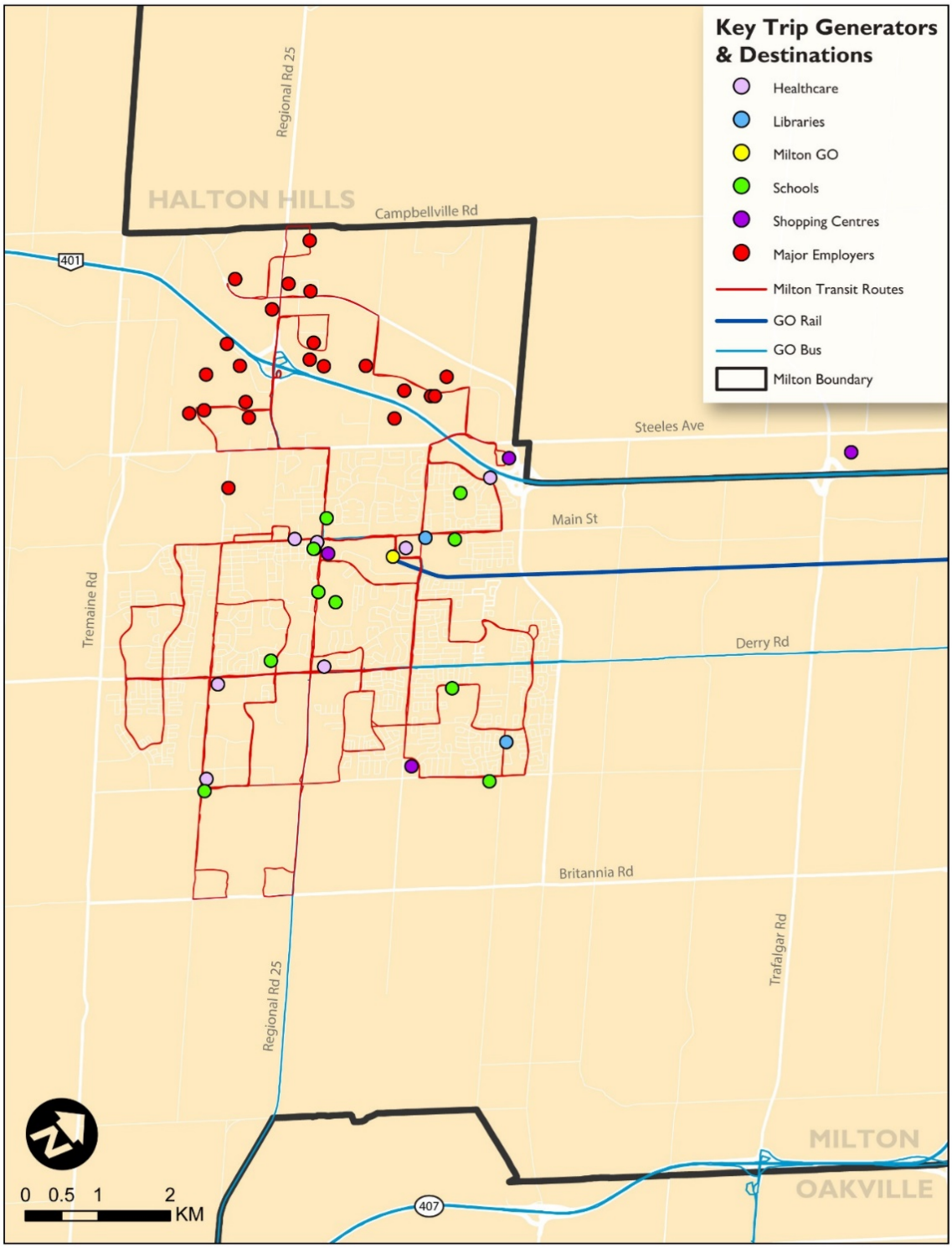


Figure 100 I Key trip generators & destinations in Milton Urban Area, Town of Milton

LAND USE AND DESTINATIONS SUMMARY

Land use remains Milton's fundamental challenge to public transit and to other alternative and non-motorized forms of transportation. While densities have increased and housing offerings have diversified in recent years, and new subdivisions incorporate schools and parks, many of the challenges created by suburban development forms that were established beginning in the 1950s and 1960s, remain in more recent developments. These include strict separation of land uses and a persistent mismatch between the scales of residential, retail, commercial and industrial development that makes true integration of land uses all but impossible. While parking requirements have been relaxed, retail development remains persistently suburban and auto-oriented. Retail stores almost always are located in single-story buildings, oriented to parking lots connected to the arterial roadways, with poor pedestrian connections to surrounding residential development. Many existing residential developments are inward-facing, with the back fences of houses, limiting access to bus routes operating on the arterial roadways. In other locations, bio-wastes and water retention ponds separate housing from adjacent arterial roadways. Even many newer housing developments appear to have no non-residential development within walking distance. These development patterns create challenges for public transit, requiring that transit service penetrate the interior of the subdivisions to provide service, rather than remaining on arterial roadways. But the lack of walkable connections between residential areas and such typical daily destinations as schools, grocery stores, health clubs and restaurants—to say nothing of employment centres—will result in high traffic volumes and increasing traffic congestion, as residents are forced to use the arterial roadway network to complete these and all other daily trips. Fortunately, internal roadway networks are not in place in many of the subdivisions, and improvements are planned to several of the arterial roadways, allowing them to be designed to provide better transit access and better conditions for pedestrians and bicyclists than are available in many parts of Milton today.

Traffic congestion may be further exacerbated by a shift from low density to very high density, with several taller buildings in the range of 8-15 storeys proposed or under construction, both in the area around the Milton GO rail station and elsewhere. Taller buildings increase density, but can increase traffic demand in their immediate area to intolerable levels unless they are located in areas with many daily amenities within walking distance, and unless they are served by frequent transit service to connect

them to more distant destinations. Many planners consider buildings above six stories, or developments exceeding a floor-area ratio (FAR) of 2, to be an undesirable as lower-density development below the density of FAR 1, due to the impact these buildings have on traffic and utility systems in the areas where they are located.

In its historic downtown and surrounding neighbourhoods, Milton has an almost ideal template for future development to be emulated and replicated in future development. Constructed in the late 19th and early 20th century, before cars and elevators were common, downtown Milton is limited in its scale and height by the limitations of human beings to comfortably walk more than 500 metres or climb more than three or four storeys. This results in variegated development, with single-family houses, townhouses, apartments, stores, offices, schools, churches and public buildings, all jumbled together in a walkable, compact area. This type of development is ideal for public transit, placing hundreds of jobs and residents within a short walk of each bus stop, providing excellent pedestrian access, and naturally limiting the availability of auto parking. Perhaps more importantly, placing most of residents' daily travel needs within walking distance provides residents with a more active lifestyle while reducing the number of both transit and auto trips. The scales of industrial development, and some forms of retail development, are impossible to integrate in this pre-auto development pattern, but many other types of residential, retail and office development can be accommodated within a traditional town pattern. However, the principles of placing pedestrians first and developing at a scale that promotes walking for most transportation needs supports healthful lifestyles, promotes public transit for longer distance trips, and benefits residents' quality of life.

MARKET ANALYSIS FINDINGS

The analyses suggest the following findings:

Milton's population is projected to double in the next 10 to 15 years. Much of the growth is concentrated in places with little transportation infrastructure in place and no existing transit presence (i.e. Phase 4 lands such as Trafalgar Secondary Plan Area, and Education Village). However, population also is expected to grow in the existing developed areas of the Town. This suggests that Milton Transit will need to increase service levels within the existing developed areas to serve increasing demand, and extend service to meet demand in newly-developing areas of the town.

Milton's demographics indicate that the community is moderately affluent and has relatively few transit-dependent people. Milton's most promising transit markets are GO commuters, students, and new workers.

Milton's employment base also is expected to grow significantly in the next ten years. The projected growth and location of Milton's employment base reveals two disconnects between Milton's population and employment base: geographic, with employment largely concentrated at the Town's northern, eastern and western peripheries, with population growth concentrated in the Town's centre and moving southward; and demographic, with concentrations of service, manufacturing and industrial employment that are not consistent with the town's increasingly educated, middle-income population. The geographic disconnect means that Milton Transit will increasingly be called upon to connect residents to employment lands, while the demographic disconnect suggests the need for connections to surrounding municipalities to provide access to a wider regional workforce.

Transit propensity analysis indicates that the combined population and employment density of the Town is projected to remain moderate except in the area around the Milton GO station, the education village area, and the Trafalgar secondary plan area. Maintaining suburban densities in most of the Town means that Milton Transit will have moderate transit demand, but that most of the Milton will remain auto dependent for most travel needs.

Milton's suburban land use pattern is a formidable challenge for transit. Pedestrian and transit uses are not prioritized, and land uses are not mixed in ways that promote walking and cycling for many non-work travel purposes. Fortunately, detailed plans are

not in place for many of the subdivisions planned in newer areas of the Town, offering the opportunity that the mix of land uses, priorities of the roadway network and pedestrian access still can be modified. If the patterns of the recent past are followed, transit will be challenged to meet transportation needs, and new development will significantly aggravate traffic congestion.

Recent traffic projections for Milton indicate that traffic congestions are expected to worsen over the next ten-to-fifteen years, making it more important to ensure that transit-related improvements are carried out on regional arterials like Britannia, Derry, Steeles and Trafalgar, and additional transit-related improvements are made on local roads to improve transit travel time and reliability.

SERVICE & PERFORMANCE STANDARDS

The development and implementation of service and performance standards are important to measure system success. Service and performance standards establish an objective mechanism to monitor how Milton Transit is progressing towards achieving service goals and objectives. Measurable service and performance standards are intended to make public transit more convenient, cost-effective, comfortable and easy to use for customers, while ensuring safe, reliable and efficient transit service delivery. They bring clarity, consistency and objectivity to the process of service adjustments and improvements in order to manage diverse and changing customer demand. Service and performance standards allow flexibility to respond to customer and community expectations in a fair, accountable, equitable and efficient manner when performance measures are not met. Decisions regarding service levels, frequency, coverage, routes to expand, markets to serve and levels of convenience are supported by appropriate measures of service standards.

Fundamentally, these goals are founded on the essential purpose of government services: to efficiently and cost-effectively provide services that support and enhance the lives of those who live, work and visit Milton. Public transit service and performance standards form a system in which the agency's resources—funding, capital plant and equipment, and staff resources—are regularly monitored and reallocated to those areas of the operation where they are most likely to advance the agency's goals for their transit system. Each of these goals is discussed in greater detail below.

STRATEGIC POLICY DIRECTION

This section describes a number of strategic policies that are crucial in providing guidance to the development and implementation of service and performance standards, at both region level and local level.

MILTON VISION – DESTINY MILTON 3

Milton Transit Service and Performance Standards are aligned with Milton's Strategic Action Plan - Destiny Milton 3, adopted in 2015. The Strategic Action Plan defines the vision for Milton:

> *Together, we will shape the future of Milton by building a vibrant, thriving and innovative community, where everyone feels welcome, safe, connected and engaged.*

Destiny Milton 3 also sets five strategic action goals to achieve the vision:

- Vibrant and Connected Community
- Economic Growth
- Financial Sustainability
- Enhanced Communication
- Organizational Effectiveness

These goals provide the framework for transit service design and delivery. They advocate for a system that balances cost effectiveness with the need to provide connectivity while promoting a vibrant, thriving, and innovative community.

PRINCIPLES FOR BUILDING A COMPLETE COMMUNITY

Building on the five strategic action goals from Destiny Milton 3, Milton identified five key themes in adapting to its rapid growth in the "Milton's First Principles of Growth - Building a Complete Community" document. These themes along with the guiding principles together provide guidance to Milton Transit's service design and performance standards. Themes highlighted in the document include:

- A Safe and Healthy Community

- Enhanced Transportation to move People Efficiently
- A Community of Education and Innovation,
- Adequate Funding to Support Infrastructure Delivery
- Changes to Support Long-Term Financial Stability

HALTON REGIONAL TRANSPORTATION MASTER PLAN

Halton Region's 2011-2031 Transportation Master Plan (RTMP) establishes a number of targets for public transit growth through 2031. These targets include:

- Support region's population and employment growth targets set by Halton Regional Official Plan Review (ROPA 38);
- Transit mode share increase from 5% in 2016 to 20% in 2031
- Protecting higher order transit corridors at key strategic locations within the region;
- Developing a Transit Priority Program and implementing supportive measures along key corridors and at nodes;
- Implementing transit on semi-exclusive/exclusive right of way (ROW) with signal priority on Regional Road 25, from Main Street in Milton to Speers Road in Oakville, and on Britannia Road from Tremaine Road to the City of Mississauga
- Implementing Bus Rapid Transit (BRT) on Trafalgar Road from Oakville through Steeles Avenue in Halton Hills to the City of Mississauga

In addition to the goals set in the RTMP, Halton Region Mobility Management Strategy (2041) highlighted additional Transit Priority Corridor on Derry Road from Tremaine Road to Medowvale Town Centre in the City of Mississauga, and a Mobility Link connecting Oakville, Milton, and Acton via James Snow Parkway / Regional Road 25.

These targets demonstrate the continued significance and role of public transit in supporting a sustainable and integrated transportation system in Halton Region.

MILTON TRANSPORTATION MASTER PLAN

The 2018 Milton Transportation Master Plan (TMP) provides an overall direction for Milton to expand its transportation network in an integrated, efficient and effective manner. Following the goals and targets set by regional plans and studies, the TMP acknowledges that it is impossible way to "*build Milton out of congestion.*" As such, the

TMP recommended an integrated, multi-modal plan that uses the road network as the backbone to expand transit services, to enhance and support the Town's reputation as a good place to live, work, and play. The TMP also identifies that providing fast, frequent transit service is one of the best ways in achieving the town's goal in seeing increased transit mode split.

Reliable transit services also strengthen community connections, especially for people with less means and disadvantages, and support independence and completeness for each community. In addition to regular bus services, the TMP also calls for diversified transit service in various forms, including taxis and the use of Transportation Network Companies (TNCs) to provide additional coverage services – Home-to-Hub program in low-transit demand areas such as new development, and replace it with regular bus service when Home-to-Hub service reach a certain threshold.

MILTON TRANSIT VISION

The service and performance standards also are linked to the Vision of Milton Transit:

> *Milton Transit provides a safe, reliable, accessible and cost-effective public transportation system, promoting sustainable neighbourhood connectivity, personal mobility and independence.*

The Vision statement goes on to elaborate on the vision, describing some of the ways in which Milton Transit can enhance quality of life:

> *Going to school, work, shopping malls, doctor's appointments, the gym, the library, or just to explore your community; Milton Transit is the preferred travel option for you and your family. We embrace a safe, reliable, innovative and cost-effective system, putting transit in the centre of communities, while promoting connectivity, personal mobility and independence. Whether you are a student, older adult, regular commuter or someone who has additional needs, Milton Transit can take you there with ease, because we do not want to be an added stress in your life. We want you to concentrate on what's most important – family, friends, work, school and having fun without worrying about getting there!*

We retain the right service provider who shares in our collective values. Operators and customer service staff remain the face and voice of our business; representative of the vision we have to give you the best possible experience using any of the services we offer. We also embrace new technologies and approaches to grow our business, offering a menu of services catered to the varying needs you may have.

This is Milton Transit on the Move!

MILTON TRANSIT FAMILY OF SERVICES

SAFE, SECURE, ACCESSIBLE

At the most basic level, transit service must be safe for its customers, bus operators and other employees. PW Transit has its own safety standards for maintenance and other activities in and around the maintenance and storage facilities. In addition, Milton Transit should monitor the following measures of safety, security and accessibility.

- Number of incidents (not simply collisions) per 100,000 vehicle kilometres
- Stops should be well lit, in open area along the street, with basic amenities at the least

All Milton Transit buses and facilities should be accessible and meet the standards of the Access for Ontarians with Disabilities (AODA) act, which governs accessibility for transit service in Ontario. Buses should be low floor in configuration and/or equipped with a wheelchair ramp. Buses should be equipped with and wheelchair mounts, etc.

RIDERSHIP AND FINANCIAL PERFORMANCE

In general, ridership generation is the primary measure of success for a transit system. Ridership growth is essential to meeting other community goals, such as supporting population and employment growth and urban intensification, and increasing the transit system's mode split relative to driving, and thus can serve as an easily measurable proxy for measuring progress towards achieving regional and local goals. When ridership is increasing, community benefits are realized. Increasing ridership typically aligns with increasing revenues, higher community satisfaction and improving employee satisfaction. Increasing ridership will be critical to meeting the agency's productivity and financial performance goals. Meanwhile, the Ontario Dedicated Gas Tax Funds for Public Transportation (Gas Tax) Program, which launched in 2004, collected 2 cents per litre of gas across the Province to provide a long-term, sustainable source of funding stream for Ontario municipalities, also specified an allocation formula of 70% ridership and 30% population (coverage). Because increasing ridership generates benefits related to many of the Town's and region's other public transit goals, generating ridership growth is the goal that will receive the most attention in the development of the 2019-2031 Transit Master Plan Update.

COST-EFFECTIVE, EFFICIENT

Public transit is provided by governmental agencies as a subsidized service, with users paying part of the cost through fares, and the remainder of the cost paid through subsidy. In the case of Milton Transit, close to one third of the operating cost of the service is covered by fare revenue, with the remainder provided primarily by municipal funds. It is incumbent upon Milton Transit to achieve the Town's cost recovery goals while providing a high quality of service that helps the Town meet its transportation and social goals, meets (or, ideally, exceeds) the expectations of both its customers and employees, and contribute to the high quality of life enjoyed by residents of Milton.

The Town of Milton has historically set a cost recovery goal of 30-35% for Milton Transit's services. Milton Transit's farebox recovery ratio was 32% in 2017. To meet these goals and standards while continuing to improve the quality of its services and meet its ridership goals, support the town's intensification, and meet other goals, Milton Transit must improve its efficiency and effectiveness through a number of initiatives:

- Milton Transit must continually apply new technologies that have been, proven to be and cost-effective technologies in applications with other transit operators, to improve every aspects of its operations to and ensure that Milton Transit's customers and employees are benefitting from every possible technological advantage, while avoiding costly mistakes related to implementing technologies that have not been proven cost effective in real-world applications.
- The transit system's marketing effort must be adequately funded and take advantage of the latest and most efficient means of making Milton residents and workers aware of their transit system, the benefits it offers and how it can meet their transportation needs.
- Milton Transit's fare collection system and fare policies are critical to both attracting new users and improving the system's cost recovery. The application of new technologies and approaches to fare collection will make it easier for Milton Transit customers to pay their fare while attracting more regular GO Transit riders.
- Take advantage of the opportunity for the town's intensification efforts to increase transit ridership and efficiency, while supporting those intensification efforts by providing a high level of service on high frequency routes.
- The implementation of new monitoring and measurement techniques will insure that Milton Transit and regional decision-makers will have timely, detailed information on the performance of every aspect of the Milton Transit system, supporting management and planning activities to make the system progressively more efficient and effective.

SUPPORT INTENSIFICATION

The province's Growth Plan has set an aggressive target of at least 27,360 people and jobs combined inside Milton's Urban Growth Centre by 2031, which would represent a density of about 200 persons and jobs combined per hectare. The Milton Intensification and Infill Study, initiated in 2009, proposed that the Town of Milton relax its density restrictions and double the building height allowance to accommodate high density development in the area immediately surrounding the Milton GO Station. As of Spring 2019, several high-rise structures were under development in the Milton GO Station UGC area.

Milton Transit's services have a complementary relationship with intensified urban development. High frequency, high quality transit service attracts more intensive levels of development and provides a key component of the balanced, multi-modal transportation system that is necessary to prevent such development creating intolerable levels of traffic congestion. Intensified, mixed-use urban development provides the high number of potential transit customers within close proximity to stations, and the vibrant, walkable environment, that is necessary to support high frequency transit service. To fulfill its part in this relationship, Milton Transit must continue to provide high frequency, high quality service in its high-density areas and work with the Region and municipalities to make capital investments in transit stop, intersection and pedestrian improvements to improve and maintain access to transit stations and stops.

TRANSIT SERVICE TYPE	SUGGESTED MINIMUM DENSITY
Basic Transit Service (One bus every 20-30 minutes)	22 units per hectare / 50 residents & jobs combined
Frequent Transit Service (One bus every 10-15 minutes)	37 units per hectare / 80 residents & jobs combined
Very Frequent Bus Service (One bus every 5 minutes with potential for LRT or BRT)	45 units per hectare / 100 resident & jobs combined
Dedicated Rapid Transit (LRT/BRT)	72 units per hectare / 160 residents & jobs combined

Table 56 I Minimum Density Threshold for Areas within a 5-10 Minute Walk of Transit Services

Table 56 illustrates the suggested minimum density thresholds for areas within a 5- to 10-minute walk of transit capable of supporting different types and levels of transit service. The thresholds presented are a guide and not to be applied as standards. Other factors such as the design of streets and open spaces, building characteristics, levels of existing coverage service, travel time, range of densities across the network and mix of uses can also have a significant impact on transit ridership. Mobility hubs and major transit station area may require higher minimum densities.

INNOVATIVE – LEVERAGE TECHNOLOGY

As of 2019, Milton Transit relies on reports from GFI Genfare (GFI) fareboxes for ridership data. The system is able to record total ridership by route broken down by fare category and by time of day, with input from driver. GFI farebox data is retrieved manually from vehicles at the end of each day. This data can be used to understand customers on each route, and has the benefit of being able to count all passengers boarding the bus regardless of fare media used. However, the use of some fare medias such as GO Fare Discount Program and transfers are recorded manually by the drivers, making the data quality dependent of the diligence of each driver.

Milton Transit installed Automated Passenger Counter (APC) system on all conventional transit buses as a part of the Federal Public Transit Infrastructure Funding (PTIF) allocation. System configurations and calibrations were completed in March 2018 and its performance has been proven accurate when compared to the GFI farebox counts. The APC system produces reports recording boarding and alighting information specific to geography, which provide crucial information for understanding vehicle capacities in related to demand for each route throughout the service area. Such information is also useful in determining allocation of passenger amenities.

SERVICE STANDARDS

The Transit Master Plan Update sets service standards for various aspects of Milton Transit's operations. These are based both on the goals and aspirations of Milton Transit and the town, and on Milton Transit's recent provision of service. The standards are summarized in the tables on the following pages.

PLANNING

CATEGORY	REGULAR COVERAGE SERVICE	REGULAR FREQUENT SERVICE	SECONDARY SCHOOL SPECIAL SERVICE	REGIONAL TRANSIT SERVICE
Categories Defined	Regular bus routes placed in areas like 401 Business Park, or in areas that generally meet minimum density standards, on a limited time trial basis	Bus routes operating primarily on arterial and collector roadways, providing local connections within and among adjacent neighborhoods and communities	Special services operating before and after school times during school instruction days only	Limited stop service that connects to highly-demanded destinations in adjacent municipalities outside Milton
Types of Equipment Used	Full-sized bus, smaller Vehicle	Full-sized bus, articulated bus	Full-sized bus, articulated bus	Full-sized bus
Types of Roads/Streets Served	Operates on local streets, or on arterial or collector roads when needed	Operates on local streets, or on arterial or collector roads when needed	Operates on local streets, or on arterial or collector roads when needed	Operates on arterial corridors, with deviations from arterial corridors only when connecting destinations

CATEGORY	REGULAR COVERAGE SERVICE	REGULAR FREQUENT SERVICE	SECONDARY SCHOOL SPECIAL SERVICE	REGIONAL TRANSIT SERVICE
Implementation Warrants for Service	In non-core areas or new service areas within core area. Other options for such areas include home-to-hub or other demand-based options.	Mostly in core areas with density above 30 persons and jobs/hectare* 150 average home-to-hub weekday trips from primary service area	Connects to all public and secondary schools and areas with youth density above 10 persons/hectare, particularly in areas without regular frequent service	Determined by identified need
Target Headway (mins)	60	15	4 trips per day	Determined by identified need.
Minimum Headway (mins)	60	30 peak, 60 off-peak		Determined by identified need.
Minimum Span	Determined by identified need.	6:00 AM – 10:00 PM Monday-Friday	Determined by school bell times	Determined by identified need.

CATEGORY	REGULAR COVERAGE SERVICE	REGULAR FREQUENT SERVICE	SECONDARY SCHOOL SPECIAL SERVICE	REGIONAL TRANSIT SERVICE
Minimum average ridership to maintain service	10 boardings per service hour	15 boardings per service hour	35 boardings per service hour	15 boardings per service hour
Warrants for Frequency Upgrade	Upgrade to regular service when ridership exceeds 15 boardings per revenue vehicle hour.	Route level: Ridership exceeds 20 boardings per revenue vehicle hour Farebox recovery exceeds 35 percent Trip and Pattern Level: Average peak load exceeds 54 (weekday peak), 40 (other periods)	Trip and Pattern Level: Average peak load exceeds 54 (weekday peak), 40 (other periods)	Route Level: Ridership exceeds 25 boardings per revenue vehicle hour Farebox recovery exceeds 50 percent
Warrants for articulated vehicle	N/A	Route level: Ridership exceeds 50 boardings/revenue vehicle hour	Route level: Ridership exceeds 50 boardings/revenue vehicle hour	N/A

STOPS AND AMENITIES

CATEGORY	REGULAR COVERAGE SERVICE	REGULAR FREQUENT SERVICE	SECONDARY SCHOOL SPECIAL SERVICE	REGIONAL TRANSIT SERVICE
Stop/Station Spacing* (average)	Dependent on local conditions, demand	250 – 500 m	250 – 500 m	500 – 1,000 m
Location safety and operational standards	– 18 m of clear curb space free of driveways, intersections, crosswalks, etc. trailing from bus stop location to allow buses a safe location to stop. – Sufficient distance behind right turn-only lanes, to allow buses to merge safely into through-traffic (unless bus is turning right at the location, or the right turn lane is configured for a queue jump). – Minimum lighting standard (16 lumens)			
Minimum stop amenity standards	– Bus stop sign – Paved surface and ramp, size in accordance with AODA standards (1.5 x 2.5 m). – Paved connection to adjacent sidewalks or development, crosswalks			

*Stop/station spacing thresholds are guidelines for route planning. Other factors should be considered as well when identifying stop/station locations. The first tier of factors to consider are connections to other routes and modes. The second tier of factors to consider when locating stops/stations includes nearby destinations, activity centers, and the local street network. The final tier of factors to consider is the area population and employment density. All of these factors combined with the stop/station spacing should be considered when identifying locations along a route alignment.

CATEGORY	REGULAR COVERAGE SERVICE	REGULAR FREQUENT SERVICE	SECONDARY SCHOOL SPECIAL SERVICE	REGIONAL TRANSIT SERVICE
Amenity Upgrade thresholds	Shelter (10 passenger capacity), expanded paved area, trash receptacle, supplementary lighting to achieve lighting standard: 100 boardings/day; proximity to housing or activity facility primarily serving disabled, elderly, children, and/or youth; adequate space available at location. Shelter (20 passenger capacity), expanded paved area, trash receptacle, expanded paved area, supplementary lighting to achieve lighting standard: 250 boardings/day, density above 25 persons plus jobs/hectare* within 500 m of the alignment, adequate space available at location Real time bus information			

PERFORMANCE

CONVENTIONAL TRANSIT SERVICE

CATEGORY	REGULAR COVERAGE SERVICE	REGULAR FREQUENT SERVICE	SECONDARY SCHOOL SPECIAL SERVICE	REGIONAL TRANSIT SERVICE
On-Time Performance (System and Route Level)				
Weekday Peak	90% of time points 0-5 minutes late		N/A	90% of time points 0-5 minutes late

Other Periods	95% of time points 0-5 minutes late		N/A	95% of time points 0-5 minutes late
Crowding (warrant for adding frequency)	Upgrade to Regular Frequent Service when 15 trips/revenue vehicle hour threshold is achieved on average over a 3-month period	More than 20 trips/ revenue vehicle hour	Trip and Pattern Level: Average peak load above 54 (weekday peak) 40 (other periods)	More than 25 trips/revenue vehicle hour
Productivity*				
System-wide Total Trips	Year-on-year increase of 13% (13.1% annual growth necessary through 2031 to achieve 3 million trips/year goal)			
Trips/Revenue Vehicle Hour				
System-Wide	Increase over previous year			
Route-Level Minimum (Goal: Median by Category) Add Service	10 trips 15 trips	15 trips 20 trips	N/A	15 trips 20 trips

[1]Performance standards/ridership metrics could be evaluated at any time period (e.g. peak/off-peak, monthly, operator bids, annually, etc.) based on criterion and reason for evaluation (e.g. increase in service, upgauge to articulated buses, etc.)

