Brampton Transit

2023-2027 Business Plan

Summary Document

March 2023

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ACKNOWLEDGEMENTS

Brampton Transit's 2023-2027 Business Plan was a collaborative effort between Brampton Transit staff and consulting partners Left Turn Right Turn and Optimus SBR. We acknowledge their contribution towards the development of this plan.

List of Tables and Figures

"CONNECTING YOU TO EVERYDAY"

1 INTRODUCTION

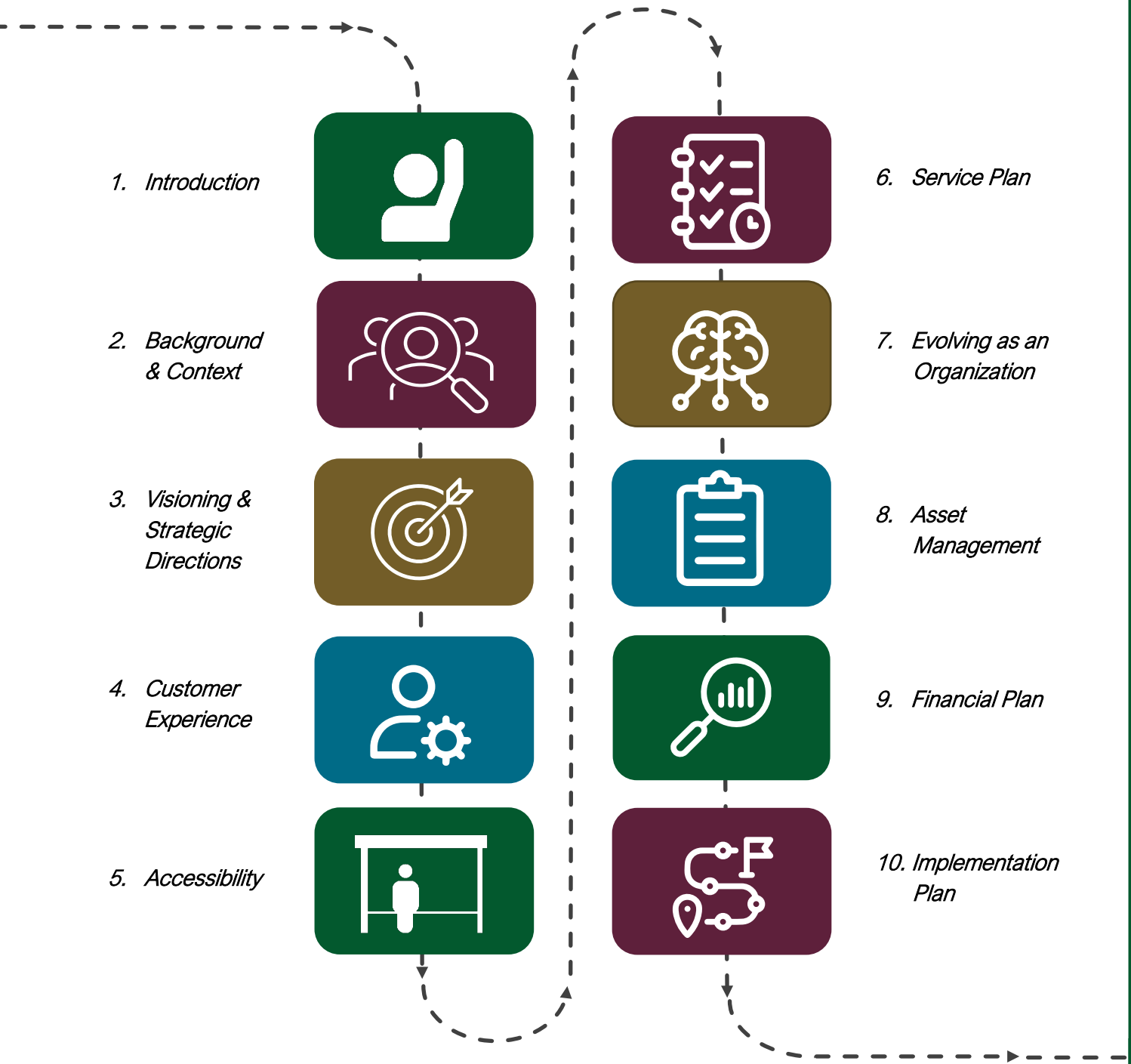
The City of Brampton and Brampton Transit have focused significant effort and capital investment over the past decade to improve transit and implement new ideas. This has included expanding existing service, connecting new routes, implementing new technologies, becoming more accessible, and advancing the transition to a zero-tailpipe emissions bus fleet. The successes of these efforts and investments have led to continually increasing ridership, surpassing all expectations of the 2015 Transportation Master Plan (TMP).