*Productivity thresholds will be adjusted periodically based on operational statistics at time of evaluation by route and route type. Each route would be evaluated within its respective route type family. Routes operating significantly below the criterion average

(median) would face changes or suspension. Routes operating significantly above the criterion average (median) would be recommended for additional service or the corridor slated for improvement in service/route family type when applicable.

CATEGORY	REGULAR COVERAGE SERVICE	REGULAR FREQUENT SERVICE	SECONDARY SCHOOL SPECIAL SERVICE	REGIONAL TRANSIT SERVICE
Cost per Unlinked Trip				
System-wide	Service provided based on community need	Increase over previous year above rate of overall inflation		
Route-Level		Below system-wide average (mean)		
Cost/Revenue Vehicle Hour				
System-wide	Service provided based on community need	Increase over previous year below rate of overall inflation		
Route-Level		Below system-wide average (mean)		
Revenue-Cost Ratio				
System-wide	Service provided based on community need	35%		
Route-Level		35% or median of routes, whichever is higher		

IMPLEMENTATION CONSIDERATIONS

The following flow charts (Figure 101 through Figure 103) were developed to simplify the application of the standards and explain how they would be applied to make various decisions in the planning and management of the Milton Transit system. Each flow chart outlines the steps to be taken in determining how a particular area of service provision might be changed, and the criteria to be applied in each step. These steps would be applied in periodic reviews of service made in advance of regular service changes, and would be subject to public input and council approval where applicable.

IMPLEMENTATION OF NEW SERVICE

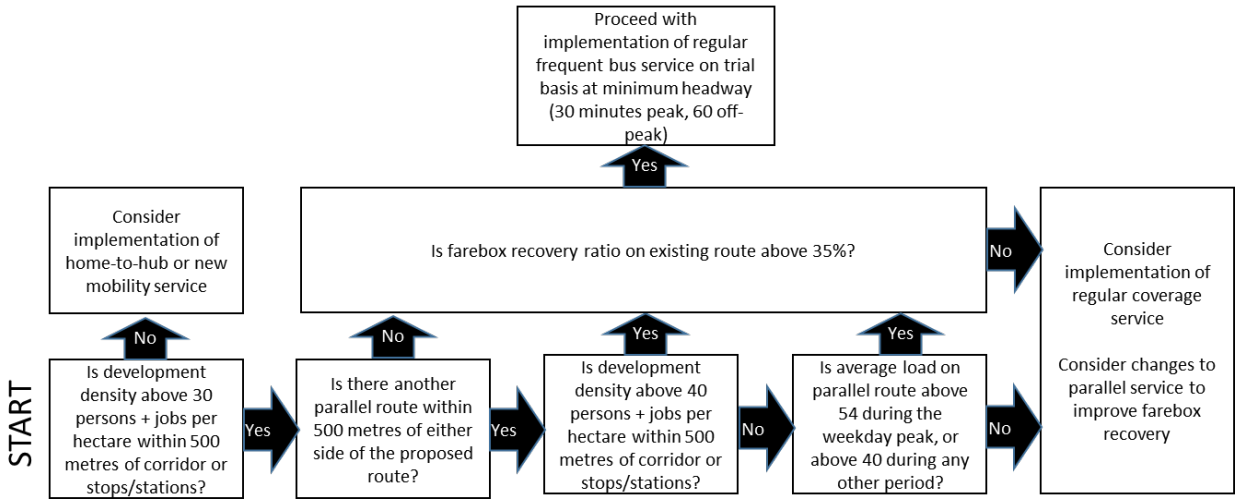


Figure 101 I Process Chart Regarding the Implementation of New Service

REDIRECTION OF RESOURCES

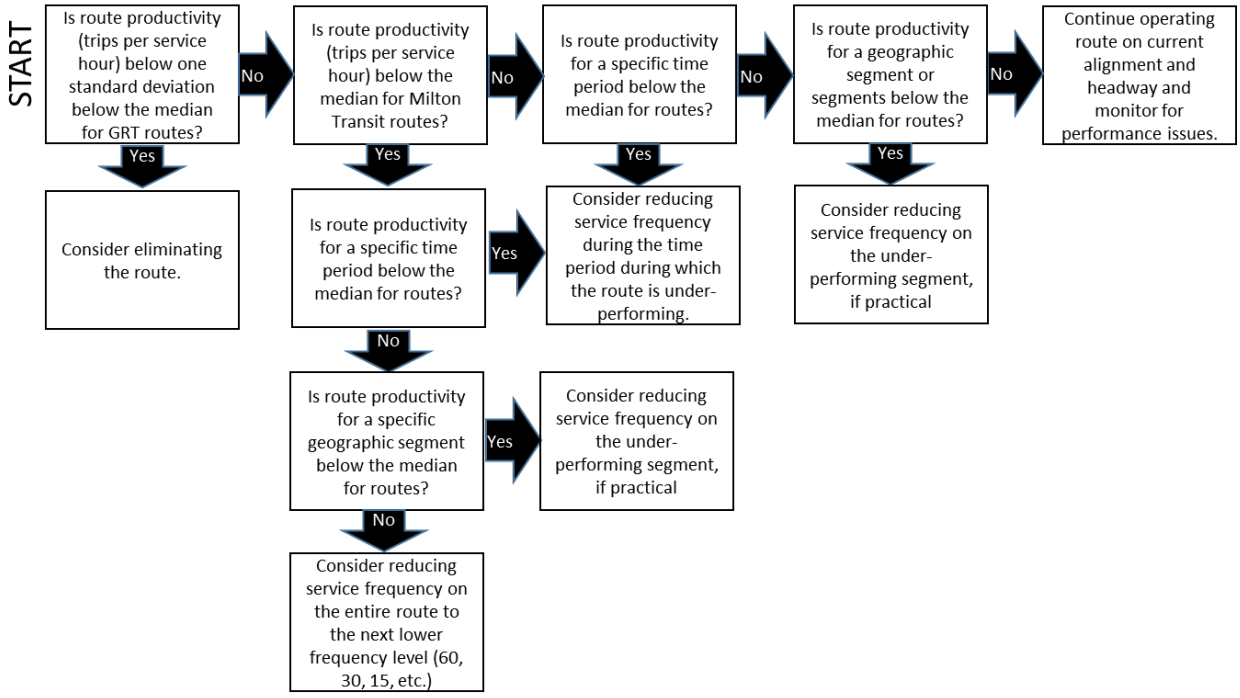


Figure 102 I Process Chart Regarding the Redirection of Resources

ADJUSTING SERVICE FOR ON-TIME PERFORMANCE

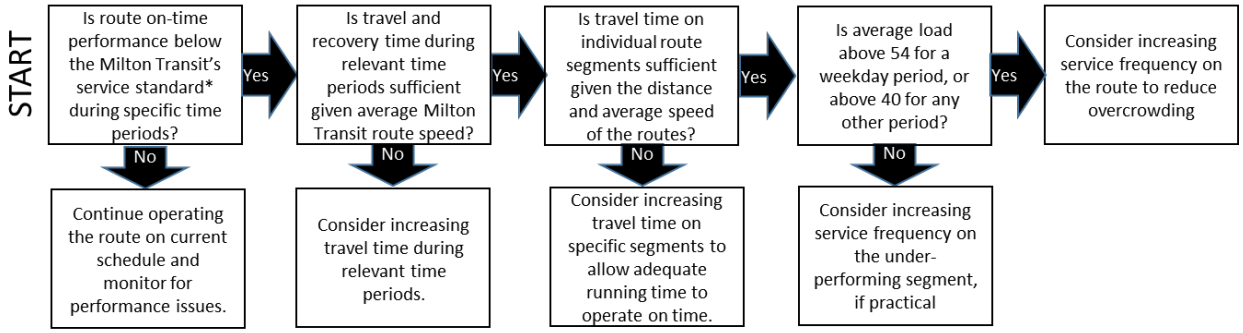
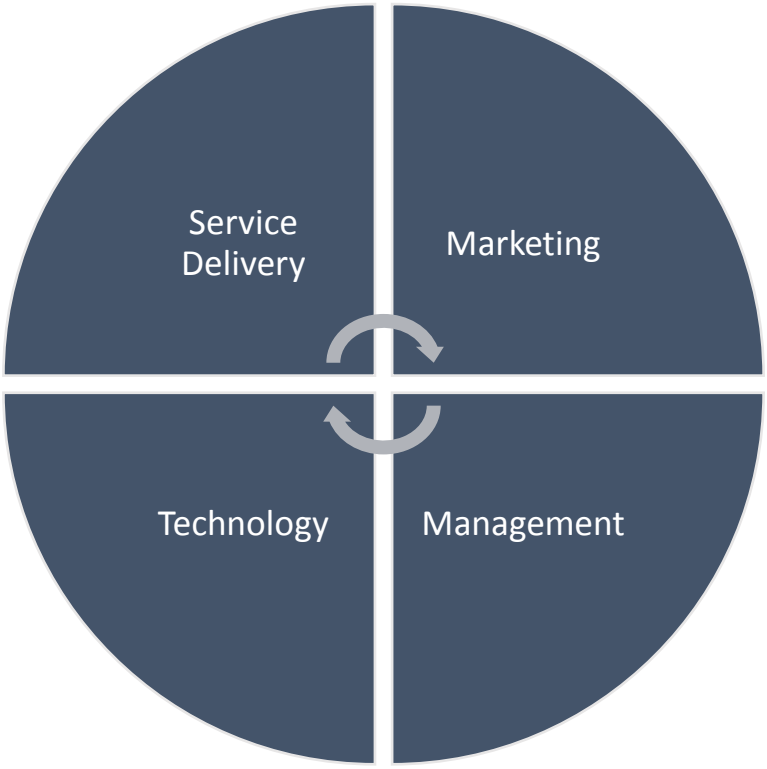


Figure 103 I Process Chart Regarding Adjusting Service to Improve On-Time Performance

RECOMMENDATIONS

Upon a comprehensive service review, market analysis and feedback received from public and stakeholder consultation, the following service recommendations were developed to meet Milton Transit goals. The recommendations are divided into four areas of transit operation: service delivery, marketing, technology, and management.



This chapter includes the following subsections:

- Guiding Principles
- Recommendation Development Process
- Short Term Recommendations (2020 - 2022)
- Medium Term Recommendations (2022 - 2025)
- Long Term Recommendations (beyond 2025)

GUIDING PRINCIPLES

In beginning the service review process, Milton sought to clearly define expectations and clear, quantifiable measures of success for the transit system based on such performance metrics as increased ridership and improved on-time performance. Milton Transit's ridership has risen dramatically over the last ten years, but Milton remains and auto-oriented community, and still carries only a small fraction of trips made in the community and of trips made in its chief potential growth markets, GO transit users and students. Increasing ridership, improving service for key markets, and creating new connections in the community and with surrounding communities, will form the basis for the system's measures of success over the next ten-to-fifteen years. The Service Standards chapter provides additional information concerning measures of success.

In reviewing the existing service, Milton Transit also wants to build on its recent successes. Milton Transit has several highly successful bus routes, that can be made even more successful by refining schedules and route alignments where necessary to improve efficiency. Milton Transit's school service has been extremely successful, and improvements to those routes are likely to provide the biggest benefits to customers, and the greatest opportunity to improve Milton Transit's productivity in the short term. Connections to destinations, like Toronto Premium Outlets in Halton Hills, and destinations in Mississauga and Oakville, have been requested by potential travelers within Milton in public engagement, as well as by employers in Milton who want access to these communities' workforces. Service reliability and on-time performance was an issue identified in the existing service review, and improving in this area of operation will be critical for attracting a higher percentage of the highly time-sensitive GO rail service market.

In allocating service resources, transit systems face a trade-off between coverage (operating more routes over a wider geographic area) and frequency (operating more frequent service on a smaller number of higher ridership routes). Recent research and many real-world examples indicate that favoring frequency over coverage, and reallocating resources from lower-performing routes to increase service frequency on higher performing ones, generates significant ridership gains.

Figure 104 illustrates two hypothetical transit networks, one that emphasizes coverage, the other that emphasizes higher frequency on key routes. In the example on the left, all routes operate at a regular half-hour headway, regardless of ridership. In the example

on the right, the highest performing routes are increased to 15-minute service, (indicated by the red lines). The additional service on these routes was paid for by reallocating service from one route, which was eliminated because of low ridership, and reallocating service from a poorly performing branch from another route. Not all travel corridors lend themselves equally to transit service. The demographics and population density in the corridor, the sizes and types of trip generators it serves, the quality of the sidewalk network, the traffic volumes on the roads, and other factors, determine the potential for bus service in each area. When buses regularly operate with few or no customers, the vehicles and operator work hours that are being used to operate may be better used to supplement bus service in other areas where buses are often full, or even crowded. When service frequency is increased on a route that regularly reaches its seated capacity, ridership usually increases on that route, since some customers will ride less frequently, or move their travel time, if the buses is frequently full. Reallocating service from lower-to-higher performing routes was a key element of the recommendations development process for the service review project.

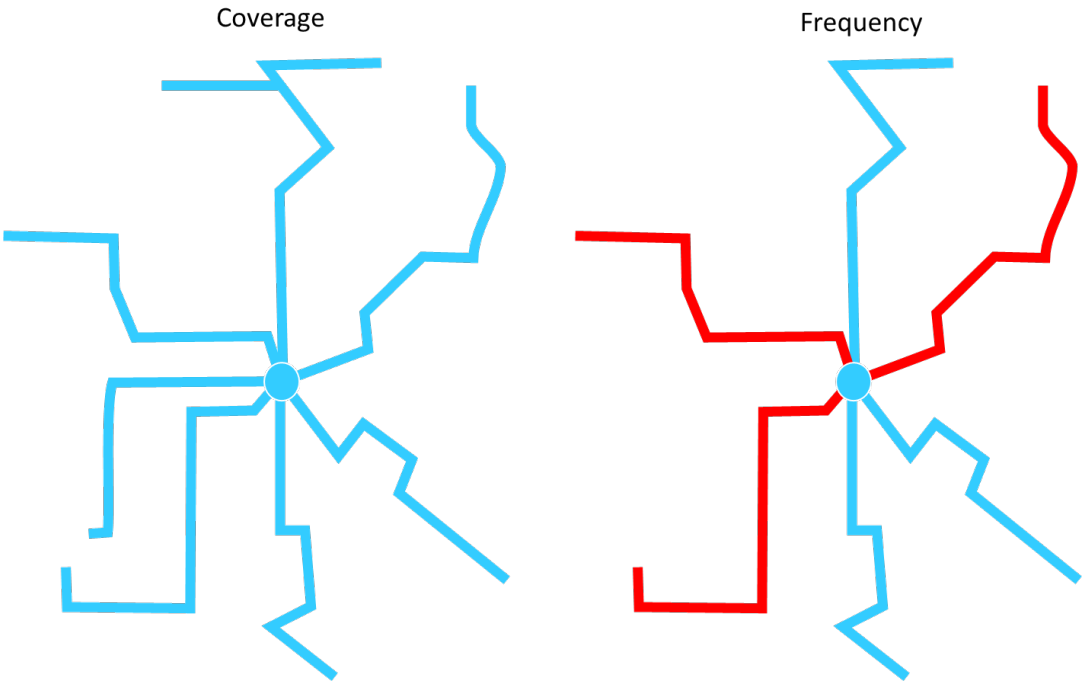


Figure 104 I Frequency vs. Coverage

GO rail customers are perhaps Milton Transit's most important market, and many of the plan's recommendations are intended, in whole or in part, to improve operations to attract a higher number of GO users. Higher frequency peak period service on key routes and regional fare coordination, for example, will benefit all Milton Transit

customers. But these improvements particularly benefit GO users, who mostly travel during peak periods and are inconvenienced by Milton Transit's non-participation in the PRESTO regional fare payment system. As noted in the Service Review chapter, maintaining schedule connections to GO trains causes a great deal of stress to Milton Transit's operational, management, administrative and marketing functions. Finding alternatives to reduce that stress and improve service for Milton Transit users who connect to GO trains was a major goal of the recommendations process.

RECOMMENDATIONS DEVELOPMENT PROCESS

Based on the issued identified in the Town's previous plans and transit service goals, the service and market review, and public and stakeholder input, Milton Transit staff and the consultant team developed recommendations using an interactive workshop process. The consultant team developed initial recommendations, which were refined in a series of workshop meetings with Milton Transit administrative staff and the Town's Steering Committee. Further refinements were made in response to stakeholder and public comments.

The following key principles guided the recommendations development process:

Define expectations: In this master plan process, Milton Transit staff wanted to carefully define what Milton Transit is, and is not, who it serves, and what represents success. Operating in a suburban, auto-oriented area, with limited resources, Milton Transit must focus on serving its most promising target markets while maintaining lifeline service for transit-dependent and disabled citizens.

Build on current successes: Milton Transit is among the more productive and cost-effective transit operators of its size in Canada, but its success is not uniform across all bus routes and services. The master plan is an opportunity to review what has worked, and what hasn't, among its existing routes and services; to look for opportunities to improve efficiencies and realign routes to provide better access to markets and destinations; enhance service reliability and on-time performance; and to reallocate service from less productive areas to areas where additional service will generate ridership growth. This requires Milton to consider the issues and trade-offs that exist

between values- or policy-based service vs. performance-based service (or, the trade-off between coverage vs. frequency) as it positions itself for future growth.

Formalize service standards, triggers and warrants to efficiently guide service allocation as Milton Transit grows in size and complexity.

Remove stresses for service coordination with GO Transit: Modifying service to maintain coordination of Milton's fixed-routes with GO rail transit without frequent schedule changes would reduce or eliminate Milton Transit's greatest administrative and operational challenge.

Provide business case justification for new services: both cross-boundary services and new mobility/alternative service delivery (ASD) services are new service models that are untested in Milton. Investing in these services will require new or diverted funding and vehicles, which could also be invested productively in improving existing services (such as increasing frequency on high-performing or overcrowded bus routes). Justifying investment in these services requires making a business case for their operation, demonstrating that they will make the system more productive and cost-effective, or will meet other goals that cannot be met by the existing system.

Champion "family of services" approach: Milton Transit's services will diversify as it grows, to include fixed-route services within Milton and cross-boundary services, an expanded Specialized system served by both in-house and taxi operators, and home-to-hub services in developing areas of the Town. Branding this range of services as a "family of services" under the Milton Transit brand will raise awareness of the available services and to add new options as new opportunities and needs arise.

Adopt new mobility / alternative service delivery (ASD) solutions: Transit operators have begun experimenting with many alternative approaches to service delivery over the past several years. These alternative service delivery (ASD) or new mobility options often are driven by new technology and new services, like transportation network companies (TNCs, such as Lyft or Uber) made possible by new technologies. One of the Town's goals in developing the master plan was to analyze the potential for these service options with the goal of improving service quality and efficiency. The plan examined potential markets, service delivery options and service parameters, and estimated ridership and potential costs. The plan also examined how the services could be integrated into the larger transit system and build on the specialized transit program changes, how the service would be marketed and integrated into Milton Transit's fare

policies, and how new technologies (such as mobile apps or scheduling software) and support programs (travel training, student ambassadors, etc.) could support ASD programs.

S.W.O.T. ANALYSIS

Strengths, Weaknesses, Opportunities, Threats (S.W.O.T.) Analysis is widely used in evaluating the competitive position of businesses and organizations around the world. It is a part of planning process that provide guidance to developing recommendations. The analysis divides all factors into four quadrants which are then allocated into two opposing categories: internal and external factors, and beneficial and harmful factors. Figure 105 presents the S.W.O.T. list for Milton Transit.

Figure 105 | Strengths, Weaknesses, Opportunities, Threats (SWOT) Analysis

PUBLIC AND STAKEHOLDER CONSULTATION

The recommendation development process won't be completed without extensive public and stakeholder consultation. Throughout the entire planning process, the consultants and the town employees conducted two rounds of public engagement activities consist of a total of seven workshops and public open house sessions, and

two online surveys to gather more feedback. A detailed summary of all the public and stakeholder consultation sessions is provided in **Appendix 3**.

SHORT TERM RECOMMENDATIONS

This section focuses on quick, short-term changes that Milton Transit could implement within existing operating budget and fleet requirement, or with assistances from surrounding municipalities on an agreement, through 2021. Changes include:

- **Service Delivery**
  - Increase service productivity
  - Introduce new mobility service
  - Introduce cross-boundary service
  - Build on and expand specialized transit service
- **Marketing**
  - Market Family of Service approach
- **Technology**
  - Support regional fare integration initiatives
- **Management**
  - Provide supportive administration

SERVICE DELIVERY

INCREASE SERVICE PRODUCTIVITY

Transit frequency is often understated by those who are accustomed to driving as there are no equivalent concept when there is something always readily available. However, it is one of the most important features of transit that dictate the usefulness and the level of freedom of transit customers. Higher frequencies (shorter headways) generally means shorter wait at bus stops and more spontaneous travel as customers don't really need to remember a schedule. Therefore, it is recommended that Milton Transit to reduce the peak headway on Route 2, 3, and 4 to 15 minutes, down from 30 minutes. Also, midday headway is proposed to be reduced to 30 minutes for Route 3. In combination with current Route 6 and Route 7, this creates a high-frequency network that covers most of the town, and eliminates need for schedule coordination with GO Rail service. Route 1C is proposed to operate hourly into 401 Business Park area during midday. Furthermore, Route 2 is proposed to be split into two routes – Route 2 East and Route 2 West, at the Milton GO Station, and Route 1A/B will be realigned into two bi-directional routes. Details of route changes is discussed later in this chapter, on Page

220. Figure 106 shows the proposed alignment for Route 2, 3, and 4. Figure 107 and Figure 108 illustrate the proposed frequency during peak and midday hours.

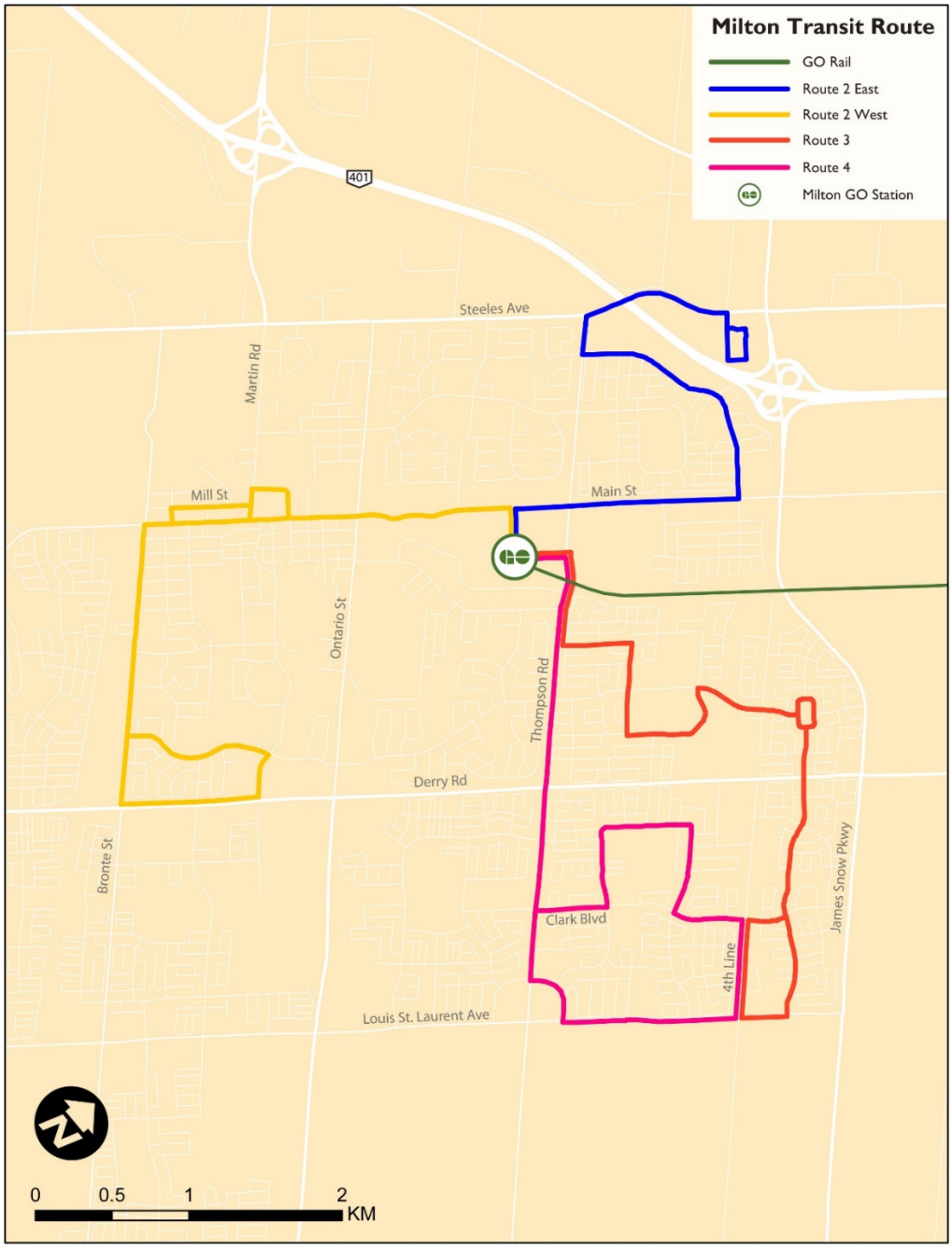


Figure 106 I Proposed Route 2, 3, and 4 alignment

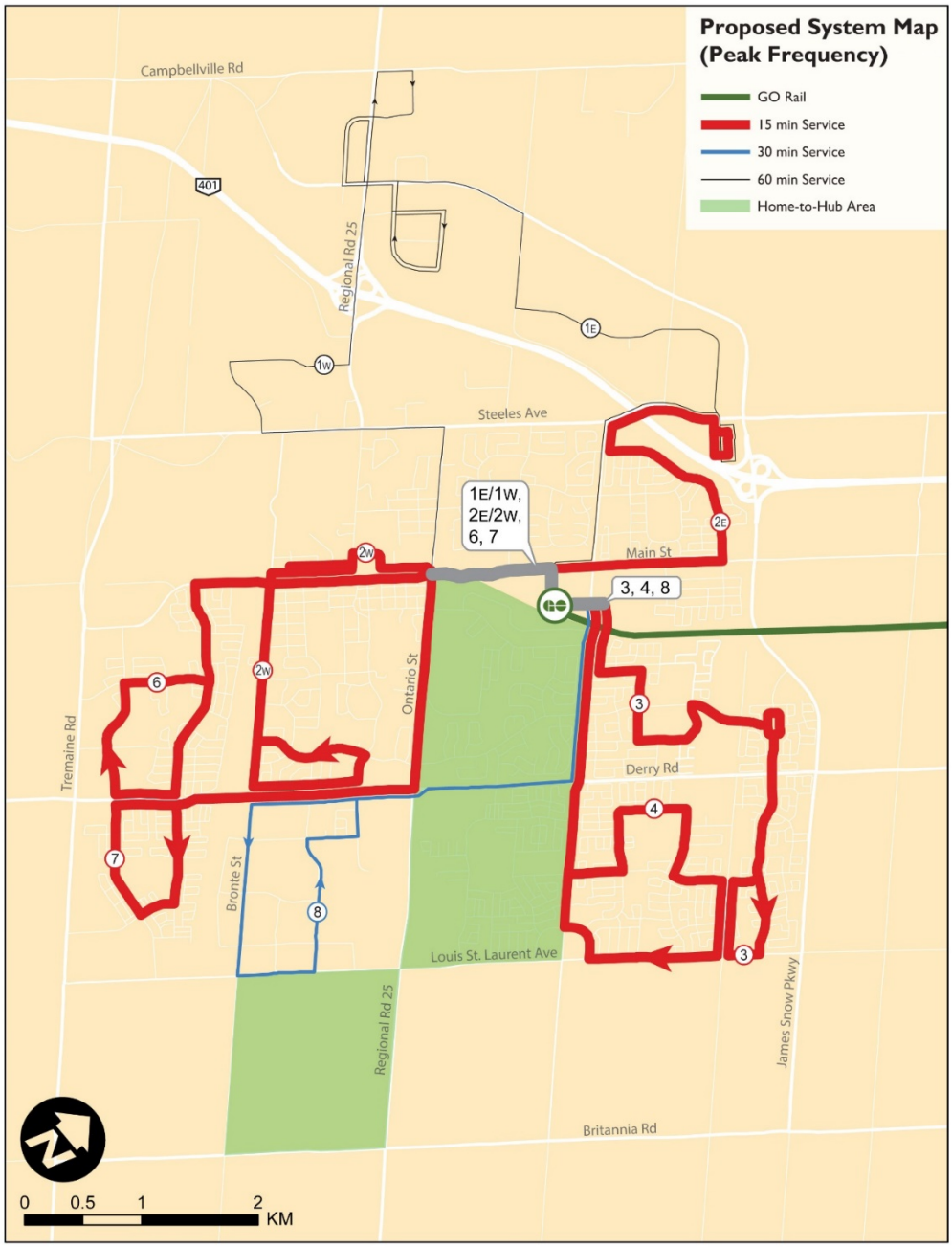


Figure 107 I Proposed peak frequency map

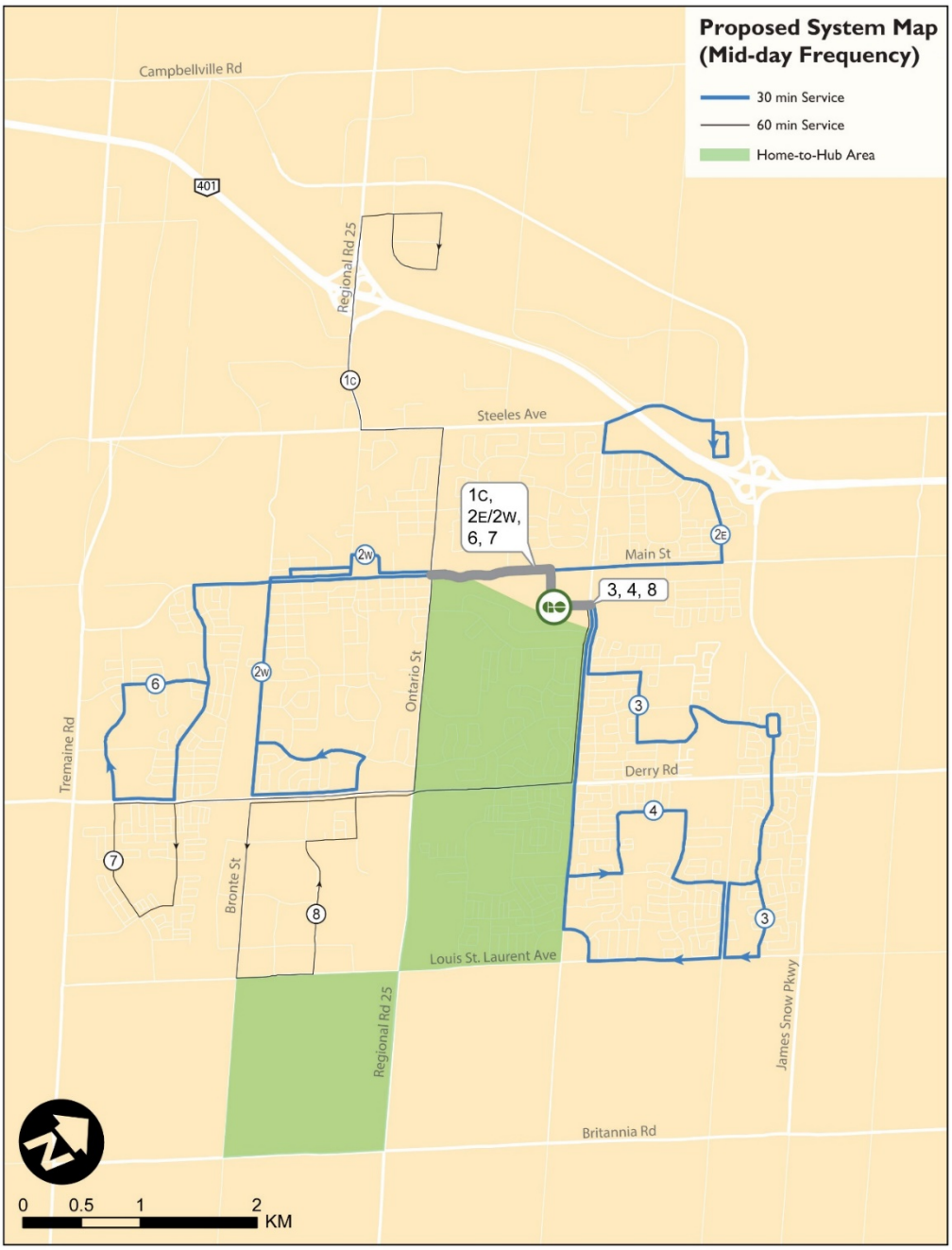


Figure 108 | Proposed midday frequency map

One of the benefits of the high frequency network is that it relieves Milton Transit from the need to continue coordinating its schedules with those of GO Rail. Milton Transit now schedules its buses to coordinate arrival and departure times with those of trains

serving Milton GO station. During the morning peak period, Milton Transit buses are scheduled to arrive at the GO station four minutes before scheduled GO train departure times; during the evening peak, buses are scheduled to leave four minutes after GO train arrivals. In theory, this coordination offers customers ample time to transfer between train and buses, while minimizing wait time. Achieving and maintaining this coordination, however, is challenging in practice and results in compromises to Milton Transit's schedules and operations.

MONDAY – FRIDAY

Depart Milton GO **east**bound to Union Station		Arrive Milton GO **west**bound from Union Station	
No.	**AM**	**No.**	**PM**
148	5:59	149	4:39
150	6:23	151	5:09
152	6:44	153	5:39
154	7:01	155	5:54
156	7:14	157	6:09
158	7:26	159	6:24
160	7:37	161	6:39
162	7:47	163	6:54
164	7:59	165	7:24
166	8:26	167	8:09

This information is based on GO Transit's public schedules at time of printing. Check **www.gotransit.com** for schedule updates.

Figure 109 | *GO Rail Milton Line Schedule as of April 2019*

GO Transit's schedules are shown in Figure 109. GO operates ten morning departures from Milton GO, with the first train leaving at 5:59 AM and the last at 8:26 AM. The average interval between trains is about 16 minutes and 30 seconds, but the schedule is irregular, with actual intervals ranging from 11 to 27 minutes. Ten trains return to Milton in the afternoon, but they are much more widely spaced, with the first arriving at 4:39 PM and the last at 8:09 PM. The average interval is about 23 minutes and 20 seconds, but the actual intervals are every 30 minutes between 4:39 and 5:39; 15 minutes between 5:39 and 6:54; and then every thirty minutes until 8:09 PM.

3 Trudeau

Leave Milton GO	Tupper & McCuaig	Croft & Trudeau	Louis St. Laurent & Fourth Ln	Beaty Library	Trudeau & Croft	McCuaig & Tupper	Arrive Milton GO
MONDAY - FRIDAY							
5:19AM	5:23	5:27	5:32	5:33	5:38	5:42	5:47
5:49AM	5:53	5:57	6:02	6:03	6:08	6:12	6:17
6:22AM	6:26	6:30	6:35	6:36	6:41	6:45	6:50
6:52AM	6:56	7:00	7:05	7:06	7:11	7:15	7:20
7:22AM	7:26	7:30	7:35	7:36	7:41	7:45	7:50
7:52AM	7:56	8:00	8:05	8:06	8:11	8:15	8:20
8:25AM	8:29	8:33	8:38	8:39	8:44	8:48	8:53
9:10AM	9:14	9:18	9:23	9:24	9:29	9:33	9:38
...and every 60 minutes to...							
2:10PM	2:14	2:18	2:23	2:24	2:29	2:33	2:38
2:40PM	2:44	2:48	2:53	2:54	2:59	3:03	3:08
3:10PM	3:14	3:18	3:23	3:24	3:29	3:33	3:38
3:40PM	3:44	3:48	3:53	3:54	3:59	4:03	4:08
4:10PM	4:14	4:18	4:23	4:24	4:29	4:33	4:38
4:43PM	4:47	4:51	4:56	4:57	5:02	5:06	5:11
5:13PM	5:17	5:21	5:26	5:27	5:32	5:36	5:41
5:43PM	5:47	5:51	5:56	5:57	6:02	6:06	6:11
6:13PM	6:17	6:21	6:26	6:27	6:32	6:36	6:41
6:43PM	6:47	6:51	6:56	6:57	7:02	7:06	7:11
7:28PM	7:32	7:36	7:41	7:42	7:47	7:51	7:56
8:13PM	8:17	8:21	8:26	8:27	8:32	8:36	8:41
8:43PM	8:47	8:51	8:56	8:57	9:02	9:06	9:11
9:43PM	9:47	9:51	9:56	9:57	10:02	10:06	10:11
10:43PM	10:47	10:51	10:56	10:57	11:02	11:06	11:11
SATURDAY							
8:10AM	8:14	8:18	8:23	8:24	8:29	8:33	8:38
...and every 60 minutes to...							
7:10PM	7:14	7:18	7:23	7:24	7:29	7:33	7:38

Figure 110 | *Schedule for Milton Transit Route 3 - Trudeau as of April 2019*

The schedule for Milton Transit Route 3 is shown in Figure 110. Milton Transit adjusts its schedule and pulse times at Milton GO station twice over the course of the day, attempting to maintain coordination with the GO rail schedule, despite the fact that most of the bus routes operate less frequently, on average, than the trains. The buses are scheduled to arrive several minutes before the GO trains depart, and to depart the station in the afternoon several minutes after the trains arrive. Routes 2, 3, 4, 5, 8, and 9 are scheduled to arrive at the station at 6:17am and then every 30 minutes from 6:50am to 8:20am. Routes 6 and 7 are more closely and irregularly spaced, with most of the arrivals timed to arrive 6-8 minutes before a GO train departure. Milton Transit converts to a different pulse time after 8:20am, with most routes operating every 30 minutes, arriving at the Milton GO Station at 8am and 38 minutes after the hour until 4:38pm. Then, a new pulse time begins, with buses on routes 2-5, 8 and 9 leaving

Milton GO at 4:43pm and then at 13 and 43 minutes past the hour until 6:43pm, with an additional bus at 7:28pm. Routes 6 and 7 operate more frequently, with buses leaving Milton go at 4:43pm, 5:00pm and then at 13, 43 and 48 minutes past the hour until 7:58pm. The bus departures are timed to occur about four minutes after the train arrival times.

This arrangement generates a number of issues, some related to execution, and some fundamental to the premise of attempting to coordinate the bus and rail schedules. Milton Transit has difficulty keeping to its schedules, owing to travel times that have not been updated recently and growth in auto traffic and transit ridership that have slowed traffic in many areas of the town. Some Milton Transit routes struggle to maintain schedule throughout the morning peak period, and all routes struggle during the afternoon peak period, when traffic volumes are higher. Moreover, coordination depends on *both* Milton Transit and GO trains running on-time. GO trains generally depart on-time during the morning peak period, resulting in late running Milton Transit buses sometimes arriving *after* the customer's target GO train has left. In these cases, customers must wait for the next train and, possibly, arrive late for work or miss other travel connections.

In the afternoon, freight traffic conflicts, issues with departures from Toronto Union Station, and other factors often result in GO trains running late. With both Milton Transit buses and GO trains running late, and the Milton Transit buses timed to depart only four minutes after the scheduled train arrival time, sometimes makes coordination between the two services virtually impossible. Delays to Milton Transit routes sometimes are aggravated by operators and supervisors communicating by radio to arrange "holds". In some cases, an operator will ask the operator of a bus on another route to wait at the GO station to arrange a transfer for a customer on his or her bus. In other cases, all routes are held at Milton GO to meet a late arriving train. This commonly results in late running and crowding on buses, and in extreme cases can result in cascading delays and canceled trips on some routes.

Changing the pulse times over the course of delay also introduces a number of challenges for customers using the system. Changing pulse times several times a day makes the schedule harder for customers to predict arrival times without having to refer to a printed or on-line schedule, and introduces some gaps in service of greater than 30 minutes. This makes the system slightly harder for customers to understand and use, and can marginally discourage use of the transit system and limit ridership. Changing

the schedule over the course of the day also introduces small but significant inefficiencies in operator scheduling, which slightly increases operating costs.

Maintaining schedule coordination with GO rail also is complicated by GO train schedule changes. GO Transit is expanding its services, and has many construction projects underway to improve its stations and running way. The phasing of these projects can require changes to train schedules to accommodate construction activities. GO also operates some of its services (including the Milton line) on rail owned by Canadian National, and changes to the railroad's freight schedules also can require schedule changes to accommodate freight movements. For these and other reasons, GO rail changes its schedules relatively frequently, several times a year. These schedule changes generally do not occur seasonally or at regular intervals, but are unpredictable and sometimes with as little as 3-4 weeks' notice. Maintaining coordination with GO trains requires Milton Transit to change its bus schedules each time the GO train schedules change. Generating new bus schedules, changing bus operator work schedules, printing new bus schedules for the operators and new ride guides for customers, changing on-line schedule information, and mounting a marketing effort to inform customers of the changes, is a major undertaking for Milton Transit and other Town staff, and for PW Transit staff.

Operating 15-minute headways during peak periods on most routes will make Milton Transit a much more attractive option for GO rail commuters. The more frequent service will make travel by bus more time-competitive with park-and-ride access, and should improve on-time performance by spreading the passenger load and reduce crowding on the busiest routes. Operating most of its buses at 15-minute headways during peak periods will make it unnecessary for Milton Transit to coordinate its schedules with GO train schedules or adjust its schedules when GO train schedules are changed. At 15-minute headways, Milton Transit's routes will be operating more frequently than the GO trains, and average passenger wait times for bus-to-rail or rail-to-bus transfers will average only 7.5 minutes. Without coordination with GO train schedules, pulse times can remain the same throughout the day, with all buses connecting at the Milton GO station to facilitate transfers among routes every 60 minutes on all routes and every 15 minutes during peak periods and 30 minutes during the midday and evening periods. This will make the schedules easier for customers to understand, and should generate additional ridership even among customers who are not GO rail users.

Students have been one of the largest groups of transit riders in Milton over the past years, and are one of the most promising markets for increasing ridership in the short-term. In fact, students have made up 36% of Milton Transit's ridership in 2017. Milton Transit's secondary school special routes were also the best performing routes in terms of productivity. The plan recommends that Milton Transit add additional trips to the school routes to reduce crowding, improve on-time performance, and to further increase ridership. Route 50 and 51 are proposed to add one additional trip to both morning and afternoon service, which increase the two routes to 2 trips during their morning service and 3 trips during afternoon service. Route 52 is proposed to add 2 morning trips and add one additional afternoon trip to 2 morning trips and 2 afternoon trips. Figure 111 shows the alignments of the secondary school special routes.

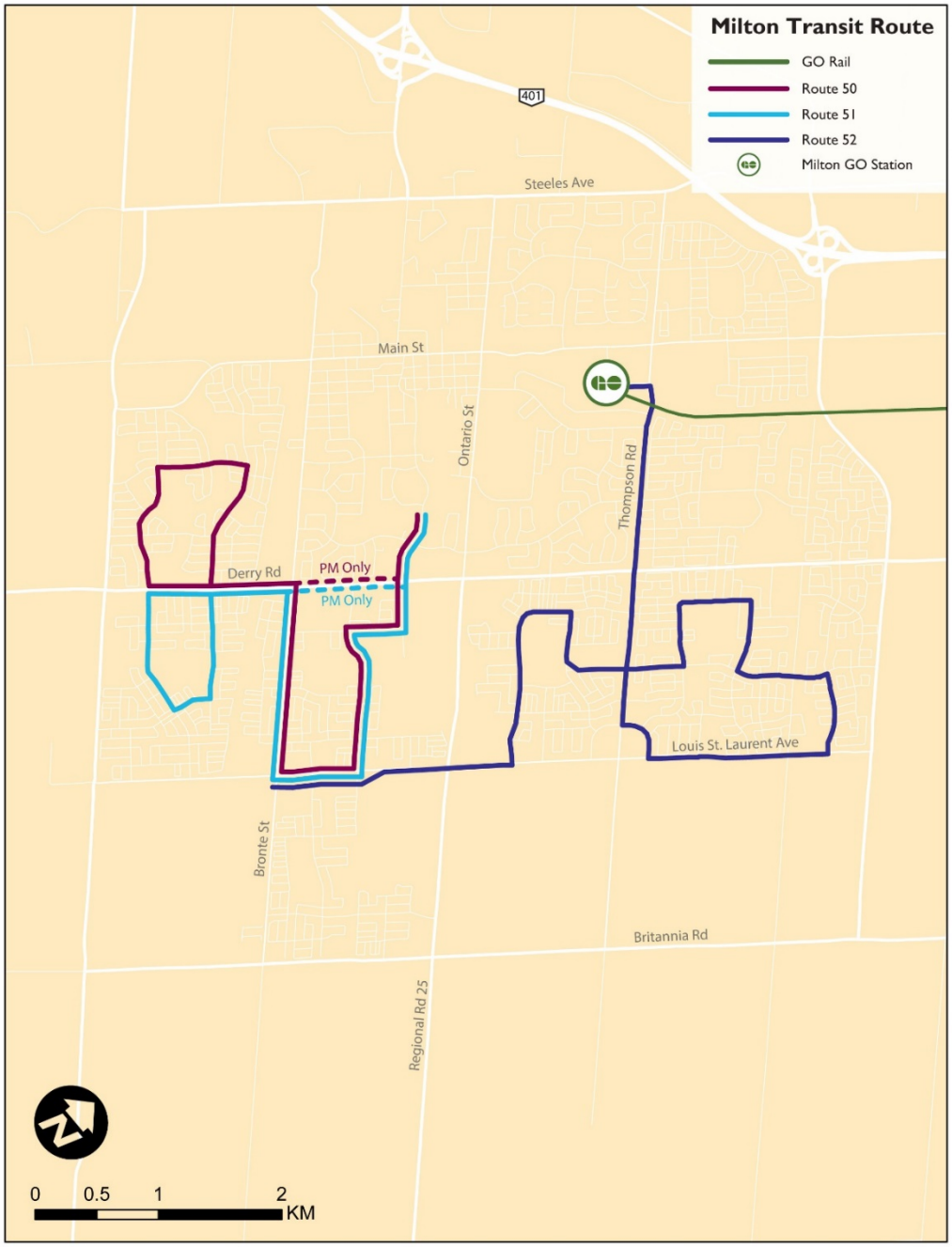


Figure 111 I Secondary School Special Routes

To maintain the financial sustainability for Milton Transit to make all the improvements in its fixed-route system, resources that aren't efficiently used need to be reallocated for better efficiency to achieve a greater benefit in the entire system. Route 5, 9, and 10

together carried less than 15% of the system ridership in 2018, yet they costed more than a quarter of the total operating budget. Therefore, it is recommended to temporarily suspend these routes to shift resources onto more productive routes, and serve the areas with more productive means such as home-to-hub service. Figure 112 illustrates the alignments and Figure 113 shows the proposed Home-to-Hub areas of these three routes.

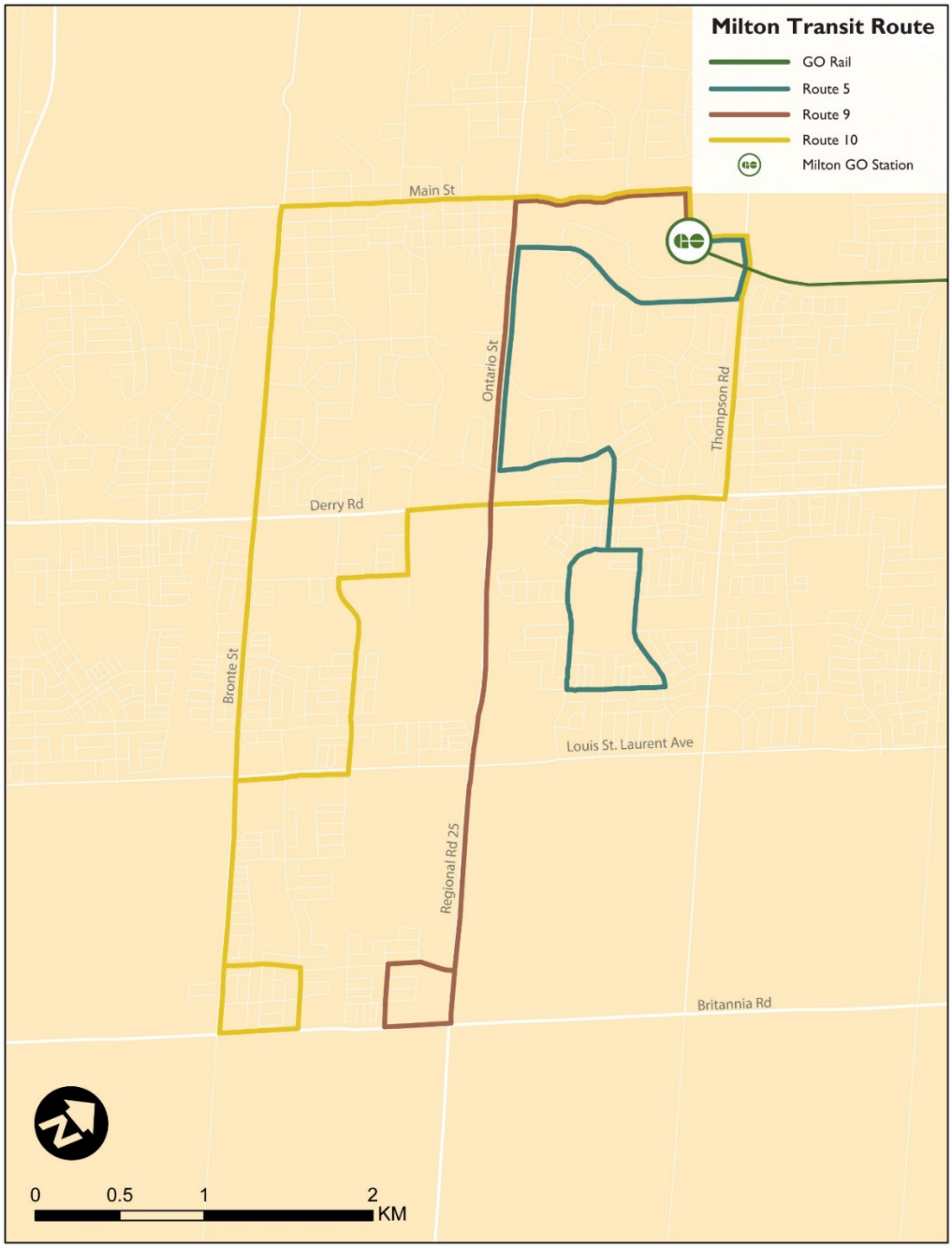


Figure 112 I Alignments of Route 5, 9, and 10

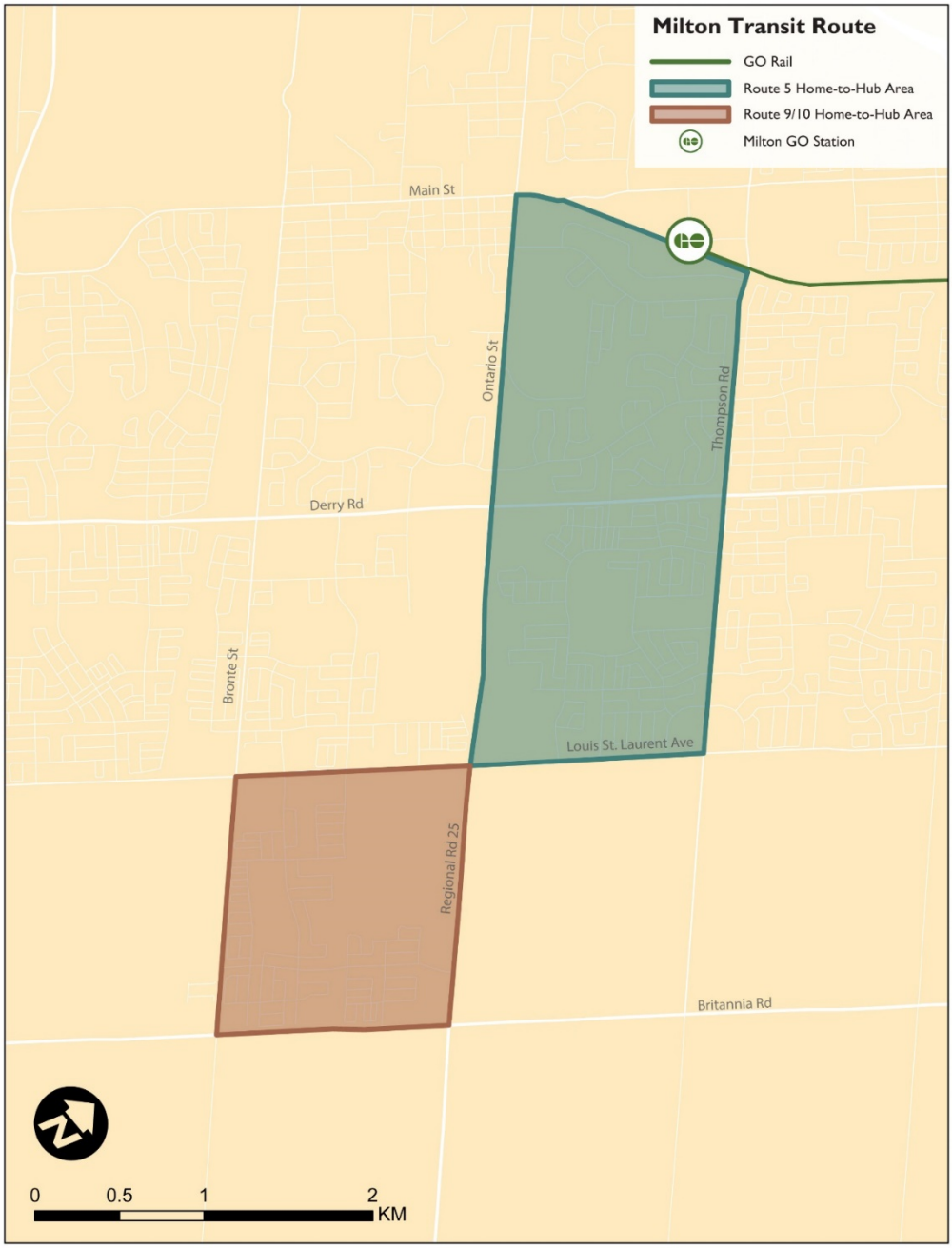
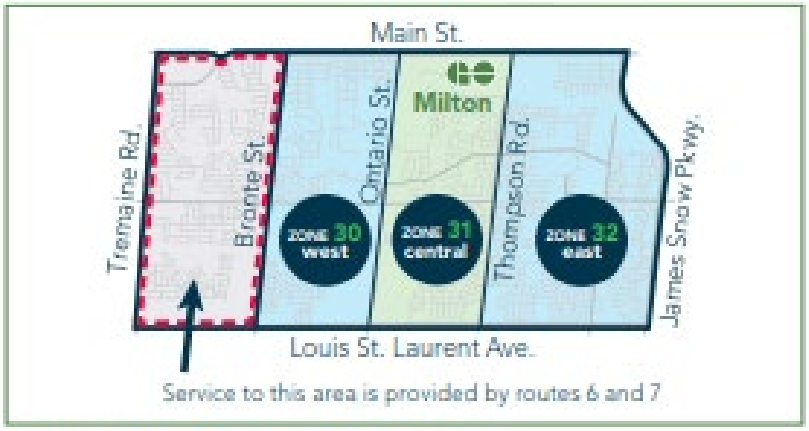


Figure 113 I Home-to-hub areas for Route 5, 9, and 10

Shown in Figure 114, the GO evening drop-off service is another under-utilized service that Milton Transit operates. On average, three routes together carried 25 trips per day, or about 6,500 trips per year, about 1% of Milton Transit's total ridership at 2% of the

total operation cost. While operating these routes don't cost as much as other regular fixed-route service, the GO evening drop-off service doesn't offer any unique benefit to customers as it's designed to drop passengers to transit stops instead of their final destinations. And with the proposed 15-minute frequent service network covering most of the drop-off service area, the frequent fixed-route services would potentially offer a much faster service than the flex-route drop-off service. Therefore, it is recommended that Milton Transit remove the GO drop-off service categorically and reallocate the resources to more productive services.