Brampton Transit's Five-Year Business Plan represents the foundation on which these successes are built. Where the TMP is a visionary document that outlines broad, large-scale objectives over more than twenty years, the Business Plan deconstructs these objectives by addressing them in five-year segments to prioritize efforts, set expectations and advance toward the vision.

This document represents a summary of the new 2023-2027 Brampton Transit Business Plan. It strives to direct Brampton Transit over the next five years to not only continue to build on the exemplary successes and growth experienced over the previous decade, but to also respond to – and rebuild from – the COVID-19 pandemic. Key themes that this Business Plan addresses include responding to significant ridership growth, readying for electrification, increasing system efficiency, right-sizing administration, and setting the course for Brampton Transit for the next five years and beyond.

1.1 DOCUMENT STRUCTURE

This report presents a summary of the 2023-2027 Brampton Transit Business Plan, with sections focused on:

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2 BACKGROUND

Brampton Transit produces a Business Plan every five years. This summary document considers the 2023-2027 timeframe. The plan integrates Brampton's 2040 Vision, industry trends, the city's Term of Council Priorities, and customers' expectations.

Notable to this plan, Brampton has recently initiated, or is in the process of planning: the Phase I zero-tailpipe emission battery electric bus trial, the extension of the Hazel McCallion LRT line, a 3rd transit facility, the introduction of the Queen St – Highway 7 BRT, and new Züm routes.

This 2023-2027 Business Plan is designed to be a forward-facing document and responds to societal and technological changes and advancements that transpired over the previous period. The plan explores how the network integrates with neighbouring municipalities.

As well, this plan considers the significant impact that the COVID-19 pandemic has had on transit agencies across the world – decreased ridership, service levels, and revenues – and reflect on Brampton Transit's responsiveness and continued recovery. As such, this Business Plan is the first to be developed in, and also respond to, the COVID-19 era. While the pandemic continues to persist into 2023, the Business Plan considers COVID-19 recovery, the effects of the pandemic on Brampton Transit, and responding to the changing and evolving needs of society in a peri- and post-COVID world. This includes economic impacts that affect Brampton Transit and the provision of services (i.e., the resultant supply issues that have yet to be remediated and increased prices as a result).

Despite heavy impacts to the previous Business Plan's goals and objectives, Brampton's pandemic response is not the only focus of the 2023-2027 Business Plan. As a forward-facing document, it seeks to grow beyond the temporary disruption of COVID-19 to enable efficient growth to meet the City's transit goals and circumstances, including unprecedented ridership growth both before and during the pandemic. This massive ridership growth, coupled with the City's inspirational vision for a more sustainable and vibrant future in which transit plays a more prominent role, requires sound and achievable transit goals and objectives that not only meet current needs, but also anticipated future needs of an evolving community.

2.1 REFLECTING ON THE PREVIOUS BUSINESS PLANS

The 2023-2027 Brampton Transit Business Plan builds on the foundation of the 2018-2022 Business Plan, with redeveloped strategic directions that respond to both external changes and the prior successes of previous Business Plans.

The focus of previous Business Plans has varied. The 2013-2017 Brampton Transit Business Plan was focused on growth, largely due to the expansion of the Züm network and corresponding service increases required to support these corridors and expand to growing areas. The result of this investment was significant ridership growth between 2012 and 2016, which exceeded the rate of population growth. The 2018-2022 Brampton Transit Business Plan responded to and continued this growth as well as focused on implementing a new vision and new strategic directions.