Evening GO Drop-off Schedule

ZONE 30 WEST	ZONE 31 CENTRAL	ZONE 32 EAST
MONDAY - FRIDAY		
LEAVE Milton GO	**ARRIVE Milton GO**	
5:58*	6:28	
6:28	6:58	
6:58	7:28	

* 30 West and 31 Central zones combined for this trip.

Figure 114 I Evening GO Drop-off Service

MODIFY AND REALIGN FIXED-ROUTE SERVICES AND SCHEDULES

Route 1 is the only route currently serving the industrial areas of Milton north of Steeles Avenue. Employers in this area have requested transit service improvements to provide them with access to a larger labour market. The plan recommends that route 1A and 1B be modified to operate as separate eastern and western routes. The proposed alignments are shown in Figure 115 and Figure 116. The change will make the routes

less circuitous and easier for customers to understand and use. The two routes will operate at hourly headways rather than the current 45 minutes, and will both meet at the hourly "pulse" time at Milton GO station to allow transfers between the two routes and with other Milton Transit routes. Operating a one-hour headway on the route also will allow the route to be run later, extending the service day. The route alignments also will overlap in the northern area of its alignment north of Highway 401, allowing for potential, uncoordinated transfers at the outer end of the two routes.

Route 1 currently operates only during the morning and afternoon peak period. This is inconsistent with the market that it serves, which is primarily workers in industrial and warehousing facilities. These employees often work non-standard and irregular schedules that result in work trips that fall outside the morning and afternoon peaks. The plan recommends that a route similar to route 1C, the version of the route that operates on Saturdays, be operated hourly during the weekday midday period. This will make the route an option for a greater number of workers in the northern industrial areas.

Route 2 is Milton Transit's busiest route, and also unique in that it does not terminate at Milton GO station, but rather serves Milton GO mid-route in each direction. This makes the route attractive, in that customers can use the route to ride from destinations on one side of the station to the other, without transferring at Milton GO rail station. However, this is illustrated by the route's schedule, which shows arrival and departure times mid-route.

Route 2, which is proposed to be divided at Milton GO rail station into two through-routed bus routes serving the eastern and western portions of their route alignments. The proposed alignments for these routes are shown in Figure 117 and Figure 118.

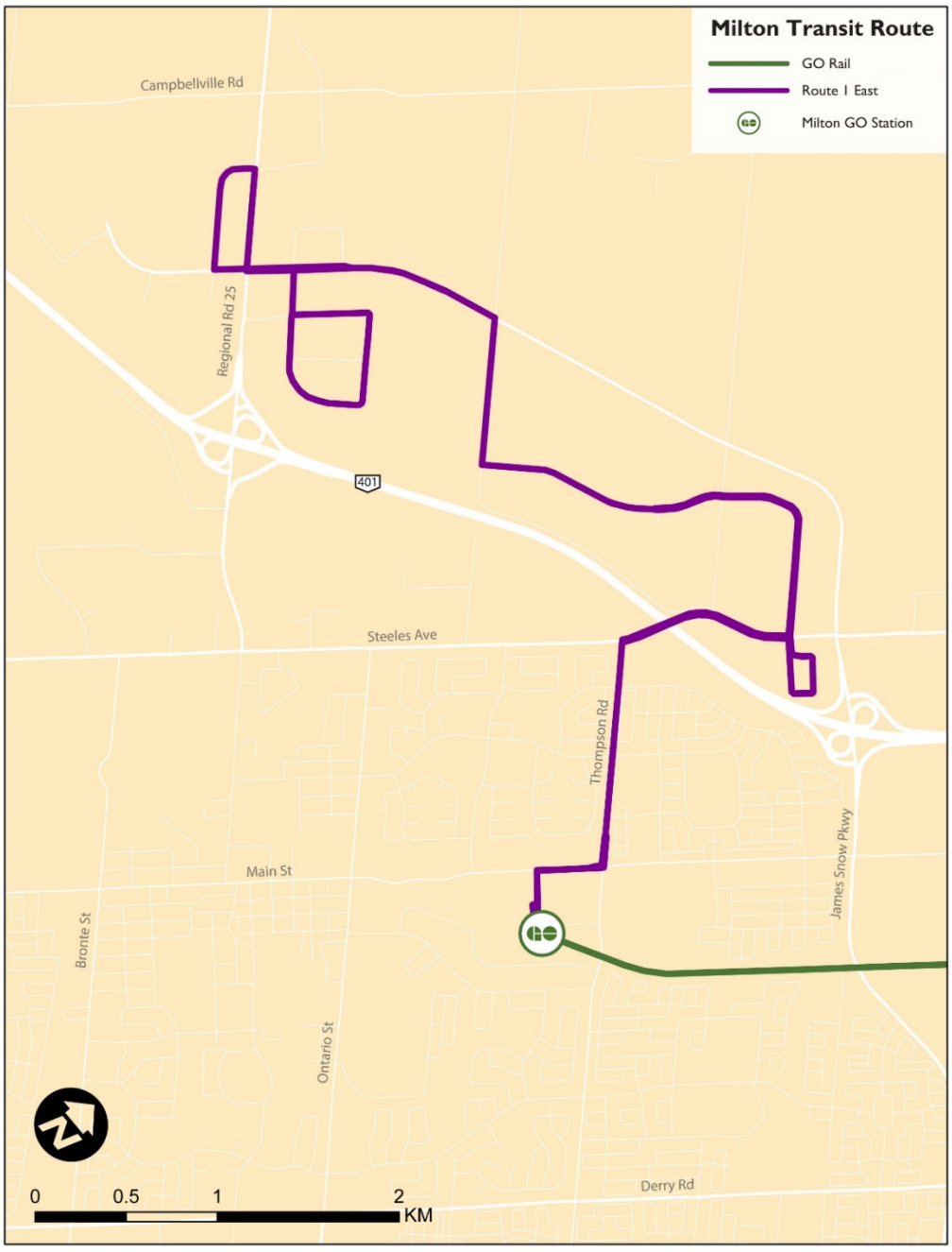


Figure 115 I Route 1 East

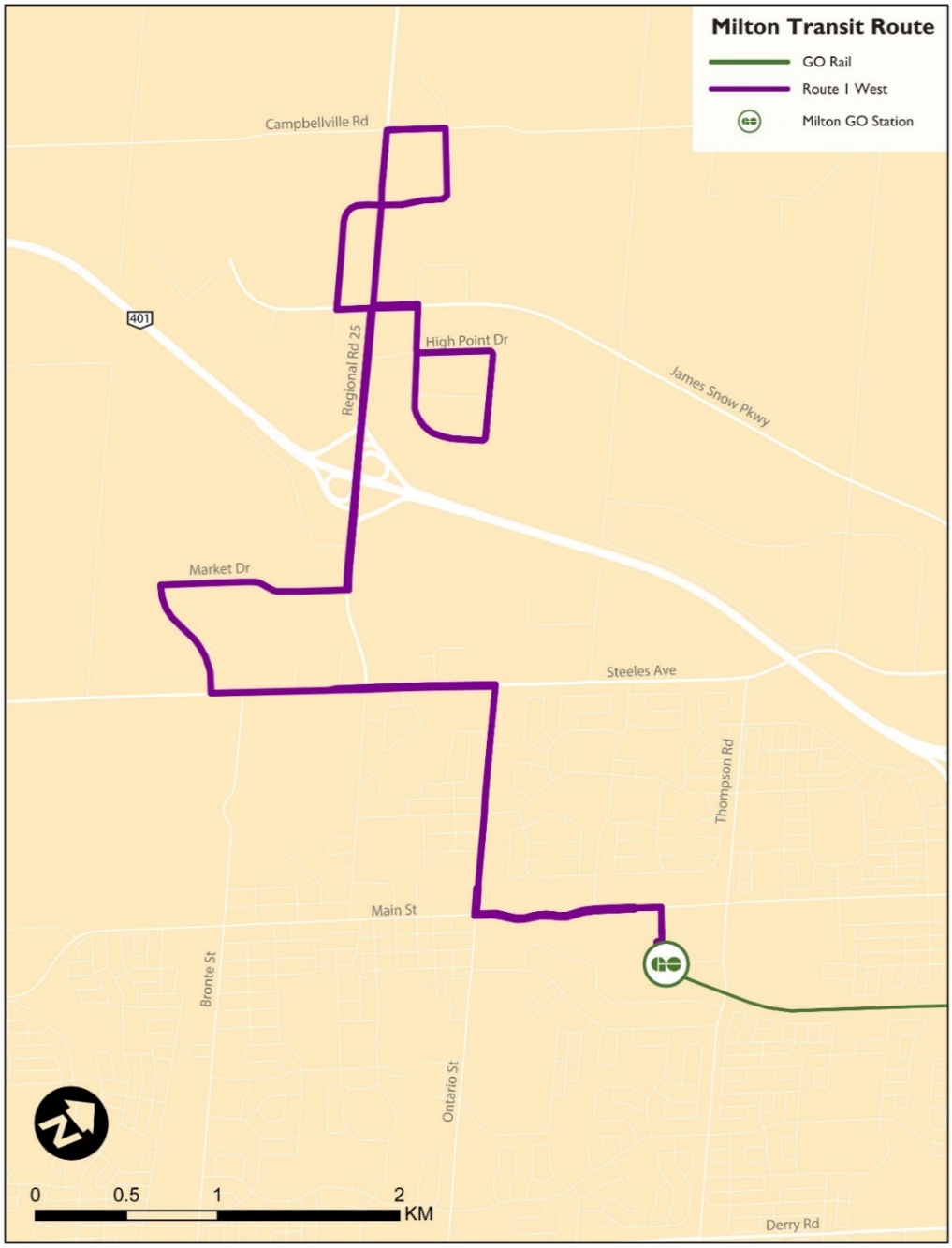


Figure 116 I Route 1 West

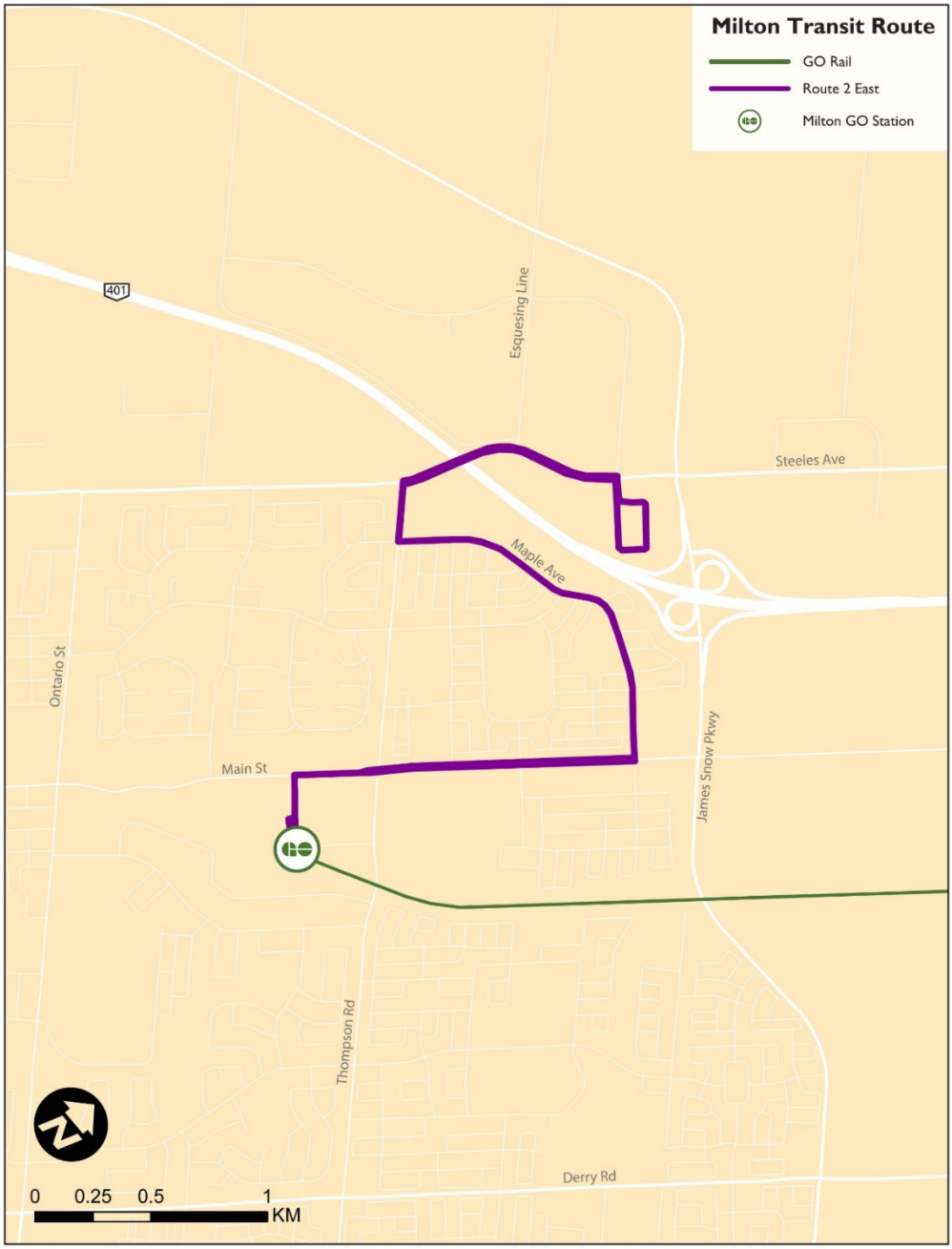


Figure 117 I Route 2 East

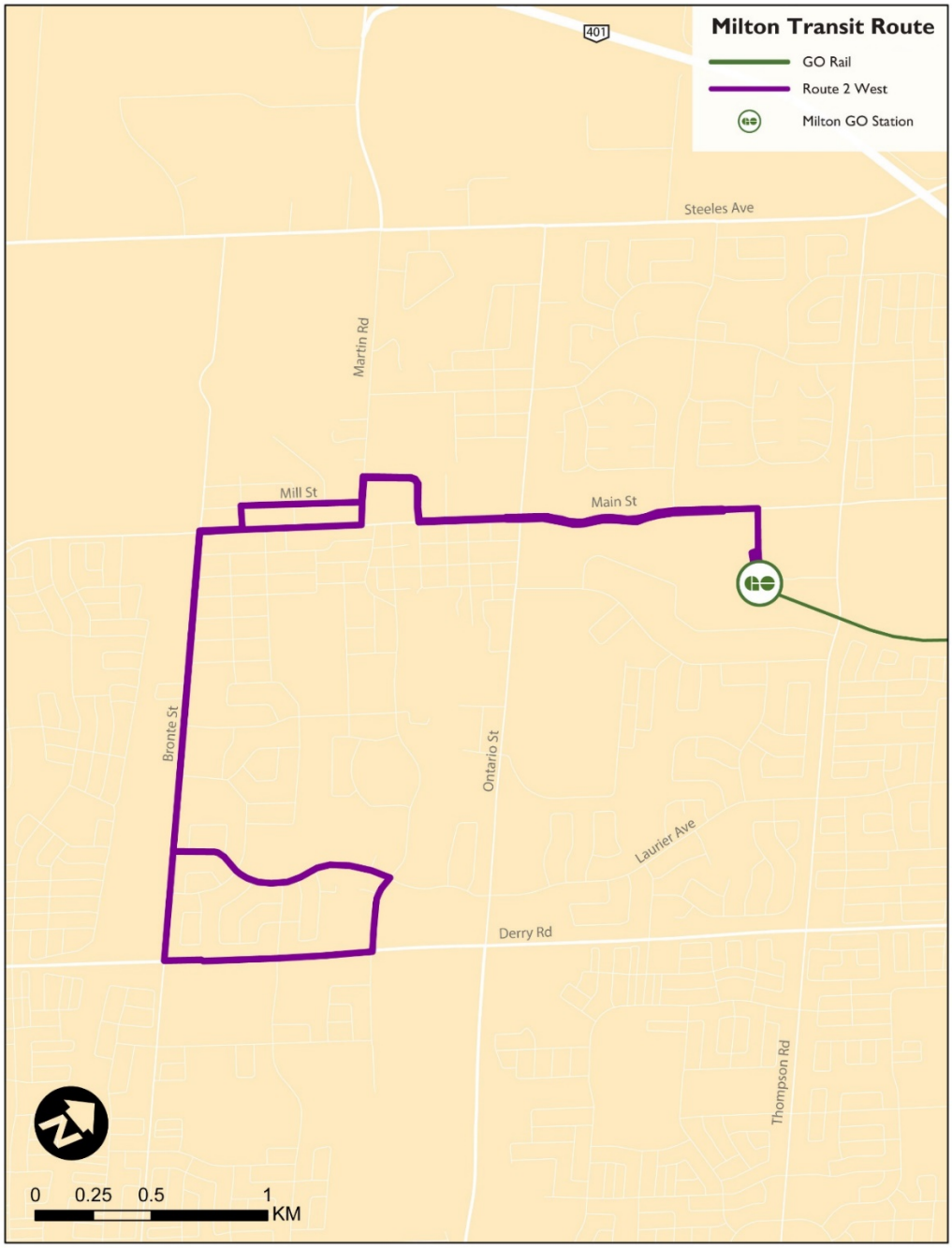


Figure 118 I Route 2 West

INTRODUCE NEW MOBILITY SERVICE

Home-to-Hub service is proposed as the initial service that Milton Transit would offer in areas of new residential or employment growth as the Town develops. In the short-term, the Home-to-Hub service, illustrated in Figure 119, would serve as transitional service for areas where development density is too low to sustain conventional service.

- Customers would be picked up at their origin points (home or workplaces) and could transfer to other Milton Transit routes at nearby bus stops or at Milton GO station
- Service could be operated by Milton Transit specialized service or by a taxi or TNC operator under a subsidy agreement
- Base fare $3.75 (same as fixed-route fare); free transfers to Milton Transit routes

Home-to-hub is a type of "new mobility" service that combines elements of conventional fixed-route or specialized transit and new transportation options made possible by mobile phone technologies. New mobility programs are being developed, often as short-term pilot projects, by transit operators across Canada and the US, to identify more convenient and cost-effective ways to serve areas that are difficult to serve cost-effectively with conventional transit. Oakville Transit has had a successful Home-to-Hub operation since 2015. Oakville's Home-to-Hub service is operated by its Specialized Transit service; Home-to-Hub trips are scheduled alongside, and sometimes are combined, with specialized trips, making more efficient use of both services.

As areas served by Home-to-Hub add development and population and employment density grows, Milton Transit would monitor both the development density and ridership on home-to-hub service in each area. When an area reaches the requisite development density, or when the number of Home-to-Hub trips reaches a trigger level (as shown in Figure 120), fixed-route transit would replace Home-to-Hub in that area.

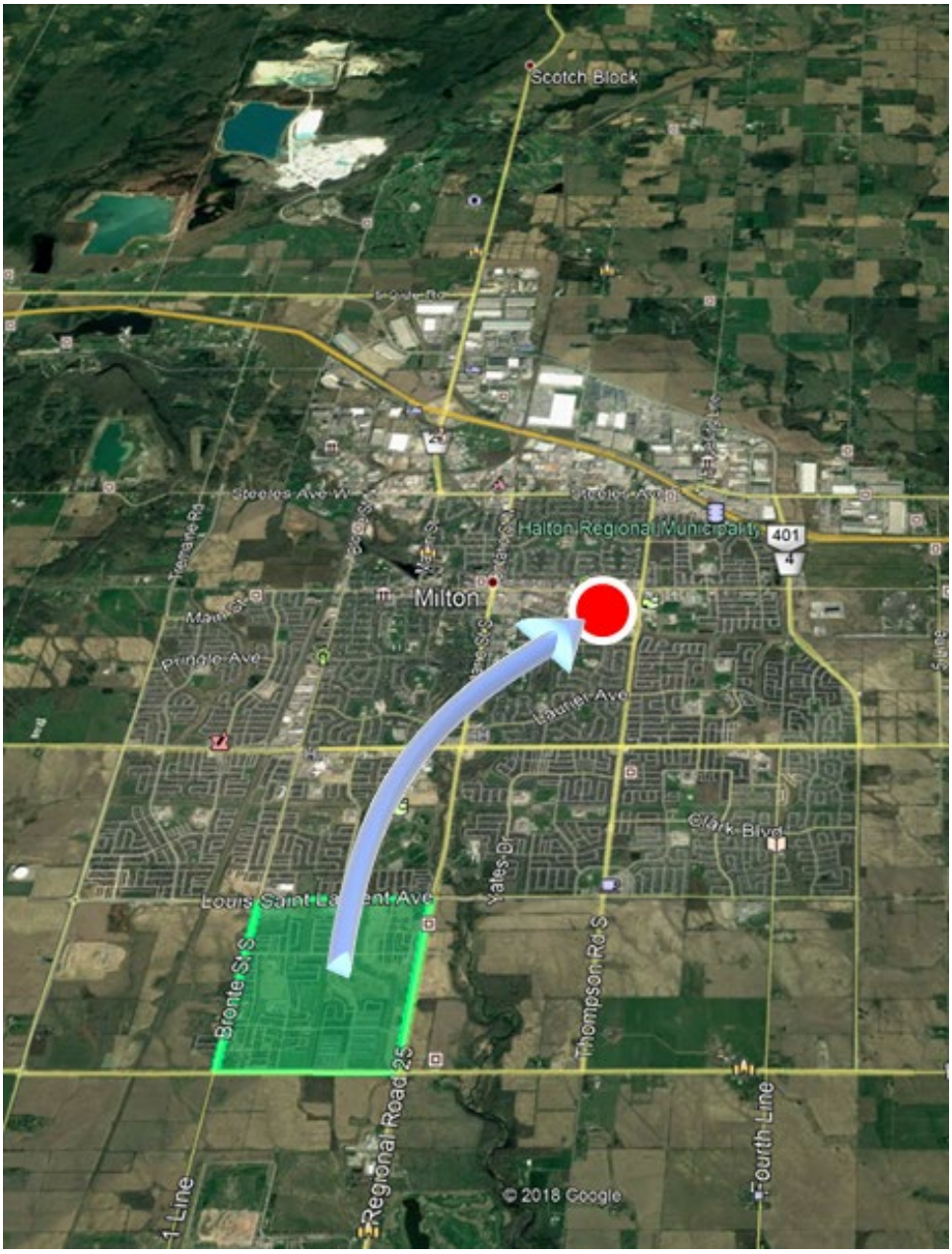


Figure 119 I Home-to-hub concept

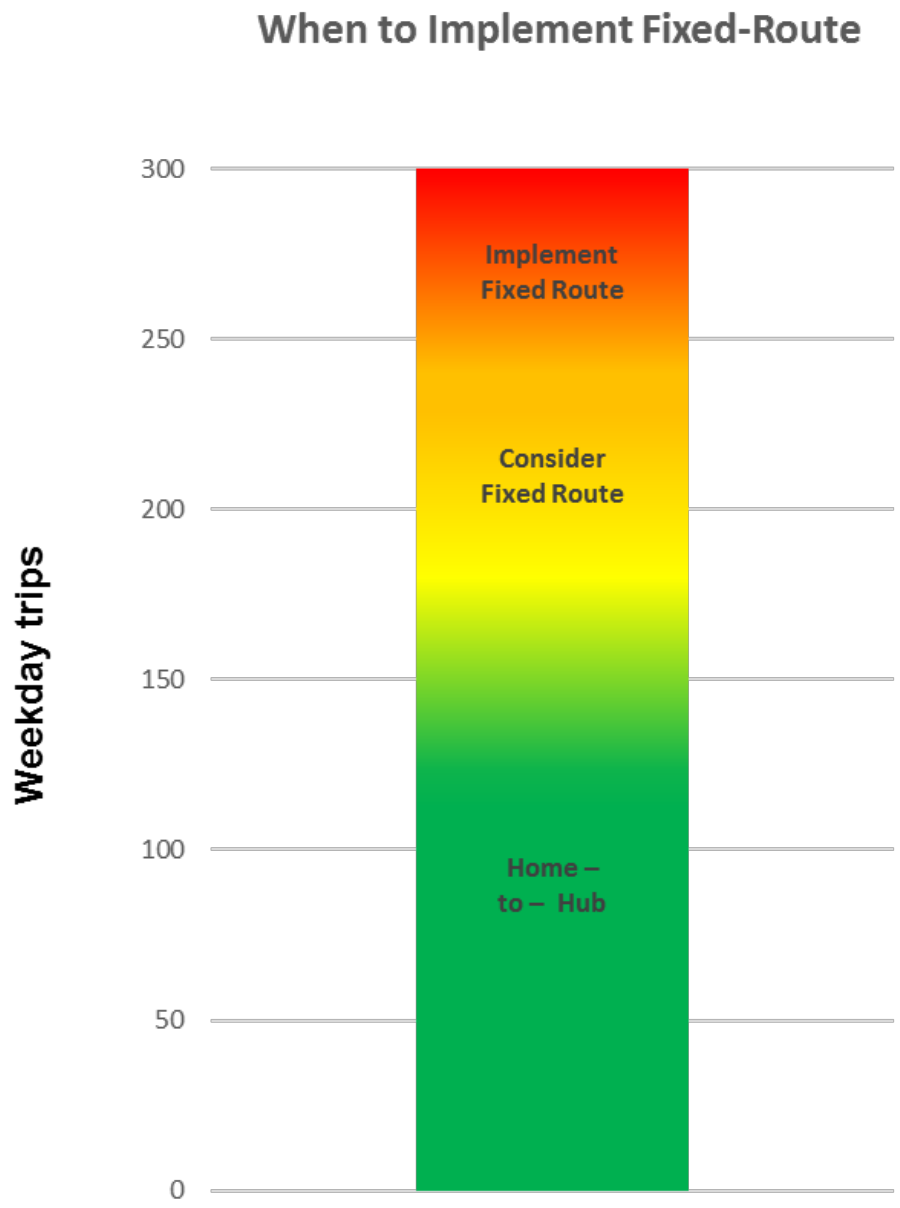


Figure 120 | When to implement fixed-route, based on Home-to-Hub service utilization

INTRODUCE CROSS-BOUNDARY SERVICE

Request for cross-boundary transit service to adjacent municipalities has always remained one of the top responses in the recent surveys. Along with Milton Transit's improvements on its local transit network, the cross-boundary service could play a

major role in reinforcing Milton's intensification as well as boosting economic development. It is recommended that Milton Transit implement the Milton GO – TPO – Lisgar GO Route via Steeles Avenue, in cooperation with Halton Hills and Mississauga. This route not only provides connection to one of the region's most requested destinations – TPO, but also help bridging the gap between the three local transit systems - Milton Transit, Brampton Transit, and MiWay, that provides inter-regional transit connections. Figure 121 shows the proposed alignment of this route.

Figure 121 | Milton GO - TPO - Lisgar GO via Steeles

BUILD ON AND EXPAND SPECIALIZED TRANSIT SERVICE

Shown in Table 57, Milton's specialized transit utilization rate is significantly lower than its surrounding peers - Halton Hills and Oakville. There are many factors that could contribute to such under-utilization, one could be that the contracted taxi-based service doesn't meet the accessibility demand. Also, the branding of the service may not have roused enough awareness in the public. However, at the pace of growth and the aging of current population, demand for specialized will almost definitely grow substantially in the next 10-15 years, and it is not impossible for Milton to have a demand for specialized transit at about the service utilization rate of Oakville, at 0.7 specialized transit trips per service area population. Shown in Figure 122, at Oakville's specialized transit utilization rate, Milton will reach a demand of 162,000 trips per year in 2031, more than 8 times higher than what Milton Transit has today. As such, formalize specialized transit as part of Milton Transit Family of Services approach and improving service will become necessary. In the short term, Milton Transit should seek to contract for dedicated specialized transit operation that is operated by contract employees using Milton-owned mini-buses. Reservationist as well as dispatch and scheduling functions could also be contracted, with subcontracted taxis as back-ups when buses are over-subscribed. In the meantime, Milton Transit should also seek further specialized service collaboration and integration with surrounding operators such as Burlington and Oakville, starting with common eligibility application, assessment and appeal process. Other potential areas of cooperation including but not limited to travel training, transferring, scheduling, and dispatching.

TOWN	ANNUAL TRIPS	TRIPS PER CAPITA
Halton Hills	38,806	0.66
Oakville	135,676	0.71
Milton	19,691	0.17

Table 57 I Specialized transit trips per capita in Milton, Halton Hills, and Oakville, 2017 CUTA

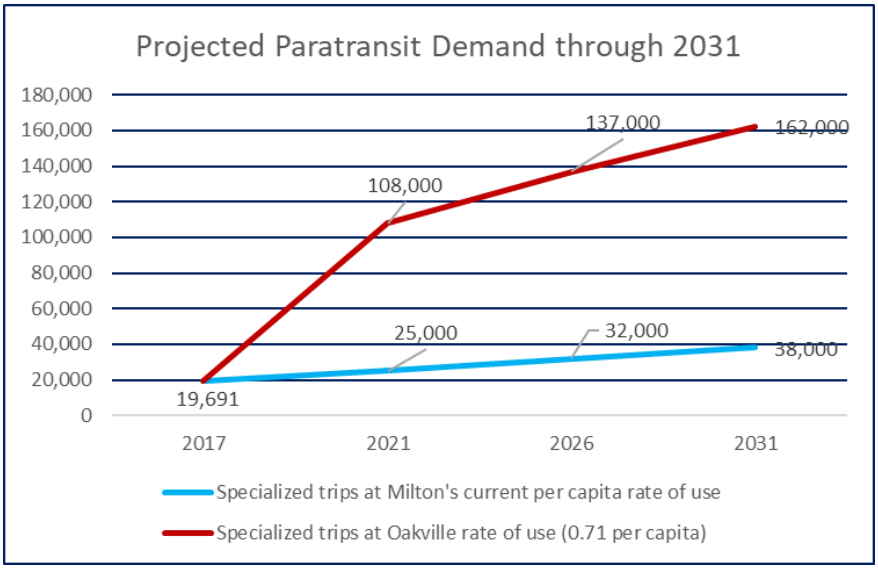


Figure 122 I Projected specialized transit demand through 2031 in Milton

EXPAND AND REPLACE TRANSIT FLEET

To implement all the service improvements, Milton Transit will need to acquire additional four (4) full-size buses for the cross-boundary service. At $635,000 each, these vehicles would cost Milton Transit a total of $1.3 million, or $110,000 annually, assuming Halton Hills would share half of the cost. In addition, thirteen (13) of the total twenty-four (24) full-size buses that Milton Transit has now would need to be replaced, based on the industry standard of 12-year useful life. Operating vehicles that are older than their useful life would not only increase the risk of breakdowns, impeding Milton Transit's ability to maintain on-time performance, but also increase the maintenance cost as these vehicles usually require more maintenance and repairs, and may need expensive custom-made parts as they are no-longer available from the origin equipment manufacturers (OEM). The total replacement cost of the thirteen (13) full-size buses would be $8.3 million, or $690,000 annually.

MARKETING

Transit agencies with small service areas have the opportunity to develop marketing plans that are personalized to the lifestyles of the community. Milton Transit can deploy marketing strategies and tactics that raise awareness, lure new riders while educating

non-riding taxpayers to the return on investment that comes from their support for transit service.

Milton Transit has brand equity in its service area. The strengths of the service which have contributed to its brand equity are:

- Committed Workforce-The frontline personnel that provide Milton Transit service are committed to their riders. This level of commitment makes the service contractor's bus operators a real secret weapon for the marketing program
- Effective and Efficient Service-The service is operated in a very prudent manner meaning that most of the financial resources are dedicated to the provision of service. The types and levels of service are fairly match to levels of demand.
- Public Opinion-The agency as well as its services are well regarded by those who ride and those who don't use the bus according to those engaged during the study and from research executed by the Town of Milton.[17]
- Consistent Presentation of the Brand-Milton Transit present a strong graphic image to its riders in its printed materials, website and its fleet. Expanding that brand to a Family of Service concept builds upon the success of the service while opening the opportunity for collaborative marketing activities.

A brand with these positive attributes must utilize them to its advantage to raise awareness and increase its customer base. This is good news for Milton Transit because the agency does not have sufficient staff or marketing resources to take a traditional media-based, approach think York Region Transit, to the promotion of its services.

MARKETING APPROACH

The Plan proposes low-cost, high value marketing strategies that can raise awareness, incite trial ridership and increase public support for Milton Transit. The plan calls for the development of strong 'word of mouth' support for the agency's services that results in increased awareness, use and support of Milton Transit. This will be accomplished by engaging riders, frontline employees and other targeted populations to help raise awareness of Milton Transit and to incite trial ridership.

MARKETING GOALS

[17] Town of Milton 2019 Budget Call Report

Every marketing plan should deliver a reasonable return on the investment made in the program. For Milton Transit, the goals are to increase customer satisfaction, and raise public awareness of Milton Transit among residents and visitors.

- Increase customer satisfaction through providing better information via more effective communication tools, measurable from regular transit customer surveys
- Increase public support for Milton Transit by raising public awareness of the value of transit to the residents, economic vitality and the quality of life in the Town of Milton, measurable from monitoring traffic and interactions on Milton Transit website and social media platforms, and through other non-transit public surveys

As the agency is dependent upon the support of the residents of Milton who don't ride transit but support the agency's services with their property tax payments, it is necessary tor the agency to begin to speak directly to residents, so they can come to understand how Milton Transit contributes to the Town of Milton.

Raising awareness above current levels will help Milton Transit towards achieving these goals. The key is to achieve them by deploying the most effective and efficient marketing tactics.

TARGET MARKETS

Milton Transit's marketing efforts need focus in order for them to be effective. Limited resources should be focused on those markets with the greatest opportunity to achieve the goals. Milton Transit's target markets are:

- **Current Milton Transit Riders** - So many of North America's transit agencies have lost ridership over the past two years because they had no focus on what it takes to retain the loyalty of those who are riding today. It is crucial that Milton Transit preserve the loyalty of current riders. Key to retaining that loyalty is to respond to the opinions of riders voiced through the research conducted by WSP. Those attributes of service mentioned by riders such as reducing travel time and making routing more direct are necessary to improve rider allegiance. The marketing plan will use strategies that enlist current riders to motivate their families, friends and co-workers to try transit.
- **Milton Transit/PW Transit Frontline Employees** - Involving frontline employees is important to the success of any transit marketing effort, even more crucial to an agency of Milton's size where drivers know most of their passengers. The commitment of PWT's drivers is important to maintaining the quality of service which in turn is crucial to maintaining the loyalty of riders and luring new riders.
- **Targeted Demographic Populations** - Low-income and minority populations, especially South Asian populations, are important to the not only the continued success of Milton Transit's service but also the agency's compliance with AODA and other equity issues.

- **Major Employers** - Large employers such as Gordon Food Service, Karmax Heavy Stamping, Manheim Auto Auctions, Whirlpool Canada and Lowe's are key to growing Milton Transit's ridership, serving the service area's employers will aid Milton's economy while growing transit ridership.
- **Developers** - The Town of Milton has a local tax levy that is $120 lower per $100,000 of residential assessment than its neighboring municipalities making residential and commercial development attractive in the town. One developer has already inquired about subsidizing Milton Transit monthly passes for a development. Developing a formal program for developers would support the goals of increasing ridership and revenue.

MARKETING STRATEGIES

EMPLOYER TRANSIT BENEFIT PROGRAM

Although the Public Transit Tax Credit has been eliminated, many of Canada's major employers still have strong commitments to sustainability and the environment. From Canadian Tire to TELUS, Canadian employers have made solid commitments to sustainability. To tap into those commitments, the Plan proposes that Milton Transit develop and offer an Employer Transit Benefit Program.

Employer Transit Benefit Programs are employer-endorsed programs that promote the use of public transit including having the employer subsidize all or a portion of the cost of annual or monthly passes or allowing employees to purchase them through the employer at a discount.

The Plan recommends that Milton Transit propose an Employer Transit Benefit Program to the Milton Chamber of Commerce as a collaborative effort between Milton Transit and the Chamber. It has been the planning team's experience that working with business and industry groups to gain the participation of employers in a program.

It is no coincidence that many of the Chief Executive Officers of Milton's largest employers serve on the Chamber's Board of Directors including Gordon Food Service, Dufferin Aggregates and RBC Bank. Collaborating with the Chamber would make the Employer Transit Program an extension of the services that the Chamber provides to its members. It also would afford the opportunity for Milton Transit to support the Chamber's efforts to attract new employers who wish to promote transit service to their employees to Milton.

We are also suggesting that Milton Transit seek out the services of the Associated Senior Executives of Canada to help get the Employer Transit Benefit Program launched. The Transit Master Plan team has worked with a similar organization called SCORE (Service Core of Retired Executives) to create what became the transit industry

first large Employer Transit Benefit Program for Dallas Area Rapid Transit with 385 employers providing some form of transit benefit to their employees. SCORE program participants helped open doors with employers, giving presentations and helping the staff establish program procedures that are used to this day in the Dallas Area Rapid Transit program. In Milton, SCORE would work as volunteers calling on area employers about the Employer Transit in collaboration with the Milton Chamber.

Transit Benefit Programs are traditionally started by conducting an on-site survey to determine how employees get to and from the work site. Using Survey Monkey minimizes the time to field and analyze these Home to Work Surveys so a study can be completed within 30 days' time. Based upon the survey results, Milton would determine if the Employer's Work Site could generate enough activity for an Employer Program.

An Employer Program could be structured on the same basis as a Residential Development Pass program with these pass options:

- **Annual Pass Program** - Employees can be provided with an annual or yearly pass option.
- **Monthly Pass Program** - Employees would receive a monthly pass or tickets associated with their level of travel.
- **Seasonal Pass Program** - Employees would be given passes and/or ticket for the period in which they are employed.

In addition to the onsite survey, the other services that Milton Transit should provide for Employers and their employees are:

- **Employee Transportation Coordinator Training** – Milton Transit would train one person at each site to help answer employee questions so that some of the burden of the administration of the program stays with the Employer.
- **Emergency Ride Home** - Milton Transit would provide an emergency ride home option for employees who would be required to work beyond traditional work hours, or they experience a family emergency. That option is best provided by negotiating an agreement with Lyft to provide the trips. Employees in the program would be provided with a Ride Code that would allow the transit rider up to two emergency rides home each year.
- **New Employee Trip Kits** – Milton Transit and the Chamber would provide information packages at the employment site for new hires so that they become aware of the availability of transit service to the site.
- **Promotional Materials** - To raise awareness of the Transit Benefit Program, Milton Transit would provide each employer with promotional materials including posters for break rooms, program brochures, handbills and online materials for the Employer's Website.

RESIDENTIAL DEVELOPER PROGRAM

The Town of Milton has adopted an ambitious growth strategy that will double the town's population to 228,000 by 2031. To support that growth, Milton proposes 'enhanced transportation to move people efficiently' that supports the expansion of transit service.

This pro-growth approach has resulted in requests from developers regarding the Town of Milton. While transit is mentioned in various Milton Plans such as Destiny Milton, Accessibility Milton and others, and integrated into development as part of the secondary and tertiary plan process for larger areas of the town, there is less advance direction for incorporating transit for those developing smaller parcels or developing parcels or new major developments within existing developed areas of the Town.

To fill that void and to take advantage of the opportunity that Milton's growth presents for the Town's transit service. The Plan recommend as part of this marketing plan that Milton Transit develop a Developer Tool Kit (an example of the toolkit is shown in Figure 112 on the next page) that provides developers and others with the following:

- **Strategies for Creating Transit Supportive Developments** - Suggested concepts for compact, walkable, mixed use developments using case studies from other cities and towns in North America; strategies for achieving development around or near to existing transit facilities and services and limitations on parking supply/inventory supported by transit, pedestrian and active transportation programs. This material would be provided in advance of developers entering into the formal planning process.
- **Programs that Encourage Alternatives to Driving Alone** - Including Residential Pass Programs that offer reduced rate annual passes subsidized in total or part by the developer; accommodations for active and pedestrian transportation including bike rack and lockers, street furniture and preference for transit and active transportation in development plans.

The Tool Kit would be developed in collaboration with the Town of Milton's Planning and Development Department and would include the following items:

- **Transit Oriented Development Characteristics** - Visual and narrative suggestions for TOD development in Milton.
- **Economic Benefit List** - A description and methodology to determine the economic benefits of TOD for Milton developers.
- **Financing Options** - Lists of the Public and Private funding available to accomplish TOD
- **Supportive Transportation Programs** - A menu of the bicycle sharing, car sharing, shared and managed parking strategies, active transportation and transit programs available to developers and their tenants.
- **TOD Developer Webinars** - Successful developers of Transit Oriented Developments across North America would hold webinars hosted by the Town of Milton to talk about how their developments became successes. These webinars would be posted on a Town of Milton hosted YouTube Channel.

Figure 123 | An Example of Transit Supportive Planning Toolkit from Puget Sound Region

The Plan suggests the Tool Kit be available on the Town of Milton website but that the initial Tool Kit be produced in printed form and distributed to the Ontario Home Builders' Association, the Building Industry and Land Development Association of Ontario, the Ontario Landowners Association and large mixed-use developers including Diamond Corporation, Urban Capital, Daniels Corporation, Street Car Corporation and Woodcliffe.

COMMUNITY ENGAGEMENT

The marketing of transit services always begins with local input and local involvement. Engaging with the community is especially important for smaller agencies like Milton Transit. It is important for agencies of Milton's size to raise community awareness of

their services and to do it with impact. The most effective means to raise awareness while also earning the trust if the community is to identify and address the specific needs of the neighborhoods that make up a service area.

The most effective community engagement results from meeting people where they are as it is often difficult for the public to attend meetings because of time constraints or family commitments. The Master Plan Team has solved this problem before for the City of Los Angeles by developing a mobile activity van that travels throughout the city engaging city residents about their travel needs. Similar engagement strategies have been used by agencies large and small.

Cultivating trust requires that transit managers get out of their offices and into the communities they serve. For Milton, this is challenging because there are only two full time staff members dedicated to the oversight of the service, therefore collaborating with others is necessary to achieve an appropriate level of community engagement.

One proven way to engage the public is to identify and recruit Ambassadors to serve as gatekeepers of information about Milton Transit. The Transit Master Plan Team developed a Transit Ambassador Program for Los Angeles. The Transit Ambassadors are respected member of their communities that provide information to neighbors about transit service on an ongoing basis. Los Angeles has 14 Council Districts and the Ambassador candidates were recruited with the help of the council districts as they could easily identify people in the community that were respected, had friendly and outgoing personalities and, most of all, responsible. The Team and LADOT Transit trained the candidates on how service operated in their neighborhoods, so the Ambassadors were well versed in telling their neighbors how to transfer or the frequency of service. As compensation for their service, each Ambassador will be provided with a LADOT Transit TAP card which will be loaded with a 21-trip tickets or 21-trip tickets on the LA Mobile payment application. Ambassadors are now being trained top provide Travel Training, the individual instruction of seniors, those with disabilities and new riders to transit to travel confidently, safely and independently using conventional fixed route transit service.

The Plan recommends a similar approach for Milton to engage the community. While the Town of Milton is very proactive with its engagement, especially with its ongoing LetsTalkMilton.ca surveys, Milton Transit needs to do more. Ambassadors could attend special events, staff booths at street fairs, handle pop-up information events at the GO Station and serve as liaison with the community.

Milton Transit has made a strong head start in developing a Transit Ambassador program with the development of its Youth Advisory Committee. This group includes

more than a dozen students who are highly engaged transit users from local high schools. These students have an enthusiasm for and interest in Milton Transit, and already serve, in effect, as ambassadors and advocates for transit within their schools, friend groups and families. Engaging members of this group as formal Transit Ambassadors would be a relatively simple and easy transition, requiring little additional effort on the part of Milton Transit staff and little additional cost to the Town.

SOCIAL MEDIA

There is no substitute for face-to-face engagement to convert the public to transit use however the Community Engagement activities of Milton Transit should include a social media strategy. That strategy is focused on using social media to supplement the customer service provided by PW Transit; trip planning and promotion.

The Plan recommends that Milton Transit utilize the following social media platforms for these specific purposes:

- **Twitter** - Engaging existing riders, push notifications for service delays and interruptions and providing relevant daily, up to the minute information such as weather impacting service.
- **Facebook** - To build friendships with riders and the public by providing important content such as service expansions, new fare products and offering incentives-Ride Milton Transit and get 10% off at Loblaw's.
- **Instagram** - A platform for image sharing but transit agencies have used it successfully to show where service goes such as posts that show new restaurants along routes.
- **YouTube** - Establishing a You Tube Channel would enable Milton Transit to post profiles of each route and the neighborhoods served; to present profiles of riders and bus operators and to present the benefits of the new Employer and Residential Pass Programs. The first Milton Transit YouTube video should be one that shows the public the thorough process used for the cleaning of the fleet each night and how that is accomplished by two dedicated women.

Milton Transit also can use social media and other on-line resources to establish a dialogue with the community. One primary means of establishing that dialogue is through the LetsTalkMilton.ca surveys conducted by the Town. Milton Transit has utilized this portal for its Mobility Hub Study, the Transit Accessibility Plan and this Transit Services Review. The Plan recommends regular use of the portal to collect public opinion on how transit impacts those who live, work and visit Milton. For that purpose, the Plan is recommending an annual Quality of Life Survey that would supplement operating performance data with the result being compiled in an Annual Quality of Life Study that presents the value that transit delivers to economic activity, quality of life and general mobility in the Town of Milton. This report would be the annual report card for the impact that transit has on Milton. This report would be the

primary marketing tool used to communicate the importance of transit to the community, especially for those non-riding yet taxpaying members of the community who question the Town's investment in transit service.

FRONTLINE EMPLOYEE INVOLVEMENT

The key to retaining the loyalty of existing Milton Transit riders is very much tied to the quality of the service they receive. That quality is in the hands of the employees of PW Transit who are the 'faces' of transit service to the riders of Milton Transit. Milton Transit's marketing efforts need to recognize the importance of the relationship between frontline employees and service quality; to foster understanding of the mission of Milton Transit and to empower these employees to make decisions that enhance the rider experience.

Recognition – The Plan recommends that Milton Transit stage an annual Bus Operator Appreciation Day at which PW Transit personnel would be served a free lunch. Annual Appreciate Day events call attention to the teamwork, service and commitment of frontline employees. The Annual Appreciation Event would be an appropriate time to recognize a Bus Operator of the Year which would be voted on by Milton Transit riders. The involvement of riders engages them into the process and raises rider awareness of the commitment of Milton Transit frontline personnel to their customers. It would raise the importance of the event if the Mayor of Milton attended the lunch to recognize the frontline personnel and to announce the winner of the Bus Operator of the Year competition.

Foster Understanding - Although PW Transit provides Milton Transit service, the primary responsibility to satisfy the needs of riders' rest with the Town of Milton. To foster greater understanding, the Plan recommends that the Town of Milton hold a Bus Operator, Mechanic and Hosteler Briefing Session once a year so that these employees aware of the performance of Milton Transit service and to gain employee input on how service can be improved. The sessions would also afford the Town of Milton the opportunity to thank these frontline employees for their service.

Empower Frontline Employees to Enhance the Rider Experience - When the Master Plan Team held the drop-in sessions with Milton Transit Bus Operators he was impressed with their frankness, their insight into how service can be improved and their commitment to their riders. The Plan suggests an even higher level of training for Bus Operators that would include role playing to help the Operators better understand the mindset of riders and how to resolve issues with them.

To empower the Bus Operators to enhance the rider experience, the Plan proposes that when each Operator goes into revenue service that they carry a number of free rides, courtesy passes for riders that have had bad experiences on Milton Transit. Operators would be trained to the types of situations in which riders would be granted a free ride however the ultimate decision on granting the free ride would rest with the Operators communicating to them as well as their riders that they have the greatest influence over service quality and the rider experience.

SELF-PROMOTION

Milton Transit is a medium itself. The transit and shelter advertising that is managed by Pattison Outdoor reaches thousands of riders and non-riders every day. The King, Queen and Rear advertising space on the fleet; the space on the more than 30 bus stop shelters in Milton and the interior space offer Milton Transit the opportunity to promote its services in a cost-effective manner using what is known as owned-media. Usually the only cost under the contractual arrangements with transit advertising firms like Pattison is that the agency pays for the production and posting of the advertising content.

The Plan recommends that Milton Transit produce advertising content once or twice a year with content presents a general message promoting the service. King, Queen and Tails would be developed for every bus in the fleet. Using this strategy, Pattison can post the spare advertising when space is available on the fleet.

FAMILY OF SERVICES

Repositioning Milton Transit as the provider of a Family of Services will increase the value of the agency in the minds of those who use the agency's services as well as those who do not but support the agency with their tax dollars.

The concept of providing those who live, work and visit Milton with a variety of travel options is one that will match the types and levels of service that Milton Transit offers to demand making them more effective and efficient. The principles of the Family of Services concept are as follows:

- **The focus of Milton Transit is on moving people not vehicles** - As the public adopts more technology that enables them to personalize almost every aspect of their lives, Milton Transit will be embracing technologies that provide riders with choice in the services they ride and how they pay for those services.
- **Types and levels of service are focused on individual need** - Technology is personalizing the travel experience. The types of service that Milton Transit offers-fixed route, accessible, on-demand, etc. - will change to meet demand.

- **Choice in travel options** - Riders may begin a trip on fixed route service and end it on accessible service. Supported by Travel Training, Milton Transit will be able to control demand for its services, increase its productivity while maintaining a healthy farebox ratio. For riders it means freedom of choice, self-sufficiency and independence.

For Milton Transit to adopt the concept, it must embrace Family of Services in how the agency designs and delivers its services. This process begins with requests for accessible rides by requiring assessing each trip requests to determine if the trip can be accommodated on conventional fixed route service or if an individual AODA compliant trip is necessary.

The Family of Services concept will benefit Milton Transit over the long-term by rationalizing trip decisions, placing riders onto the most effective and efficient service for their individual needs. Adopting the concept will portray Milton Transit as a good steward of the financial resources allocated to the service by using the Family of Service concept to make service more productive overall.

PROMOTION OF SERVICE

The Plan recommends major changes to the Milton Transit route structure. It is necessary for Milton Transit to support the service changes with an aggressive level of marketing.

Transition of Three Fixed Routes to New Mobility Service - Changing from fixed route service to on demand service requires educating riders well before the change. Golden Empire Transit (GET) recently transitioned one of its underperforming fixed routes to an on-demand solution – RYDE On-Demand service that is similar to Milton's New Mobility service.

The RYDE On-Demand service was marketed well in advance of its implementation using the following marketing tools:

- Rider Alerts-Riders on the fixed route service that was to be discontinued were given Rider Alerts on board that contained free ride coupons for the new RYDE Bakersfield service. In addition, all GET bus operators were trained about the service, so they could explain how the service operated to riders, especially those impacted by the change.
- Door Hangers-GET distributed door hangers to all single and multiple family residences in the pick-up areas. The door hangers include a free round-trip coupon to incite trial ridership of the service.
- Social Media-GET utilized Twitter, Facebook and Instagram to support the roll out of the RYDE service.

- Since its inception, RYDE has been averaging over 40 trips a day-more ridership that the fixed route service! By engaging the public well in advance of the service change, Milton Transit will be able to retain the loyalty of existing riders while luring new riders to the New Mobility service.

Increasing Frequency on Line Haul Routes – The Plan has proposed increasing frequency on the three best performing routes in the Milton Transit network - Routes 2,3 and 4. Increasing frequency has proven to be the most effective way to increase ridership, so Milton Transit should take advantage of the service improvements to raise awareness of its service.

Recently, LADOT Transit increased the frequency of many of its services to lure more riders to its Community DASH and Commuter Express services. The campaign used testimonials of actual riders to promote the benefits of the service expansion, and displays the diversity of transit riders as well as the many purposes of why people ride public transit. Figure 113 shows some of the testimonials used in the marketing campaign.

Figure 124 | Testimonials from actual riders that LADOT used in its marketing campaign

Utilizing real riders would increase the impact of a similar Milton Transit campaign as it portrays the reality of mission and purpose of transit. This approach also raises public awareness that 'people like me' ride public transit. The Los Angeles campaign identifies riders by the neighborhoods in which they live providing information about the coverage of transit service.

Cross-Boundary Transit Route - The proposed cross-boundary route to the Toronto Premium Outlet Mall (TPO) will provide the opportunity for Milton Transit to lure shoppers as well as retailer workers to its service. The service will also afford the opportunity for Milton Transit to establish an Employer Transit Benefit Program at the

mall at offers employees the chance to ride transit at reduced rates supported by their employers or the mall owner/operator, the Simon Property Group.

The marketing of the cross-boundary service should be undertaken with the support of TPO. Milton Transit should request that the mall provide space in the mall for the promotion of the service; promote the service on the mall's website with graphics provided by Milton Transit and provide promotional coupons that would be supplied to Milton Transit to distribute to riders of the new service as an incentive for the first 100 riders of the service. Those coupons would provide the riders with 25% off any purchase at the mall.

TECHNOLOGY

FARE POLICY

Fare policy is one of the transit management's most underutilized tools. Strategically reducing fares can help drive ridership up while raising fares can also control demand (overcrowding) if necessary. Most recently transit agencies have begun to use fare policy to meet their responsibility to provide essential services in an equitable manner to targeted populations like students, low income and homeless populations. Other agencies have developed special fare programs for colleges, major employers and developers to lure new populations to their services and provide a solid foundation of ridership and revenue.

The Plan recommends the adoption of certain fare products, the future elimination of cash as a fare payment option, the establishment of special fare programs for employers, colleges and technical schools and residential developments, and establishes standards for changing fares to achieve Milton Transit goals. The Revenue Collection Strategy proposes adoption of advanced revenue collection in the next generation of the PRESTO System to facilitate seamless transfers to GO Train and bus service as well as travel across the GTHA. Adoption of the PRESTO system will be dependent upon Milton Town Council approval of a Business Case that PPRESTO would deliver value to the riders of Milton Transit and the taxpayers of Milton who subsidize the operation of the service with their tax dollars. The Plan also developed a series of strategic goals that the fare policy and revenue collection strategy seek to accomplish:

- Offer a simple table of fares that are equitable, easy to understand, convenient to access and use.