The overarching goals and objectives of the Business Plan are connected and aligned with broader City plans, such as the official Brampton Plan and the Transportation Master Plan, as well as the Brampton Transit strategic directions developed as part of this 2023-2027 Business Plan. This plan builds on the achievements of the previous 2018-2022 Business Plan and adjusts for the changing operating context (e.g., COVID-19 impacts).

The 2018-2022 Business Plan set a good foundation for the 2023-2027 Business Plan, though parts of the plan were impacted and ultimately delayed by the COVID-19 pandemic. In addition to delaying certain projects, COVID-19 also impacted travel patterns and disrupted ridership projections. The 2023-2027 plan therefore leverages the previous Business Plan while acknowledging that not all planned changes and projections are still relevant.

2.2 2018-2022 KEY MILESTONES AND ACHIEVEMENTS

Despite the challenging period for transit agencies across the globe due to the COVID-19 pandemic, Brampton Transit has, over the past five years, been working toward accomplishing the strategies, goals and objectives set out in the previous 2018-2022 Business Plan. While COVID-19 has impeded or temporarily delayed select goals and objectives outlined for the latter half of the plan (2020 onward), Brampton Transit has experienced significant success over the five-year period:

COVID-19 PANDEMIC RESPONSE & RECOVERY

The pandemic affected transit agencies across the globe, with many temporarily suspending service altogether. Brampton Transit has been able to navigate the impacts of the pandemic by providing continued daily service but operating reduced service levels across the network due to multiple factors, including:

- Reduced levels of ridership due to physical distancing limitations, changing work arrangements (i.e., telecommuting), and the public's perception of crowded spaces during this time
- COVID-19 safety measures (i.e., physical distancing, mask protocol, etc.)
- Organizational resource constraints

Despite the challenges, Brampton Transit has recovered its ridership far more quickly than most peer agencies. June 2022 marked the agency's recovery to 100% of pre-pandemic ridership levels despite service levels operating at 90% capacity; and ridership has continued to increase since.

TABLE 1 - ANNUAL RIDERSHIP 2019-2022

RIDERSHIP	2019	2020	2021	2022
TOTAL	31,914,291	18,098,238	19,423,009	31,314,940

ELECTRIFYING THE FLEET

Brampton Transit is leading the industry through its electric bus trials and maintenance program. In May 2021, Battery Electric Buses (BEBs) went into service as Brampton Transit launched a zero-tailpipe emissions battery electric bus (BEB) trial and continue to use BEBs to provide transit service in 2023. The trial was the first phase of Brampton Transit's broader vision to transition to a zero-tailpipe emission fleet.

In 2022, Brampton secured a significant federal financing arrangement to manage the higher cost of BEBs. As a result, planning for additional electric infrastructure upgrades and battery electric bus fleet plan is already underway (with up to 450 BEBs secured by the end of 2027).

EMERGING TECHNOLOGY IMPLEMENTATION

Brampton Transit endeavours to be responsive to the needs of the community. Brampton Transit has continued to invest in new and advanced technologies to improve the customer experience, support better operations, and reduce Brampton Transit's environmental footprint. For example, in addition to the BEB trial noted above, Brampton Transit has developed a strategy for an on-demand transit trial program.

IMPROVING SERVICE COVERAGE TO NEW GROWTH AREAS

Brampton Transit focused on improving service coverage to new growth areas pre-COVID-19, during the earlier years of the plan (2018-2020). “New growth areas” are just that – areas of new development (residential or commercial).

Service is provided to areas of new residential or commercial development and employment lands as soon as is operationally feasible, in order to provide travel options as the area matures and help encourage transit usage in and to new areas as they continue to develop. Brampton Transit continues to improve service across the city – including new growth areas – despite service levels being temporarily reduced due to the pandemic.