- Price fare products to the quality of service (on-time performance, frequency, coverage, travel time) to maintain the loyalty of existing riders and to attract new riders to Milton Transit. Service quality will also be used as the basis for fare increases if service frequencies are increased, travel time reduced and other improvements that come with increased operating costs. As new mobility options are introduced that provide higher quality service, such as on-demand service, those services will be priced to the direct cost of these services to maintain the revenue recovery goal.
- Integrate fares to encourage seamless travel across the GTHA.
- Utilize revenue collection technology that personalizes fare payment for the rider by maximizing convenience while ensuring the payment of the most appropriate fare for each rider's trip and ability to pay.
- Adopt revenue collection technology that minimizes Milton Transit's cost of collecting, handling and reconciling fare payment developing a platform that can accommodate advances in fare payment/revenue collection technology.
- Price fare products to recover at least 35% of the direct cost of operating Milton Transit service from those who utilize the service.
- Review fares and revenue collection on an annual basis to determine the need for fare changes to maintain financial sustainability and affordability for riders.

FARE CHANGE

The Plan recommends that Milton Transit evaluate its fares annually as part of the Town's User Fee Update process to determine if changes to the pricing are needed or whether fare products need to be added or eliminated based upon demand and financial need.

The Plan further recommends that Milton consider making fare increases routine to reflect the increasing cost of providing service, as measured by the Canadian Consumer Price Index (CPI) or other increases in the direct cost of providing service. The CPI is projected by Canada's major financial institutions at 2.2% for 2019. The Town of Milton's Budget Call report cautions, "the CPI can be a good proxy for general cost information its does not align with cost pressures faced by a municipality." The Town's Budget Call suggests that budget increase be reflective of inflationary pressures resulting from the goods and services acquired by the Town as well as the significant investment in capital spending and revenues sources like grants, investment income and transfers from reserve funds.

Based upon this broader measure of factors that would increase the direct cost of delivering Milton Transit service, the Plan recommends a cumulative total of 5%

increases in the CPI over any period would trigger an increase in the Milton Transit base fare. Rather than deferring fare increases until it was necessary to respond to unanticipated funding problems, the Plan recommends that Milton Transit utilize fare policy as a tool to ensure that there are no financial crises by routinely raising fares triggered by the CPI and direct cost drivers, such as increases in Milton Transit's direct cost of providing service resulting from increases in fuel cost or service contractor hourly rate.

Passenger fares are the one source of revenue that Milton Transit can control, therefore the strategy of regular incremental increases (5% or less) removes the need for large increases in fare that result in rider 'sticker shock'. This strategy, first deployed by Transport for London, has proven to retain existing riders as consumers do understand that costs of products and service routinely increase.

When fare increases are required, the percentage increase should be based upon the base fare. For example, a five percent (5%) increase in the current base fare would yield a new base fare of $3.93, which would be rounded to $4.00 to eliminate the change differential. All prepaid fare products would raise at a similar rate.

The goal of this pricing strategy is to achieve and maintain a revenue recovery of 35% from fare revenue and to have fares adequately reflect the cost of providing service while keeping Milton Transit service as attractive as possible to new riders.

PREPAID FARE PRODUCT MULTIPLIERS

Traditionally, transit fare products are priced at multiples of the base fare (single-trip, adult cash fare). Monthly pass prices are based upon two rides a day over the average 22 business or work days per month, as the predominant users of monthly and most period fare products are workday commuters. Milton Transit riders use tickets in greater volume than they do period passes, although the discount on the adult monthly pass is 50% and the youth monthly pass is 64% based upon the base fare multiplied by the 22-day calculation.

The Plan recommends that Milton Transit standardize its fare pricing and reduce the discounts on tickets to be capped at 20% for adults and 40% for youths and seniors in advance of the inevitable movement of Milton Transit to an advanced revenue collection system. Standardizing the multipliers provides Milton Transit management with greater control of future pricing to maintain its revenue recovery ratio.

Milton Transit has traditionally kept its pass prices low to reflect the lower level of service that it provided in relation to neighboring transit agencies in Oakville, Burlington and Mississauga. Those agencies discount their passes from 35% to 20% lower than the related base fare for a rider working 22 workdays a month. The 20% recommendation is based upon a review of North American fare policies and tables. The 20% number is a reasonable discount rate that would convert riders paying cash to passes; offer an incentive for non-riders to try transit while still enabling Milton Transit to achieve a realistic revenue recovery ratio.

The 'step back' of the generous discounts on passes should be gradual being achieved over two to three fare increases, but these fare products must be reflective of the cost of providing service even at the lower than industry costs at which Milton Transit operates its service. Industry averages on pass discounts are 25% as this fare product allows for unlimited rides. As mentioned, pass utilization on Milton Transit services is low in relation to ticket use, so there is no need to discount the products so heavily.

The Plan recommends the addition of wholesale rates for employer, college and residential development passes. The rates to be charged for these programs account for the program requirements that participants buy passes in large denominations and that they pay for the passes on a one-time basis, prior to the use of the passes.

ELIMINATE CASH

Cash utilization on Milton Transit service is now at 35% of all trips taken on the system. Milton already has one of the highest cash fares in Canada, yet riders continue to pay it. Riders using cash usually cannot afford to buy multi-ride tickets and passes, and thus cannot take advantage of the discounts that tickets and passes offer. As Milton Transit's base fare will continue to increase, its revenue collection costs will continue to rise if cash is still accepted. Accepting cash also slows passenger boarding, which makes service slower and less reliable.

Tickets and passes should be discounted relative to cash fares to discourage riders from using cash. This would gradually reduce the use of cash is reduced before the adoption of an advanced fare payment and revenue collection system, which would trigger the elimination of cash as a fare payment option.

The Plan recommends that Milton Transit launch a marketing and rider education campaign to promote the advantages of paying with tickets or passes. York Region Transit was successful in convincing riders of its VIVA services to stop using cash as

their preferred form of fare payment and to switch to passes and tickets even prior to the roll out of the PRESTO smart card system. It is possible for transit agencies to transition riders away from cash with the right combination of public education and fare incentives.

That rider education effort should be based on strong 'word of mouth' support from other riders to encourage those using cash to convert to tickets or passes supported by a fare incentive for riders who actively work to convert their fellow riders to passes or tickets. Under a similar program in Virginia, current riders can sign up on-line to earn free rides if they encourage their family members, co-workers or fellow riders to try or to increase their use of transit. Using an online sign-in procedure would encourage only those with a serious interest to participate.

The timing of the elimination of cash should be concurrent with the conversion to advanced revenue collection, as that new system would likely be account-based allowing riders to choose among multiple fare options. However, efforts to discourage the use of cash can begin with the next change in passenger fares.

CHILD/YOUTH FARES

The Plan recommends maintaining the current practice of allowing those under 5 to ride for free. While many of the transit agencies in the GTHA are moving toward increasing the age of those who ride free to 12, the Plan is apprehensive about the impact that would have on Milton Transit ticket sales and the agency's revenue recovery ratio. This cautious approach would allow Milton Transit to assess the results of the GTHA agencies that will allow those 12 years of age and younger to ride free to determine if the practice has a negative impact on revenue recovery and ridership.

The Plan recommends a more direct approach working with the Halton District School Board as well as Milton's private schools to develop a school pass program that offers an unlimited ride monthly pass to all students (and, possibly, school employees) at these schools. Schools and/or Parent Teacher Organizations would purchase the passes from Milton Transit for students at a wholesale or discounted rate at/or slightly below the current youth pass rate of $60. Alternatively, Milton Transit could accept school identification as passes, eliminating the need for fare media. Such a program eliminates potential fare disputes from youth and reduces the administrative burden of operating the school pass program on school administrators, volunteers, and Milton Transit.

Halton Student Transportation Services, the arm of the School District that provides yellow school bus services for Halton District as well as Halton Catholic Schools would welcome the relief that Milton Transit services could provide especially to students and their parents who live below the current standard for busing services, which is more than 1.6 km for Kindergarten through Grade 8 and more than 3.2 km for Grades 9 through 12.

Similar approaches have resulted in increases in ridership and revenue for other transit agencies.

TRANSFERS

Milton Transit's current route structure requires the continued use of paper transfers. According to frontline personnel, transfers are one of the primary contributors to fare evasion. Milton Transit Bus Operators suggested that they were often confused about the agency's transfer policy and needed more direction as to how to enforce the use of transfers. The current policy states that transfers are issued to cash and ticket paying passengers who must change buses to get to their final destinations, pass users just flash their passes to transfer between routes. The result is conflicts between operators and riders over transfer use and abuse of the transfer, especially around the Milton GO Station.

The current Milton transfer does not designate a direction of travel which lends to the misuse of the pass. Adding the direction of travel to the transfer would require another 'cutter' for the transfer however that investment would be well worth the cost to avoid the lost revenue and potential for conflict generated by misuse of the transfer.

The transfer time of expiry should also be limited to 60 minutes to reduce the use of the pass to complete a round trip rather than the intended purpose of the pass. Ticket users would be required to pay for each trip on a per trip or per seat basis.

Interim steps to reduce abuse and misuse would be to eliminate the transfer and reduce the current Day Pass to an incentivized rate of $5.00 until Milton Transit adopts an advanced revenue collection system, which would eliminate the need for transfers. Multiple transit agencies have eliminated transfers over the past five years because of abuse like that experienced by Milton Transit. All these agencies have introduced or lowered the price of their Day Passes to serve as substitute for riders having to transfer between buses.

Elimination of the paper transfer and reducing the rate of the Day Pass would be a marketing strategy that reduces conflict between Operators and riders, minimizes or eliminates misuse of the transfer and gives the Day Pass a needed boost as it has the lowest sales among all of Milton Transit's prepaid fare products.

Since 2019 the Toronto Transit Commission and other transit agencies in the GTHA have introduced a two-hour transfer window that allows unlimited use with a single Presto fare. That transfer option can only be accomplished using advanced fare payment as systems such as Presto are time-sensitive providing the ability to reconcile the time the trip began and the allowable time for transfer. Upon Milton Transit's adoption of an advanced fare payment and revenue collection system, Milton should adopt a similar time limit for its transfers.

EMPLOYER AND RESIDENTIAL DEVELOPMENT PASS PROGRAMS

Partnerships with Employers and Residential Developments have realized gains in ridership and revenue for transit agencies across North America. Similar programs in Denver and the East Bay of San Francisco account for as much as 30% of these agencies' ridership and revenue.

With the substantial amount of residential development underway in Milton and an increasing amount of employment that results in competition for experienced employees, the Plan recommends that Milton Transit launch monthly pass programs for employer and residential developments that will reduce congestion, lower employee and resident commuting costs and reduce the need for employers and residential developers need to maintain parking.

Milton Transit's Employer and Residential Development Pass Program would offer both groups a pass product that offer unlimited rides over a 30-day period for employees or residents that are determined to be eligible for the program by the employer or residential developer. Milton Transit would distribute, market and administer the pass program including marketing the program to employees and residents.

Pricing of the passes would be determined by the volume of passes purchased, an example of the pricing structure based on number of passes purchased is shown in Table 58 below.

PASSES	PRICE	DISCOUNT
1 to 100	$72.00	10%

200 to 400	$65.00	20%
500 or more	$60.00	25%

Table 58 | Pricing structure based on number of passes purchased

Milton Transit would sign a three-year agreement with each of the employers and developers that would provide a monthly unlimited ride pass to each eligible participant. Under the conditions, the employer or development would pay in advance for the passes.

Under the terms of the agreement, the participating employer or developer would designate an On-Site Coordinator that would work with Milton Transit on the administration of the program including maintaining the database of eligible participants; receiving, distributing and reconciling passes and assisting Milton Transit with the marketing of the programs.

The Plan suggests that Milton Transit offer the program in collaboration with the Milton Chamber of Commerce. The chamber has hundreds of members that would benefit from the pass program and they already offer a Group Benefit Program to its members that should include the benefit of the pass program.

MEANS BASED FARE PROGRAM SUBSIDIZED PASSES FOR LOW-INCOME TRANSIT (SPLIT)

Many transit agencies across North America have adopted Means-Based Fare programs that respond to affordability challenges that low-income riders face when making travel choices. Operated and funded by Halton Region, the SPLIT program responds to affordability issues related to using public transit.

Providing low cost transit service to low income populations is a social issue and not a transit issue; however, transit agencies across North America have had to develop solutions like SPLIT to respond to this problem. Halton Region's approach of working with Ontario Works and the Ontario Disability Support Program to assess and verify need and qualifications of low-income riders is practical as social service agencies are better prepared to assess and qualify low income rider needs.

The SPLIT program provides Milton Transit with a means-based fare program that places the administration requirements on social service agencies that are better prepared to identify and serve the needs of low-income populations.

The SPLIT Program is managed by the Halton Region with Milton Transit participating and supporting the program's goals. The Plan recommends annual review of the number of SPLIT riders to determine the program's impact of revenue recovery and that all SPLIT riders be given the most appropriate prepaid- fare product when Milton Transit adopts an advanced fare payment and revenue collection solution. Using a mobile or open payment solution will ensure that SPLIT ridership is captured for analysis and that the revenue impact can be assessed in a timely manner.

FARE EVASION

During the interview session with frontline Milton Transit personnel, the discussion touched on the current fare policy and the concerns that bus operators have with riders in enforcing the current fare table. The Bus Operators that participated in the session said there was some level of fare evading or cash-shorting taking place. While mentioned by Bus Operators there is very little factual evidence of fare evasion.

Milton Transit Bus Operators said that transfer misuse is the primary form of fare evasion and very specifically around the Milton Go Station. The Operators said that riders attempt to transfer well beyond the footprint of the station or try to use the transfer to go out of direction. Adoption of an advanced fare payment system would solve this problem as electronic validation of the transfer would identify misuse.

During those sessions, the operators identified Milton Transit's Transfer Policy as a major cause of fare evasion. Most specifically the use of the PRESTO card around the Milton GO Station where riders take advantage of the GO Transit Fare Integration attempting to transfer out of direction, transferring at locations well beyond the footprint of the GO Station or riders stopping over then attempting to use a transfer in violation of the current transfer policy. The previous recommendations for changes to the Milton Transit transfer would resolve these problems at minimal expense.

The Plan recommends that Milton Transit stage Fare Policy education sessions around scheduled Operator Training sessions to provide bus operators with a better understanding of the existing Fare Policy, especially the transfer policy.

This training should be supplemented by a Rider Education effort that raises rider understanding of the appropriate fares to pay and how transfers are to be used. That education effort is best staged on-board buses using car cards inside the buses and seat drops. Fellow riders are the best deterrent to fare evasion and raising their

awareness would ensure that fare evasion is kept at its current low rate on Milton Transit.

ACCESSIBILITY FOR ONTARIANS WITH DISABILITIES ACT (AODA) REQUIREMENTS

Ontario's AODA requires transit agencies to offer fare parity between conventional fixed route service fare and specialized transit program fares by January 2013. The Act mandates that no conventional transportation service provider shall charge a higher fare to a person with a disability than the fare charged to a person without a disability. As such Milton Transit must ensure that it has the same fare structure for its conventional service as it charges for its specialized service.

Compliance with the requirements of AODA is a mandate and as such Milton Transit must review its fare payment activity to verify its compliance.

As Milton Transit expands its services and increases service frequencies, its conventional accessible services will become more attractive to those disabled riders who currently ride specialized service. Promoting the use of conventional accessible service is not only good business as a ride on specialized service is significantly more expensive than one on conventional service. Additionally, disable riders have come to appreciate the independence that riding conventional services provides. In the GTHA, Toronto's TTC and the Region of York and multiple agencies in the US, some that are similar in fleet size to Milton, have adopted the Family of Services concept that provides fare incentives and travel training to increase the use of conventional service, the Plan recommends that Milton Transit follow the success that these two agencies have had in promoting fixed route service as an attractive alternative to specialized service to control operating expenses.

REVENUE COLLECTION STRATEGY

The options for transit agencies to collect revenue are expanding each day. Advances in the financial services industry are driving how transit riders will pay their fares in the future. The days of fareboxes and collecting cash are limited as riders prefer to have multiple options for fare payment, such as smart phones and contactless smart cards.

These revenue collection choices have numerous advantages over the legacy, farebox centered revenue collection systems that have dominated the transit industry:

- Reduced cost of collecting, handling and reconciling fare payment-With open payment, mobile payment and account management revenue collection systems, $20,000 fareboxes are replaced with $1000 multi-purpose validators. The cost of revenue collection has been reduced significantly for those agencies that have adopted these new forms of payment because maintenance costs are minimized.
- Operating Costs-Contactless fare payment reduces vehicle dwell time improving on time performance and travel time.
- Data-Accurate ridership and revenue data can be accessed in real time from these payment systems providing transit managers with the ability to make timely decisions.
- Fare Evasion-Systems that have adopted these technologies have reduced or eliminated fare evasion and the accompanying conflicts.
- Rider Experience-Mobile payments, open payments and account management systems enable riders to personalize how they pays their fares. These systems not only offer equity, but they boost rider loyalty because they offer each rider the best fare for the trip.

Milton Transit is the only agency in the GTHA that does not use the PRESTO system. Milton staff have expressed reservations about the functionality and especially the cost of the PRESTO system and question the merits of introducing a system when there are many service priorities above a fare payment system.

The Plan agrees with this analysis as the current PRESTO system is smart card based, a revenue collection technology that is being replaced worldwide with mobile and open payments and account management systems. Milton Transit and the Transit Master Plan team met with PRESTO on March 11, 2019 to discuss the next generation of the system and how that new system could benefit Milton Transit. That discussion was favorable in that PRESTO will be adopting mobile payments, open payments and account management as the foundation of the next phase to be rolled out in 2020.

The section below presents a Business Case for Milton Transit that objectively reviews the benefits as well as risks associated with adopting the new PRESTO system.

MILTON TRANSIT'S NEXT GENERATION FARE PAYMENT/REVENUE COLLECTION SYSTEM

The Plan reviewed how Milton Transit riders pay their fares today; how the agency, through its service contractor Pacific Western Transit, maintains the existing revenue collection system; the issues that Bus Operators have with enforcing the current fare policy and the potential to increase ridership by removing the barriers to seamless travel by becoming a member of the PRESTO system.

The predominance of the use of pre-paid fare products is beneficial to adopting advanced fare payment options like mobile and open payments. Milton Transit riders also tend to be younger, as evidenced by the types of fare products they use meaning that many use their smartphones for all types of purposes including payments. Converting the majority of Milton Transit's riders to a new version of PRESTO should present minimal challenges according to the Transit Master Plan team's experience in implementing advanced fare payment systems in Houston, Denver, Los Angeles and the New York Metropolitan Region where riders had similar traits in their use of passes and tickets and smartphones.

The Next Generation System that the Plan envisions for Milton Transit would offer these fare payment options:

- **Mobile Payment -** Riders download a free mobile payment application that enables them to buy tickets or period passes. These applications require riders to tie their purchases to either a credit or debit card. Mobile payments have proven to be popular with riders of all backgrounds. From New Jersey Transit where investment bankers use the agency's MyTix mobile payment application to pay for their train trips into Manhattan to South Central Los Angeles where young riders use LA Mobile to buy tickets to ride LADOT's Community DASH circulator services. Mobile payments appeal to almost every rider because people use their smartphones for all types of purposes.
- **Open Payments -** Chicago and Philadelphia have adopted Open Payments allowing riders to use contactless credit and debit cards to pay their transit fares. The advantage of open payment is that riders do not have to buy transit agencies fare products but rather they pay for their rides using the value they have on their cards. Canada's ubiquitous Interac Card already offers this functionality to riders. Only 3% of Canadians do not have a financial services relationship meaning that in the next few years, 97% of the population will be carrying some form of contactless card.
- **Account Management -** PRESTO's next version will allow riders to develop accounts in which they can store value to ride any participating transit service. Account Management fare payment systems are already in use for employer, college and residential programs. Riders can not only store their own value in their accounts, but they can receive and use value from other sources such as employer subsidies, insurance or foundations into their accounts. The system will allow riders to buy period passes or to store value in their accounts to ride. These systems track the number of times that an individual rider uses the service and provides the discount under what the revenue collection industry calls the 'best fare option' meaning that the back office will

calculate how the rider uses the service and always extracts the most appropriate but lowest fare from the rider.

The Plan recommends that Milton Transit's new fare payment/revenue collection system have the following functionality:

- **Auto-Load -** Riders can automatically replenish their accounts and or purchase fare products using a credit or debit card.
- **Online Account Management -** Similar to what PRESTO offers to users today as they can make payments, register their cards or accounts, apply for balance protection, obtain receipts for tax or reimbursement purposes and review their own travel activity. For major employers, colleges and residential developments; participants in transit benefit programs can be added or removed from active programs at any time directly by the program administrator without the need for transit agency assistance. What is important about this functionality is that 76% of Canadian already do most of their banking digitally, using online or mobile banking.
- **Regional Fare Processing -** Milton Transit riders will be able to seamlessly transfer to other services, especially Go Trains, removing the barrier to use that is presented by MT's non-participation in Presto. The benefit of regional processing is that each agency receives its appropriate value of fares based upon where the journey began or the percentage of travel within one system's boundaries. The cost of transaction processing is reduced because the 'aggregate' number of transactions is much higher lowering transaction fees-compare Canadian Tire's transaction costs versus the corner convenience store.

Transit riders expect that they will receive real time updates if their trains or buses are late; they want to be able to seamlessly travel across municipal borders and they want their transit providers to embrace technology to the same level they have in order to enhance their experience when riding transit. Using their smartphones and contactless payment cards, today's consumer wants fast, cashless, contactless and secure payment options. They also want to be rewarded if they are loyal customers; an option that few transit agencies have ever provided but one that is now possible with advanced fare payment and revenue collection technology.

By adopting this advanced technology, Milton Transit can decisively use Fare Policy as a tool that benefits both its riders and the taxpayer of the Town of Milton.

MANAGEMENT

With the expansion of services, it is recommended that Milton Transit to expand its administrative resources to accommodate the increasing and more complex work load. In the short term, with the implementation of Milton GO – TPO – Lisgar GO Route, Home-to-Hub service, and the new addition to specialized service, Milton Transit should at least expect to add one more town employee as the managerial/planning staff. In addition, Milton Transit should also consider adding two dedicated customer service representatives to take control of the customer service function, and one dispatcher for managing Home-to-Hub and the additional specialized services. A more detailed description of each position is provided in the list below:

Additional Managerial/Planning Staff Members (Town Employee)

- Assist with funding applications
- Assist with implementing and managing inter-municipal service agreements
- Assist with managing bus storage facility design and construction
- Assist with implementing and managing in-house specialized, home-to-hub operations, organizing travel training, new software and dispatching
- Assist with implementing marketing plan

Dedicated Customer Service Representatives (Town Employee)

- Bring In-house customer service function
- Provide customer service information for fixed-route services
- Provide customer service and trip scheduling for specialized, Home-to-Hub services

Dispatchers (Town or Contract Employee)

- For managing expanded fixed-route, specialized, Home-to-Hub
- Provide additional support and time coverage to contractor's "lean" operation

COST, REVENUE AND PERFORMANCE EXPECTATIONS

Table 59 presents the estimated annual operation cost, total capital cost, annual operations revenue, and annual ridership change for each short-term recommendation, all costs are in 2018 Canadian Dollar.

RECOMMENDATIONS	NET ANNUAL OPERATING BUDGET[18]	INITIAL CAPITAL COST[19]	ANNUAL RIDERSHIP IMPACT
Local Fixed-Route Transit Improvements	-$640,000	-	+100,000
Milton-TPO-Lisgar Regional Route	+$298,000[20]	+$1.3 million[20]	+250,000 – 500,000
Home-to-Hub Service	+$160,000 - $350,000	-	+16,000
Specialized Transit Improvements	+$1 million	-	+20,000 – 40,000
Next-Gen PRESTO (short- to long-term)	+8% of fare revenue & 8% of capital cost for future rehabilitation	+$25,000	-
Additional Staff (Town and/or Service Provider)	+$310,000	-	-
Marketing Improvements	+$50,000	-	-
Total Short Term	**+$1.2 – 1.4 million[21]**	**+$1.3 million**	**+400,000 – 670,000**
Replace Old Transit Fleet	-	$8.3 million	-

Table 59 | Cost, revenue, and ridership estimation for all short-term recommendations

The proposed fleet composition by route is shown in Figure 125. During peak hours Route 2 will be operated by four vehicles, and Route 3, 4, 6, 7 will each be operated by two, to achieve the 15-minute frequent network. Route 1A and 1B will only be operated with cutaway vehicles. And Route 1C, which operates only during midday on weekdays, will interline with either Route 1A or 1B on a rotating basis to even vehicle

[18] Assuming cost recovery ratio at 28% for fixed-route transit and 12% for specialized transit, and includes an annual contribution for the future capital rehabilitation and replacement.

[19] Excludes future rehabilitation and replacement capital costs that are financed by the contributions that are incorporated into the annual operating budget.

[20] Includes half of the costs for Milton GO – TPO – Lisgar GO route

[21] Total net operating budgets do not include impact from the implementation of PRESTO

wear. The proposed changes would reduce fixed-route fleet requirement by one cutaway vehicle, which can be used to supplement specialized services.

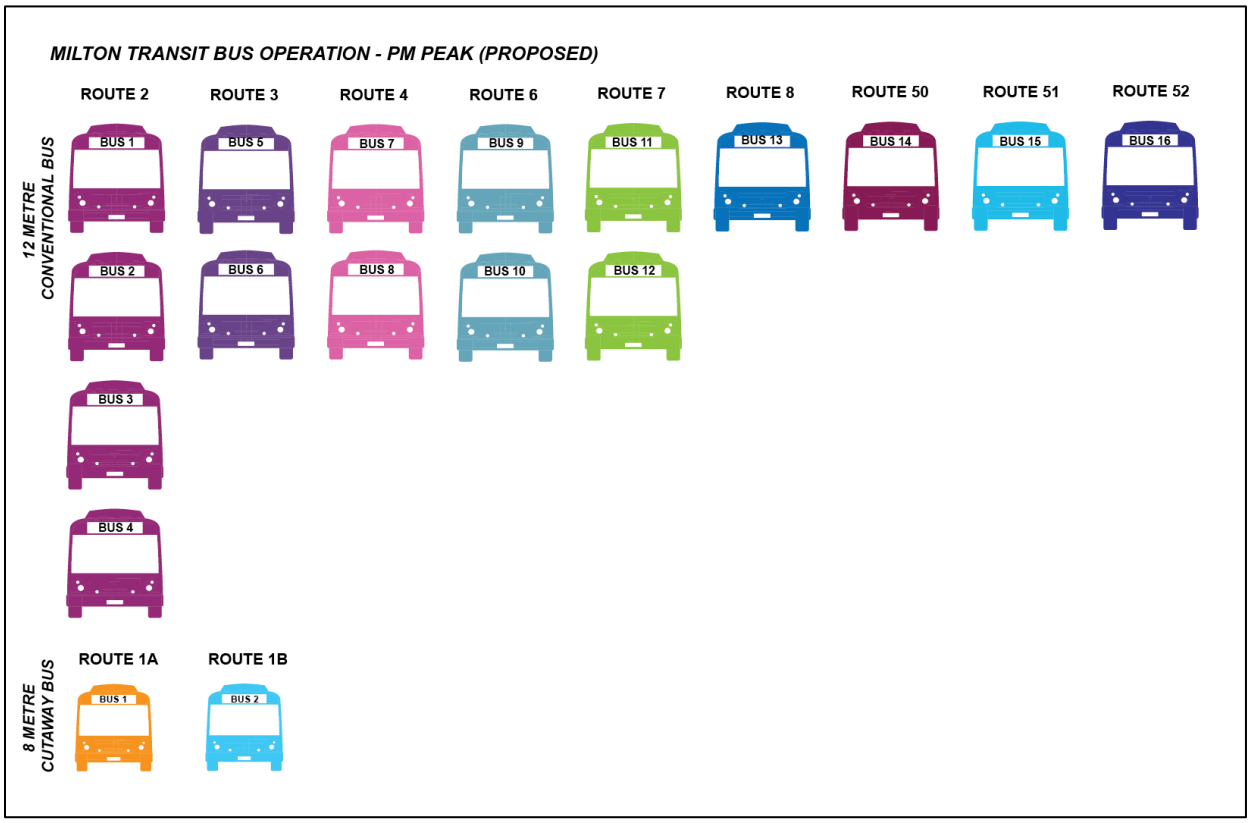


Figure 125 I Proposed fleet composition by route

MID TERM RECOMMENDATIONS

This section describes recommendations of greater changes that require additional funding to support both operations and capital investments. Therefore, it is recommended that Milton Transit seek to implement these when short-term changes are in place, between 2021 and 2024. These changes include:

- **Service Delivery**
  - Expand new mobility and specialized transit service to new growth areas
  - Extend local fixed-route network
  - Maintain service reliability and assets
- **Management**
  - Continue expanding administrative support

SERVICE DELIVERY

EXPAND / IMPROVE LOCAL FIXED-ROUTE NETWORK

SECONDARY TRANSFER HUBS

Other possible alignment changes were explored for implementation but ultimately not pursued in the short-term plan. These changes, however, should be reconsidered in the mid-term, particularly when the Town is forced to add buses and service hours to the system to meet growing demand and alleviate late running due to traffic delays. The benefit of these mid-term changes would primarily be to connect multiple routes on their outer ends. While the Milton GO Station should remain Milton Transit's primary transfer hub, experience in other, similar-sized cities indicates that there are ridership benefits to connecting multiple routes at both ends of their alignments, which makes the bus service more convenient by giving customers the opportunity to transfer among routes at both ends of the route. An outer-end transfer point at a secondary transfer hub also has operational benefits to the Milton Transit: safe, off-street layover points at the outer end of the route, eliminating the need to operate one-way loops at the end of the route to turn the bus around, and offering the potential for operators to use the restroom during layover periods. The latter is particularly critical for Milton Transit because the Milton GO rail station, which offers Milton Transit bus operators the only close restroom available to all routes, is closed during the midday period and after 8:30pm.

MID-TERM ROUTE IMPROVEMENTS

In the mid-term, two potential outer end "hub" locations are at the Milton Velodrome, west of Tremaine Road south of Louis St. Laurent Avenue (possibly shifting to the Milton Education Village, further south on Tremaine Road, when that facility is completed), and in the area of the Metro shopping centre and School District Park, at Thompson Road on the northern side of Louis St. Laurent Avenue. These two sites were recommended as possible transfer centre sites in Milton's recent Transportation Master Plan. The map in Figure 126 shows some possible realignments of existing bus routes to connect to transfer hubs in these areas. As the map shows, four of Milton Transit's routes, 2 (West), 6, 7, and 8 potentially could be extended to the Velodrome or Education Village location, while three, Route 5 (if retained or reinstated), 3 and 4

could be realigned to connect at a hub at or near the Metro shopping centre or School District Park. Routes would be extended into Boyne Survey if population density meets the standards or if the number of initial home-to-hub trips reaches the service triggering threshold. These realignments would allow the bus routes to operate bi-directionally on the same streets, eliminating the need for wide one-way loops to turn the buses. The realignments also shift much of the bus alignments from the major arterial roadways to combinations of neighbourhood streets. As noted in the service analysis, Milton Transit's bus routes are most successful when operating on local and connector streets within subdivisions, and tend to pick up fewer customers on alignment segments that operate on the major arterial streets. Connecting to these two locations would allow customers to transfer among the routes serving that location at the outer end of the route, as well as at Milton GO rail station. They also would allow for bus operators to use the rest room, either at dedicated transit hub facilities or at the Velodrome facility for the western routes, and at one of the private businesses in and around the Metro shopping centre at Thompson and Louis St. Laurent.

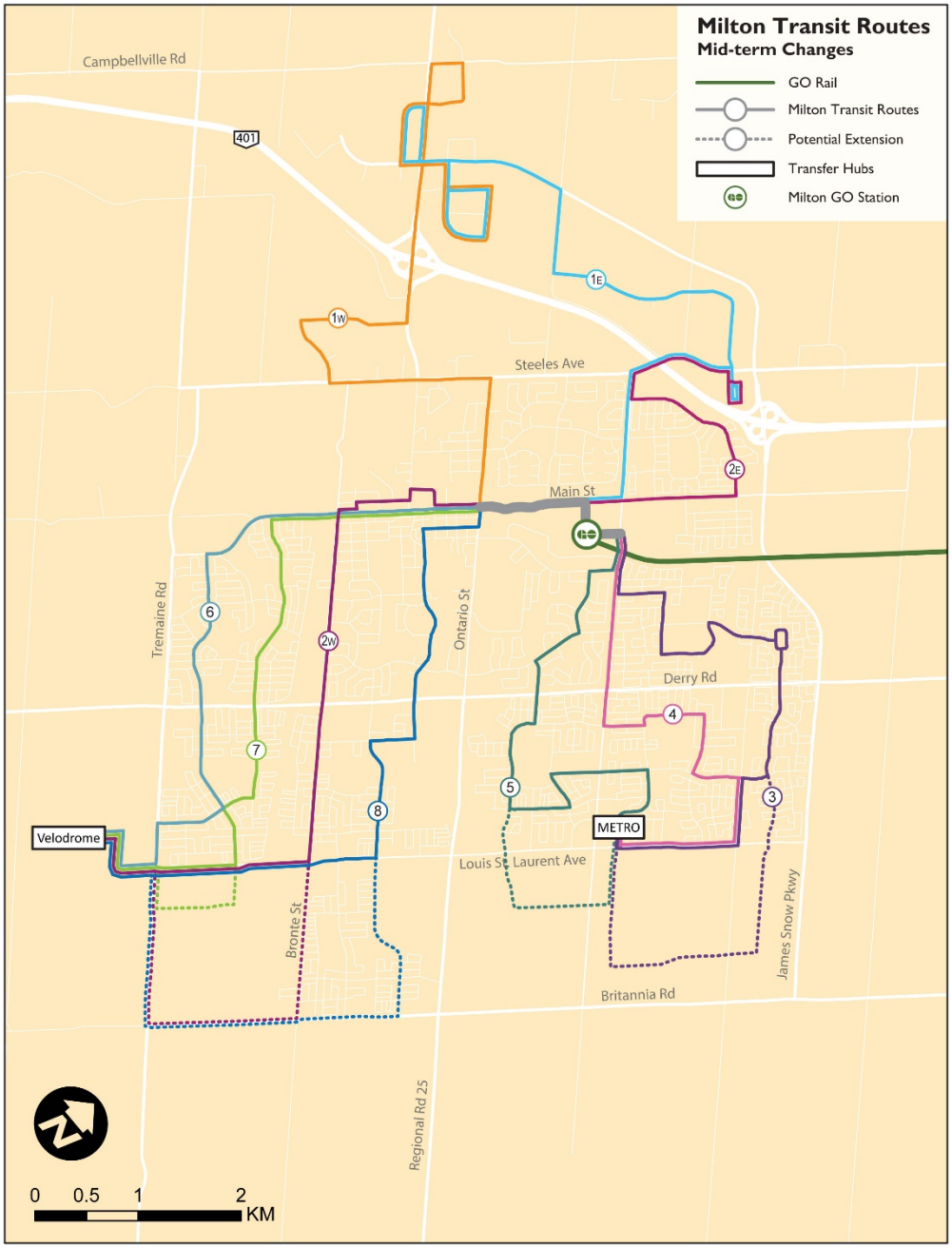


Figure 126 I Mid-term Route Realignment

Connecting the routes to these hubs would increase the route length and running time of most of the routes. With many of the existing routes experiencing crowding and late running during the afternoon period, the extensions would require additional service hours and buses, which would increase operating cost, even in cases where the increase in route length appears slight. These realignments, if fully extended into Boyne

Survey, would increase Milton Transit's annual budget by about $1.7 million (2018) per year over the proposed short-term improvements (including 15-minute headways to routes 2, 3 and 4 and other improvements) and would require 4 additional buses during peak periods.

The capital cost for the development of the hub facilities themselves, assuming that dedicated facilities are developed, could range from less than $50,000 for bus shelters and minor site improvements, to several million dollars for indoor facilities that offer dedicated bus bays and a building with climate-controlled passenger waiting areas and restrooms, and operator break rooms and rest rooms.

EXPAND NEW MOBILITY AND SPECIALIZED TRANSIT SERVICE TO NEW GROWTH AREAS

As Milton grows and expand its development outside of current Milton Transit's service area, transit service should be phased in to new areas as they develop. It is recommended that Milton Transit extend the Home-to-Hub service area to new areas initially for 3-5 years, or until Home-to-Hub trips reaches certain threshold, or until area reaches typical density based on service standards described in chapter 4. Specialized Transit Service should also be extended to new area with Home-to-Hub Service expansion.

MAINTAIN SERVICE RELIABILITY AND ASSETS

Late running and missing connections with GO Rail and Milton Transit's services were among the most prominent feedbacks in Milton Transit's surveys. Therefore, it is recommended that Milton Transit spend some resources in adding running time and recovery time to Route 2, 3, and 4, and align schedules so that all buses arrive at the same time at the Milton GO Station, to allow routes to pulse at increments of every 15-minute, 30-minute, and 60-minute. In the short run this may not bring massive ridership increase, but adhering to this principle will help customers understand and remember the schedule, and make transfers easier, which would lead to major increase in customer satisfaction and benefit existing customers tremendously. Figure 127 illustrates how the pulse would look like if the schedules were aligned at 15-minute, 30-minute, and 60-minute increments.

	1 Industrial West	1 Industrial East	2 Main West	2 Main East	3 Trudeau	4 Thompson/ Clark	6 Scott	7 Harrison	8 Wilmot
5:00 AM									
15									
30									
45									
6:00 AM									
15									
30									
45									
7:00 AM									
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30									
45									
12:00 PM									
15									

Figure 127 I Example of aligning schedule for routes to pulse at the Milton GO Station

TRANSIT OPERATIONS FACILITY

The current transit operations facility may well be the largest impediment for Milton Transit's service growth. With the required fleet expansion as well as administration/operation staffing increase that come with the proposed service improvements, Milton Transit is expected to acquire additional 29 vehicles, doubling its fleet by 2031. As of 2019, a draft Feasibility Study is scheduled to be submitted to Council that estimated a cost of $39.2 million, in 2020 currency. Aside from the cost, such large capital development is complex and slow-moving by nature, and is usually stretched into a minimum of 3 to 5-year process, from the beginning of service delivery plan and funding model to the end of construction. As such, it is recommended that

Milton Transit should seek to begin this process as soon as possible. Figure 128 shows a photo of existing Milton Transit facility.

Figure 128 | Existing Milton Transit Facility

EXPAND AND REPLACE TRANSIT FLEET

To implement all the mid-term service improvements, Milton Transit will need to acquire additional eleven (11) full-size buses and four (4) smaller cutaway style buses. At $635,000 each for full-size buses and $250,000 each for cutaway style buses, these vehicles would cost Milton Transit a total of $8 million, or $720,000 annually. In addition, Milton Transit would need to replace five (5) full-size buses for a total of $3.2 million, or $260,000 annually. With the expansion of transit fleet, the Plan also recommends that Milton Transit acquire one (1) additional maintenance vehicle that would cost a total of $100,000, or $14,000 annually.

MANAGEMENT

In addition to keep expanding managerial/planning staffs, customer service representatives, and dispatchers, it is recommended that Milton Transit include additional position such as Travel Trainer and Supervisors. Details of the additional positions are described in the list below:

Travel Trainer

- Trains disabled customers to mainstream using fixed-route services
- Probably shared with Oakville, Halton Hills
- Pays for itself in reduced specialized transit trips

Supervisors (Contract Employees)

- Supervise expanded fixed-route, specialized and Home-to-Hub services, both on-street and from dispatch base
- 2-3 positions

COST AND REVENUE EXPECTATIONS

Table 60 presents the estimated annual operation cost, total capital cost, annual operations revenue, and annual ridership change for each mid-term recommendation, all costs are in 2018 Canadian Dollar.

RECOMMENDATIONS	NET ANNUAL OPERATING BUDGET[22]	INITIAL CAPITAL COST[23]	ANNUAL RIDERSHIP IMPACT
Expand/Improve Local Fixed-Route Network	+$2.5 million	+$7 million	+270,000 – 290,000
Transfer Hubs (Velodrome, Bristol Park)	+$11,000 – $18,000	+$750,000 – $1.3 million	-
Expand Home-to-Hub Service	$330,000 - $730,000	Included in Specialized	+33,000
Specialized Transit Expansion	+$1.1 million	+$1 million	+20,000 – 40,000
Additional Staff (Town and/or Service Provider) & Marketing	+$540,000	-	-

[22] Assuming cost recovery ratio at 28% for fixed-route transit and 12% for specialized transit, and includes an annual contribution for the future capital rehabilitation and replacement.

[23] Excludes future rehabilitation and replacement capital costs that are financed by the contributions that are incorporated into the annual operating budget.

Additional Maintenance Vehicle	+$14,000	+$100,000	-
Total Medium Term	**+$4.6 – $5.0 million**	**+$8.8 - $9.3 million**	**+330,000 – 360,000**
Transit Operations Facility	+$1.5 million[24]	+$40 million[24]	-
Replace Old Transit Fleet	-	$3.2 million	-

Table 60 | Cost, revenue, and ridership estimation for all mid-term recommendations

LONG TERM RECOMMENDATIONS

This section outlines longer-term recommendations that Milton Transit could take to facilitate growth in both the Town of Milton and the Region, beyond 2024. These changes include:

- **Service Delivery**
  - Expand new mobility and specialized transit service to new growth areas
  - Extend local fixed-route network
  - Support regional network
- **Management**
  - Continue expanding administrative support

SERVICE DELIVERY

EXTEND LOCAL FIXED-ROUTE NETWORK TTO GROWTH AREAS

DEVELOP PERMANENT SECONDARY TRANSFER HUB AT ONTARIO STREET AND BRITANNIA ROAD

In the longer-term, as the area between Louis St. Laurent and Britannia Road is built out, transit service ultimately would be implemented in these areas. As noted in the Service and Performance Standards, transit service in developing areas would begin as home-to-hub service. Assuming the mid-term changes are implemented establishing transfer hubs in the town's southern tier, these home-to-hub services would drop off

[24] Subject to refinement through Facility Feasibility Study and detailed design process. Net annual operating budget includes contribution for the future capital rehabilitation and replacement.

customers at the transfer hubs, rather than traveling all the way to Milton GO station. As these areas develop and transit demand increases, fixed-route bus service would be extended into these areas to replace the home-to-hub service.

Milton Transit's recent approach to route development has been to develop discrete routes to serve each of the Town's major "blocks", or the rectangular spaces bounded by the major arterial roadways. Most of these are about 1.6 kilometres north-south by 1.4 kilometres east-west, and are about 2.1 square kilometres in size. For example, the western branch of Route 2 serves the area bounded by Main Street and Derry Road, Bronte Street and Ontario Street; Route 6 serves the area between Main and Derry, Bronte and Tremaine; and Route 7 serves the area between Derry and Louis St. Laurent, Bronte and Tremaine. These routes generally operate on local and connector streets within their "blocks," but in most cases connect to Milton GO rail station from their "blocks" using combinations of arterial roadways. As the review of ridership patterns in the Transit Service Review chapter indicated, the portions of the route alignments operating on the arterial roadways, which have access and traffic issues and generally are less productive than the portions operating on the neighbourhood streets. As the "blocks" grow more distant from Milton GO station, the route alignments grow longer, and the proportion of the routes operated on neighbourhood streets becomes less. With routes 9 and 10, which served the area bounded by Louis St. Laurent Avenue, Britannia Road, Regional Road 25 and Tremaine Road, this approach became untenable, with at least 80% of those routes' alignments operating on major arterial roads, in many cases on alignments duplicated by other bus routes. Requiring more hours of service and vehicles to operate and carrying fewer trips, the routes fell significantly below reasonable productivity levels.

The transit portion of the transportation Master Plan carries forward the 'block-route' strategy to serve the remaining areas of the town. Figure 129, from the 2018 Transportation Master Plan, shows a plan for expanding Milton Transit based on this strategy, ultimately proposing to operate up to 16 bus routes to serve the existing urbanized area of the town and adjacent areas proposed for development. A second, smaller, interconnected route network oriented around the Trafalgar GO rail station would serve the Trafalgar secondary Plan area. This secondary route network will be discussed below. At an annual cost of about $400,000 per fixed-route bus route in 2018, restoration of routes 9 and 10, addition of six more bus routes to serve the southern and eastern areas of the town, and an additional four routes to serve the

Trafalgar Road Secondary Plan area, would cost about $4.8 million, or more than Milton Transit's existing operating budget.

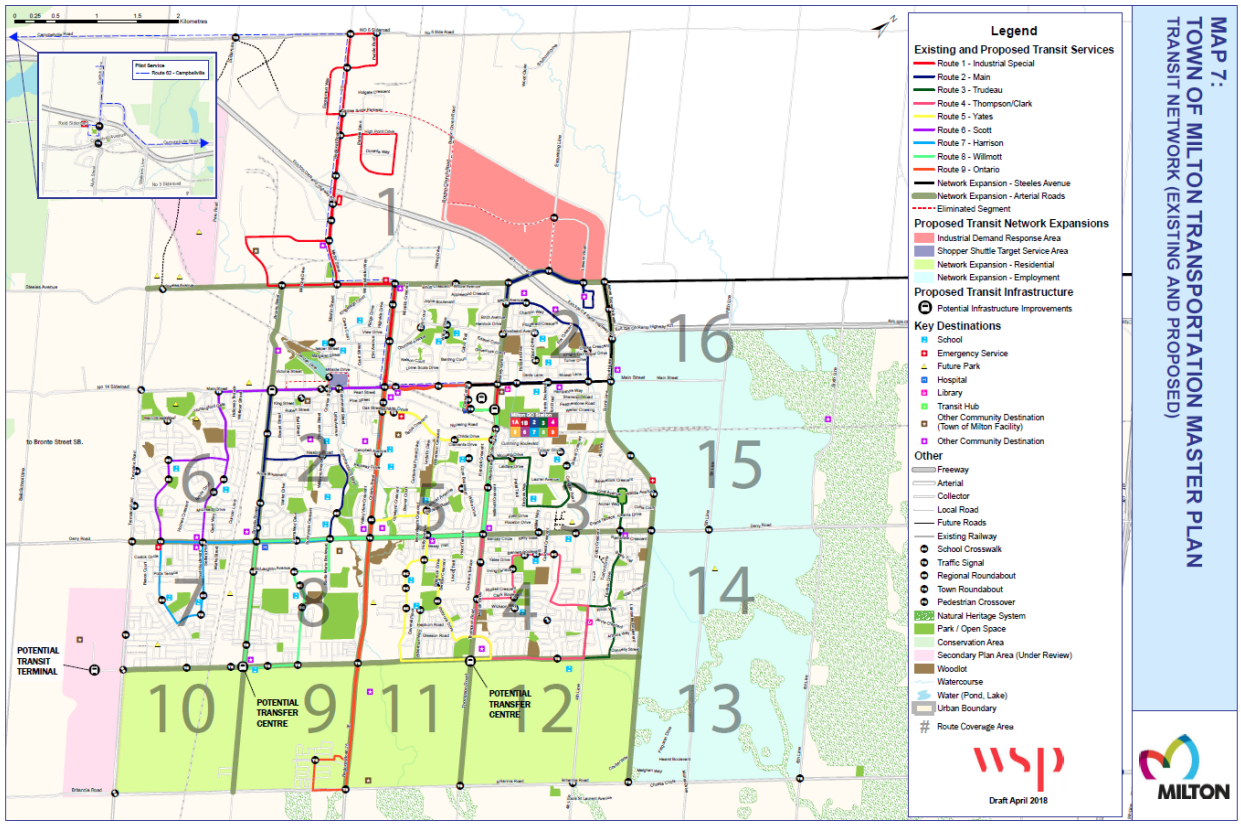

Figure 129 I Serving new development areas with dedicated routes, a strategy from the 2018 Milton Transportation Plan

An alternative strategy, which could cost significantly less and potentially could provide more productive bus service, is to extend existing routes southward as the town expands, rather than adding new routes to cover areas of new development. As the map in Figure 130 shows, the bus routes, as modified in the mid-term period as described above, could be further extended southward on combinations of local and connector streets, to serve the new development areas south of Louis St. Laurent. The annual estimated cost for these extensions would be about $400,000 more than the mid-term improvements.

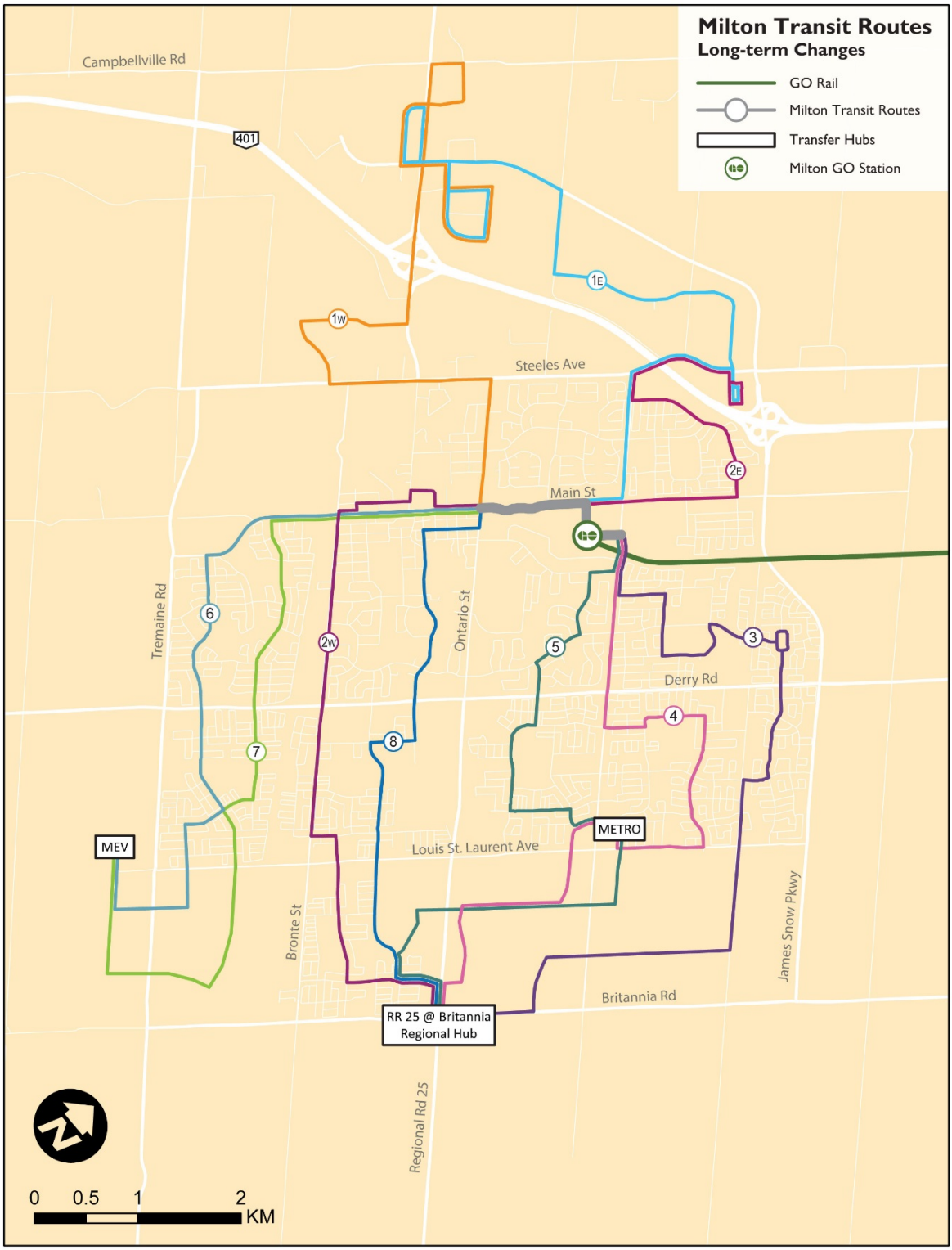

Figure 130 I Extending existing routes to serve new development areas and new transfer hubs

DEVELOP LOCAL BUS NETWORK IN TRAFALGAR SECONDARY PLAN AREA

The Trafalgar Corridor and Agerton Secondary Plan Area is planned to be become a high-density, mixed-use, transit supportive corridor, and is expected to accommodate Milton's growth in the next ten years. A new GO Rail Station, which will also be the transit hub for Milton Transit and GO Bus service, is proposed at the intersection of Trafalgar Road and the CN Railroad. The proposed regional transit routes on Derry Road and Britannia Road, along with GO Rail service provide east-west connection, while the north-south connection could be provided by the proposed regional transit route connecting Georgetown to Oakville. As such, the Plan estimates that this area would be sufficiently served by four local transit routes.

ALTERNATIVE FUEL OPTIONS

Milton Transit now uses 40-foot (12.3-metre) buses for most of its fixed-route services, and gasoline-powered cutaway vehicles for Specialized Transit and for Route 1. Many Canadian and US transit agencies are using vehicles that use alternative fuel or motive power configurations, in some cases on an experimental basis, to reduce energy consumption, pollution and greenhouse emissions. These include vehicles that use compressed natural gas (CNG), hybrid diesel-or gasoline-electric drive trains, and "zero-emission" vehicles such as hydrogen fuel cell and battery-electric vehicles. These vehicles have higher fuel efficiency than diesel-or gasoline-powered buses and reduce local pollution emissions. "Zero-emissions" vehicles eliminate local emissions and can use hydrogen or electricity generated using a variety of sources, including renewable sources like hydro, solar and wind power.

However, no alternative fuel option currently available costs less than conventional diesel-or gasoline-powered vehicles, when considering the combined fuel, vehicle, and infrastructure costs and, in some cases, increased operating costs of alternative vehicles. Fuel costs are a relatively small part of transit operating costs. Milton Transit's annual fuel costs are less than $400,000, or less than 8% of operating costs. An alternative fuel option that reduced fuel costs by half would only reduce total operating costs by about 4%. Hybrid vehicles are more fuel efficient than conventional buses, but cost 1.5-2 times as much. At current fuel prices, fuel savings would not be sufficient to recoup the additional vehicle cost during the life of the vehicles. CNG vehicles are marginally more fuel-efficient than conventional fuel vehicles, and are less expensive to purchase than hybrid vehicles. Fuel cost savings depends on the relative prices of conventional motor fuels and natural gas. However, CNG vehicles require access to a

CNG fueling facility. Given the volume of fueling activity overnight, Milton Transit would need its own facility, which can cost more than $100,000, depending on the number of bays, location and utility connections.

Hydrogen fuel cell vehicles are a "zero-emission" option, generating no emissions at the point of operation (emissions off site depend on the energy source used to produce the hydrogen fuel). However, hydrogen fuel-cell vehicles cost more than hybrid vehicles and, like CNG, require a costly, specialized fueling facility. Hydrogen fuel demand currently exceeds supply, and costs for the fuel are currently high, pending additional production capacity. Combined with the higher vehicle costs, hydrogen fuel cell vehicles are unlikely to be cost-competitive with conventional fuel vehicles in the short- to mid-term.

Battery electric vehicles are being evaluated in operation by many North American transit agencies, and are likely to be the standard option in the future. Depending on the cost of equivalent units of electricity relative to conventional fuels or CNG, and the vehicles' relatively greater fuel efficiency, battery-electric vehicles can generate significant fuel cost savings. Electricity cost, like all fuel costs, are variable and depend on the source of power generation and other factors. Utility companies offer volume and off-peak demand discounts, which can work in favour of transit users, which primarily or exclusively charge overnight, an off-peak period for electricity demand. Battery-electric vehicles also accelerate marginally more quickly and better hill climbing ability than internal combustion-powered vehicles, and may be more reliable and have lower maintenance costs. However, given the current state of battery, vehicle and charger technology, battery-electric buses have the highest combined capital and operating cost of any vehicle-fuel combination. The purchase price of battery electric buses is 2-3 times that of comparable diesel-or gasoline-powered vehicles, depending on battery capacity and manufacturer. However, battery-electric vehicles have operational limitations and requirements that potentially add even greater capital and operating costs.

Like CNG and fuel-cell vehicles, battery-electric vehicles need specialized equipment for fueling (recharging). Unlike conventional or CNG vehicles, which can be refueled from empty in a few minutes, battery-electric vehicles can require hours to fully recharge, depending on battery and charger capacity. For example, a battery-electric vehicle with a 600-kilowatt battery would take 8-10 hours to recharge with a 60-kilowatt hour charger. Because of the time required for recharging, transit operators purchase

multiple chargers—in some places, one charger for each electric vehicle. In addition to the cost of the chargers, which can range in cost from several thousand to tens of thousands of dollars each, depending on brand and capacity, the chargers require extensive wiring and other equipment, including, at larger facilities, a dedicated electrical substation and direct connection to a main line hydro transmission cable. Even small transit operations can require very large electrical capacity to charge a battery electric fleet. Simultaneously charging 30 buses on 60 kilowatt chargers would draw nearly two megawatts of electricity. The equipment required for battery-electric vehicle charging can expand the required size of a vehicle storage and maintenance facility by 30-50%, and increase costs by 100% or more, depending on many factors, including the size and type of chargers, the need for a substation, and the proximity of the utility power source.

Battery-electric vehicles also have a significantly lower, and more variable, operating range than conventional vehicles. Batteries currently come in sizes ranging from around 100 to more than 600 kilowatts. However, vehicle manufacturers claim an average vehicle range of only around 600-700 kilometres on a full charge, far less than that of a fully-fueled diesel bus, even with the largest capacity batteries. Battery-electric bus range also is far more sensitive than conventional buses to operational and external variables. Range can vary significantly depending on bus operating speed, grade changes, turns and traffic along the route, the number of bus stops and passenger pickups and drop-offs, weight of the passenger load, and even the ambient air temperature, which affects both battery capacity and demand for heating and cooling. A bus operating on a busier route, in a hilly area, on a sub-zero day, could have half the range of one serving a less busy route with a flat alignment, on a day with moderate temperatures. Battery life also declines as the battery ages, requiring batteries to be replaced several times over the life of the vehicle. Combining these factors, battery-electric vehicles can have a range of less than 180 kilometres.

Their more limited range requires buses either to operate shorter schedules, or to be recharged using high-powered “fast chargers” at layover points during the operating day. Neither of these options is easy or inexpensive. Operating shorter schedules means using more vehicles and drivers than would be required using diesel vehicles to operate the same schedule, which increases both fleet and operating costs. Using fast chargers also potentially increases layover time to allow sufficient time for vehicles to recharge sufficiently to allow them to operate through the day. The “fast chargers” also

cost hundreds of thousands of dollars in equipment and installation costs, occupy space at transit hubs or other layover points, and are a potential vandalism and safety risk.

A more detailed analysis than can be completed within this Master Plan would be required to fully determine the potential for battery-electric vehicles to operate Milton's transit system. Milton's bus routes and operating blocks are relatively short, and the terrain relatively flat, making Milton Transit a promising transit system for battery-electric operation. Battery-electric vehicles, batteries and charging equipment are steadily improving. The volume of electricity, wiring and transmission requirements are unlikely to change significantly over the next 10-15 years. But in that period, vehicle range will achieve parity with diesel vehicles, batteries and chargers will shrink in size, and bus, battery and charger prices will fall, perhaps by half or more. Milton Transit should continue to monitor the progress of battery-electric and other alternative fuel technologies, and seek grant-funded opportunities to experiment with alternative fuel-vehicles. Alternative fuel vehicle requirements should be considered in the design and location of Milton's bus operations facility. However, short-term transition to an alternative fuel vehicle technology would dramatically increase capital costs of replacing and expanding Milton Transit's fleet, and would increase operating and facilities costs, which would not be recouped by fuel cost savings.

Reducing energy consumption, pollution and carbon emissions are worthy goals for all vehicle operators, including transit operators. However, these benefits should be weighed against the additional costs of vehicles using new technologies, and the additional costs and limitations associated with using such vehicles. When considering these technologies for public transit, an additional issue arises: weighing the additional capital and operating costs of alternative technologies against the opportunity cost of using those funds to expand transit operations using conventional vehicles. Milton Transit buses carry, on average, about 12 trips per hour. If Milton Transit did not exist, many of those trips would be made by private vehicle. The fuel and emissions that are avoided by public transit attracting trips that otherwise would be made by private vehicle exceeds the fuel and emissions that the transit vehicles themselves produce. When transit agencies buy fewer, but more expensive vehicles or use operating funds less efficiently, they operate less service than they might, potentially attracting fewer trips away from driving than they might otherwise, and reducing the net fuel and emissions savings that transit can produce.

EXPAND NEW MOBILITY AND SPECIALIZED TRANSIT SERVICE TO NEW GROWTH AREAS

As Milton grows and expand its development outside of current Milton Transit's service area, transit service should be phased in to new areas as they develop. It is recommended that Milton Transit extend the Home-to-Hub service area to new areas initially for 3-5 years, or until Home-to-Hub trips reaches certain threshold, or until area reaches typical density based on service standards described in chapter 4. Specialized Transit Service should also be extended to new area with Home-to-Hub Service expansion.

SUPPORT REGIONAL NETWORK

While several of these routes in the Town's western end could continue to terminate at the Velodrome or Milton Education Village in the longer term, most routes, both east and west of Ontario Street, would terminate at a transfer hub near the Ontario Street and Britannia Road intersection. Britannia Road is a central location, potentially accessible via local and connector streets from areas both east and west of Ontario Street. The area is largely undeveloped, providing Milton with the potential opportunity to design a new transit facility, with sufficient bays for all of its routes and space for both passenger and operator amenities. The ability to merge connect most, if not all, of its routes at their outer ends would provide Milton Transit customers with maximum flexibility for transfers among routes, reducing travel times and distances and making transit more attractive for a wider variety of travelers and trip purposes.

Britannia Road and Ontario Street (Regional Road 25) also are at the intersection of two of Halton Region's proposed Transit Priority Corridors. Locating the southern transit hub at this location not only would be optimal for transfers among Milton Transit routes, but also transfers with these intersecting regional services. A transfer facility at this location also would have potential utility to the Regional service, opening the potential for a wider range of Regional and Provincial funding sources. Figure 132 shows alignments for bus routes designed to serve the portions of the transit priority facilities identified in the Region's Mobility Master Plan (2017), shown in Figure 131. Halton Region is in the process of completing a transit master plan outlining operations for bus routes serving these priority corridors. As the map shows, the Region has identified portions of Britannia, Derry and Trafalgar Roads, Steeles Avenue and Regional Road 25 in Milton as Transit Priority Corridors. The region also has designated

a Mobility Link that connects Oakville To Acton via James Snow Parkway (including its planned extension over Highway 407 to Oakville), Main Street and Regional Road 25 through Milton. Regional Transit Priority Corridors are proposed to receive both transit passenger amenities (such as upgraded transit "stations" comprised of larger bus shelters, pedestrian crossing improvements and other amenities) and transit operational and priority improvements (including transit signal priority, bus pull-offs, and possible part-or full-time transit lanes) to coincide with planned reconstruction and widening projects on those roads.

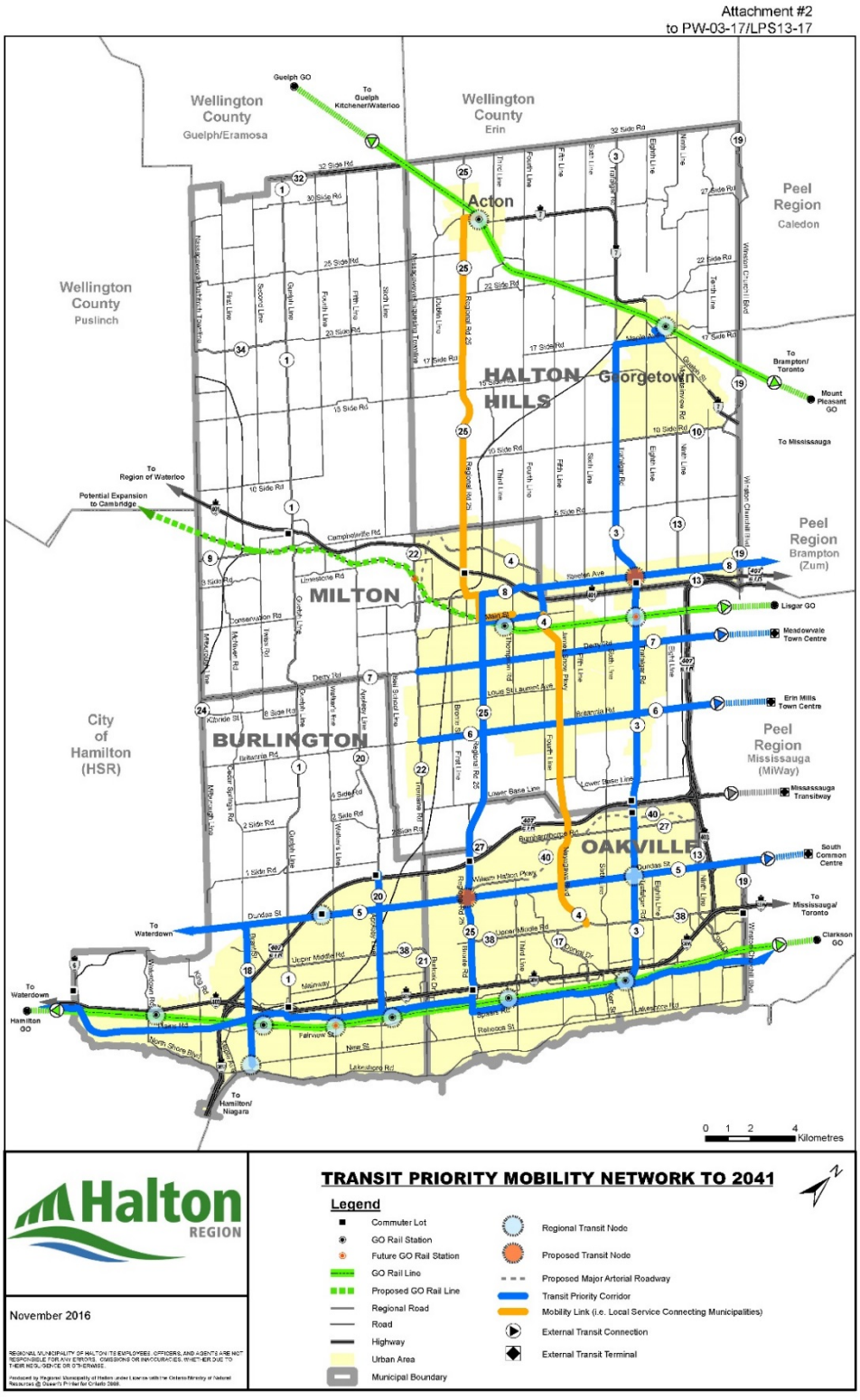

Figure 131 | Halton Region transit priority mobility network

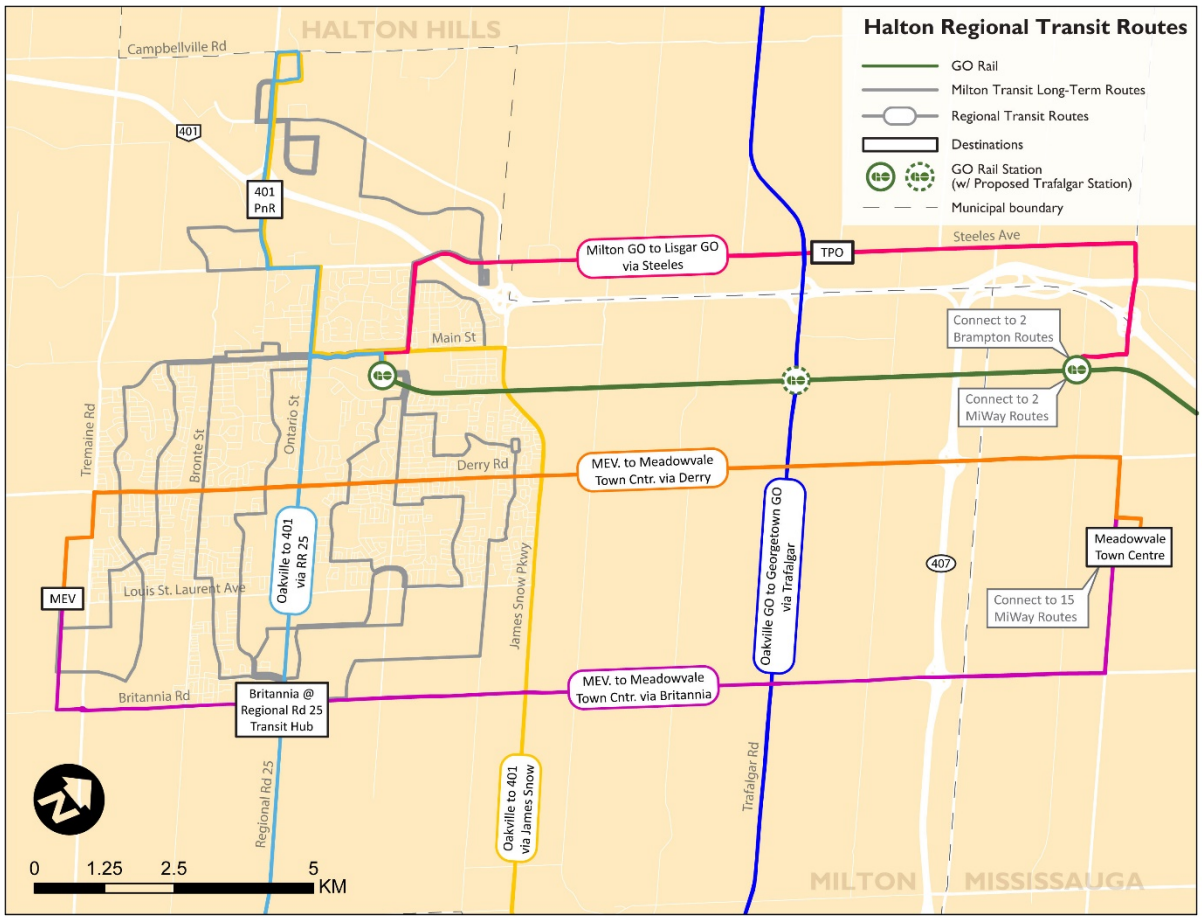

Figure 132 I Regional transit routes on Halton Regional Priority Corridors

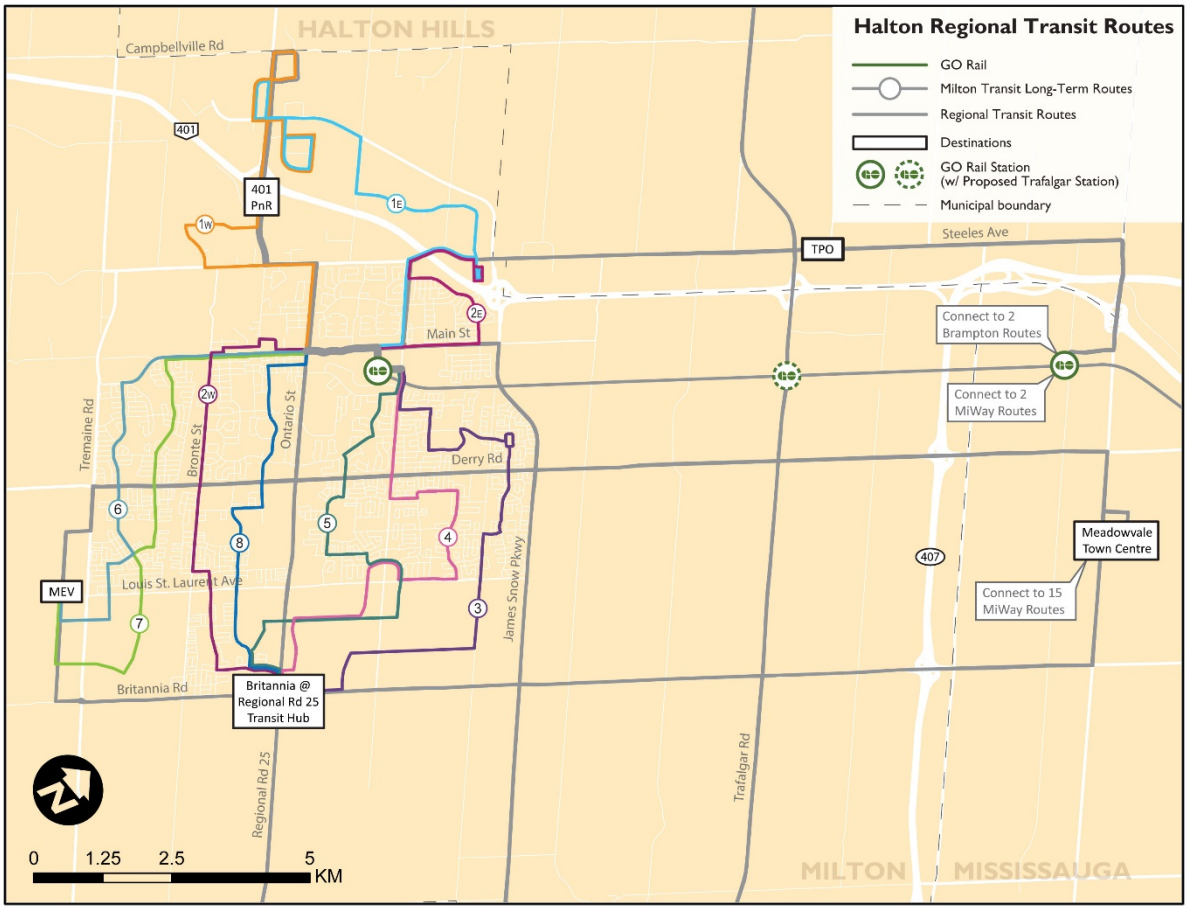

Figure 133 I Long-term Milton Transit Routes with Regional Transit

The Mobility Master Plan also proposes operation of high-frequency bus service across municipal boundaries in these corridors, and the Mobility Master Plan does not specify an operator or funding source for bus service on the priority corridors, but Halton Region, Metrolinx, combinations of the municipalities that the routes would serve, or combinations of any or all of the preceding, could fund the operation, and all of these except Halton Region (which now has no transit operation) potentially could operate them. One of these routes is the proposed route connecting Milton GO station, Toronto Premium Outlets, and Lisgar GO station, which Milton and Halton Hills have discussed as a short-term priority. Operating the five routes shown in Figure 132 would cost $5 million (2018 dollars)—more than Milton Transit's entire budget in 2019—and require 24 vehicles at peak demand (assuming 15-minute peak, 30-minute off-peak service). All bus routes serving these facilities would cross at least one municipal boundary, and

some would cross two municipal boundaries, or into Mississauga, in Peel Region, so unless operation of all Regional service is assumed by Halton Region and/or Metrolinx, partnerships with the adjacent communities would be required to fund these inter-municipal and inter-regional services.

Besides creating important connections between Milton and its neighbouring communities, these Regional priority services would have multiple benefits to Milton Transit. Frequent service on Britannia, Derry and Steeles would relieve Milton Transit from the need to support east-west movements, except along Main Street. An example of the proposed Milton Transit route alignments that primarily focus on north-south connection is shown in Figure 133. Customers who need to travel across the Town in an east-west direction could transfer from any of the north-south running Milton Transit routes either at Derry or Britannia Road. Routes serving Ontario Street, James Snow Parkway and Trafalgar Road would provide direct, limited-stop north-south service for those willing to walk to these major arterials in exchange for faster and more direct service over longer distances. Terminating the Derry and Britannia routes at the Velodrome or Milton Education Village would reduce the need for multiple Milton Transit routes to serve that facility, allowing more Milton routes to connect at the proposed transfer hub at Britannia and Ontario. Milton Transit customers traveling to the Education Village could transfer to the Derry or Britannia routes at Ontario Street to complete their trips. The two east-west regional routes also would provide fast, convenient connections between the Education Village and MiWay's Meadowvale transfer hub in Mississauga, served by more than a dozen MiWay and Brampton Transit bus routes, greatly expanding the potential market for students at the Education Village.

EXPAND AND REPLACE TRANSIT FLEET

To implement all the long-term service improvements, Milton Transit will need to acquire additional six (6) full-size buses and four (4) smaller cutaway style buses for a total of $5 million, or $470,000 annually. In addition, Milton Transit would need to replace six (6) full-size buses and nine (9) cutaway style buses for a total of $6 million, or $650,000 annually. With the expansion of transit fleet, the Plan also recommends that Milton Transit acquire one (1) additional supervisory vehicle that would cost a total of $75,000, or $11,000 annually.

MANAGEMENT

In the long term, it is recommended that Milton Transit continue to expand the number of staff members as the operations grow more complex to meet demands.

COST AND REVENUE EXPECTATIONS

Table 61 presents the estimated net annual operation cost, total capital cost, annual operations revenue, and annual ridership change for each long-term recommendation, all costs are in 2018 Canadian Dollar.

RECOMMENDATIONS	NET ANNUAL OPERATING BUDGET[25]	INITIAL CAPITAL COST[26]	ANNUAL RIDERSHIP IMPACT
Extend Fixed-Routes to Growth Areas	+$1.5 million	+$3.8 million	+230,000
Expand Home-to-Hub Service	$330,000 - $730,000	Included under Specialized	+33,000
Transfer Hub (Ontario - Britannia)	+$7,000 - $29,000	+$500,000 – $2 million	-
Specialized Transit Expansion	+$1.1 million	+$1 million	+20,000 – 40,000
Additional Staff (Town and/or Service Provider) & Marketing	+$310,000	-	-
Additional Supervisory Vehicle	+$10,000	+$75,000	-
Total Long Term	**+$3.3 - $3.7 million**	**+$5.4 - $6.9 million**	**+280,000 – 300,000**
Regional Fixed-Route Transit Improvements	+$5.3 million	$17.8 million	+1.3 - 2.5 million

[25] Assuming cost recovery ratio at 28% for fixed-route transit and 12% for specialized transit, and includes an annual contribution for the future capital rehabilitation and replacement.

[26] Excludes future rehabilitation and replacement capital costs that are financed by the contributions that are incorporated into the annual operating budget.

Replace Old Transit Fleet	-	$6 million	-

Table 61 | Cost, revenue, and ridership estimation for all long-term recommendations

SUMMARY OF RECOMMENDATIONS

Table 62 on the next page provide a summary showing operations/capital costs for each recommendation.

Conventional Transit				Home to Hub				Specialized Transit				Technology			Management		Marketing	
Work items	Net Annual Operating Budget[27]	Initial Capital Cost[28]	Annual Ridership Change	Work items	Net Annual Operating Budget[27]	Initial Capital Cost[28]	Annual Ridership Change	Work items	Net Annual Operating Budget[27]	Initial Capital Cost[28]	Annual Ridership Change	Work items	Annual Operating Budget	Initial Capital Cost[28]	Work items	Annual Operating Budget	Work items	Annual Operating Budget
Short-Term (2020 – 2022)																		
Local Fixed-Route Transit Improvements	($640,000)	-	100,000	Home-to-Hub Service				Specialized Transit Improvements	$1 million	-	20,000 - 40,000	Next-Gen PRESTO	8% of fare revenue	$1,200 per bus	Additional managerial / planning staff	$140,000	Marketing Improvements	$50,000
Milton-TPO-Lisgar Regional Route	$298,000[29]	$1.3 million[29]	250,000 - 500,000	- operated by Milton Transit	$350,000	-	16,000					(short- to long-term)			Customer service representatives	$110,000		
				- operated by TNCs, Taxi	$160,000	-									Dispatcher	$60,000		
Total	**($340,000)**	**$1.3 million**	**360,000 - 610,000**		**$160,000 to $350,000**	**-**	**16,000**		**$1 million**	**-**	**20,000 - 40,000**		**8% of fare revenue**	**$1,200 per bus**		**$310,000**		**$50,000**
Replace Old Transit Fleet	-	$8.3 million	-															
Mid-Term (2022 – 2025)																		
Extend/Improve Local Fixed Route Network	$2.5 million	$7 million	270,000 – 290,000	Expand Home-to-Hub Service				Specialized Transit Expansion	$1.1 million	$1 million	20,000 - 40,000				Additional managerial / planning staff	$140,000	Marketing Improvements	$180,000
Transfer Hubs (Velodrome, Bristol Park)	$11,000 - $18,000	$750,000 – $1.3 million	-	- operated by Milton Transit	$730,000	-	33,000								Customer service representative	$50,000		
Additional Maintenance Vehicle	+$14,000	+$100,000	-	- operated by TNCs, Taxi	$330,000	-									Travel trainer	$30,000		
															Supervisor	$80,000		
															Dispatcher	$60,000		
Total	**$2.6 million**	**$7.8 - $8.3 million**	**270,000 – 290,000**		**$330,000 - $730,000**	**-**	**33,000**		**$1.1 million**	**$1 million**	**20,000 - 40,000**					**$360,000**		**$180,000**
Transit Operations Facility	$1.5 million[30]	$40 million[30]	-															
Replace Old Transit Fleet	-	$3.2 million	-															

[27] Assuming cost recovery ratio at 28% for fixed-route transit and 12% for specialized transit, and includes an annual contribution for the future capital rehabilitation and replacement.

[28] Excludes future rehabilitation and replacement capital costs that are financed by the contributions that are incorporated into the annual operating budget.

[29] Includes half of the costs for Milton GO – TPO – Lisgar GO route

[30] Subject to refinement through Facility Feasibility Study and detailed design process. Net annual operating budget includes contribution for the future capital rehabilitation and replacement.

Conventional Transit				Home to Hub				Specialized Transit				Technology			Management		Marketing	
Work items	Net Annual Operating Budget[27]	Initial Capital Cost[28]	Annual Ridership Change	Work items	Net Annual Operating Budget[27]	Initial Capital Cost[28]	Annual Ridership Change	Work items	Net Annual Operating Budget[27]	Initial Capital Cost[28]	Annual Ridership Change	Work items	Annual Operating Budget	Initial Capital Cost[28]	Work items	Annual Operating Budget	Work items	Annual Operating Budget
Long-Term (beyond 2025)																		
Extend Fixed-Route Network into Growth Areas	$1.5 million	$3.8 million	230,000	Expand Home-to-Hub Service				Specialized Transit Expansion	$1.1 million	$1 million	20,000 - 40,000				Customer service representative	$50,000	Marketing Improvements	$120,000
Transfer Hub (Ontario – Britannia)	$7,000 - $29,000	$500,000 - $2 million	-	- operated by Milton Transit	$730,000	-	33,000								Dispatcher	$60,000		
Additional Supervisory Vehicle	+$10,000	+$75,000	-	- operated by TNCs, Taxi	$330,000	-									Supervisor	$80,000		
Total	**$1.5 million**	**$4.4 – $5.9 million**	**230,000**		**$330,000 - $730,000**	**-**	**33,000**		**$1.1 million**	**$1 million**	**20,000 - 40,000**					**$190,000**		**$120,000**
Regional Fixed-Route Transit Improvements	$5.3 million	$17.8 million	1.3 – 2.5 million															
Replace Old Transit Fleet	-	$6 million	-															

Table 62 | Summary of all recommendations