CONTINUED GROWTH OF ZÜM CORRIDORS

Brampton Transit service benefited from steady growth of the Züm network during the 2018-2022 Business Plan which included Züm Airport Road connecting to Malton GO Station in 2018 and to Viscount Station at Pearson Airport in the Fall of 2022. As well, service improvements were implemented on the Chinguacousy Corridor, including on express Route 104 to build corridor capacity and grow ridership in advance of the planned launch of Züm Chinguacousy in 2024.

While the expansion of new Züm network lines was temporarily delayed due to the COVID-19 pandemic, critical infrastructure planning took place during 2018-2022. As a result, Brampton Transit is ready to move forward with new Züm expansions in the early stages of this 2023-2027 service plan.

2.3 REGIONAL CONTEXT

Transportation in and around Brampton is deeply integrated with its neighbours in the Greater Toronto and Hamilton Area. For Brampton Transit this manifests as significant service demand to regional GO Transit stations and routes that run to Mississauga, Toronto, Vaughan, and Caledon.

The regional context will continue to impact Brampton Transit in the form of higher order transit projects and high growth anticipated within and outside of Brampton's boundaries. This includes advancing large transit projects: two Light Rail Transit (LRT) routes (Hazel McCallion and Finch West) and expansion of GO trains to two-way, all-day service along the Kitchener GO corridor. These projects will enhance regional travel for Brampton residents as well as bring in new riders to Brampton Transit. Brampton Transit services will need to respond to these additional higher order regional services through changes to the local network and additional service to meet increased ridership.

Further employment and residential growth is anticipated at or near Brampton boundaries. An important challenge to be addressed in this service plan and the annual service plans is to identify the new demand this will create and how to efficiently provide transit service to those areas, including how to best leverage service and fare integration opportunities with our partner agencies.

2.4 COVID-19 IMPLICATIONS

The operating context for Brampton Transit presently and in the next five years will be different from the previous five years, primarily but not wholly due to the COVID-19 pandemic. When the COVID-19 pandemic first hit, it significantly reduced ridership and altered the operations of transit (e.g., additional cleaning, limited capacity). As society begins to reset itself in a post-pandemic environment, significant and long-lasting changes to travel demand and travel patterns are anticipated. Transit agencies across the country are looking to answer questions as it relates to the pandemic. These include:

- Who is travelling? Is it different now than pre-COVID?
- When are they travelling?
- Have travel patterns changed?
- What kind of trips customers taking (i.e., employment/commuting, pleasure, etc.)?

In employment, for example, not all "9-to-5" employees are expected to return to commuting due to teleworking and hybrid work environments, while industrial shift workers may increase. COVID-19 has also shifted customer perspectives and expectations around traveller information, cleanliness, and crowding levels.

Moving forward, COVID-19 has highlighted the need and desire for previously underutilized technologies. On-demand transit, for example, emerged in the public transit industry as a means of addressing areas with low ridership and dispersed populations. With respect to COVID-19, however, it becomes a tool to address areas experiencing diminished ridership or the desire of customers to limit close-quarter interactions (i.e., fewer people wanting to be in crowded places).

The pandemic has also directly impacted Brampton Transit's organizational capacity and service provision. Front-line resources were directly impacted by COVID-19, exacerbating challenges around absenteeism. Supply chain issues and inflation continue to impact costs and expenditures for numerous sectors and industries across Canada and the globe. The resultant impact on Brampton Transit includes operating in an economically depressed environment that has lingering impact on operational and new capital costs.


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3 VISION & GOALS

"CONNECTING YOU TO EVERYDAY"

3.1 VISION

Based on its continued relevance, the existing Brampton Transit vision of "Connecting you to everyday" remains. This vision reflects the customer-focused responsiveness of Brampton Transit and its everyday importance for residents, employees, and visitors. This especially reflects the constancy of Brampton Transit throughout the COVID-19 pandemic and a changing environment and context.

3.2 NEW STRATEGIC DIRECTIONS

Strategic directions aligned with the vision provide more specific guidance for Brampton Transit over the next five years. These directions are expanded in the following sections, and they are all supported by effective communication of the value of transit (to funding partners, non-transit audiences, and other constituencies). Figure 1, below, relays the strategic directions for the 2023-2027 Business Plan.

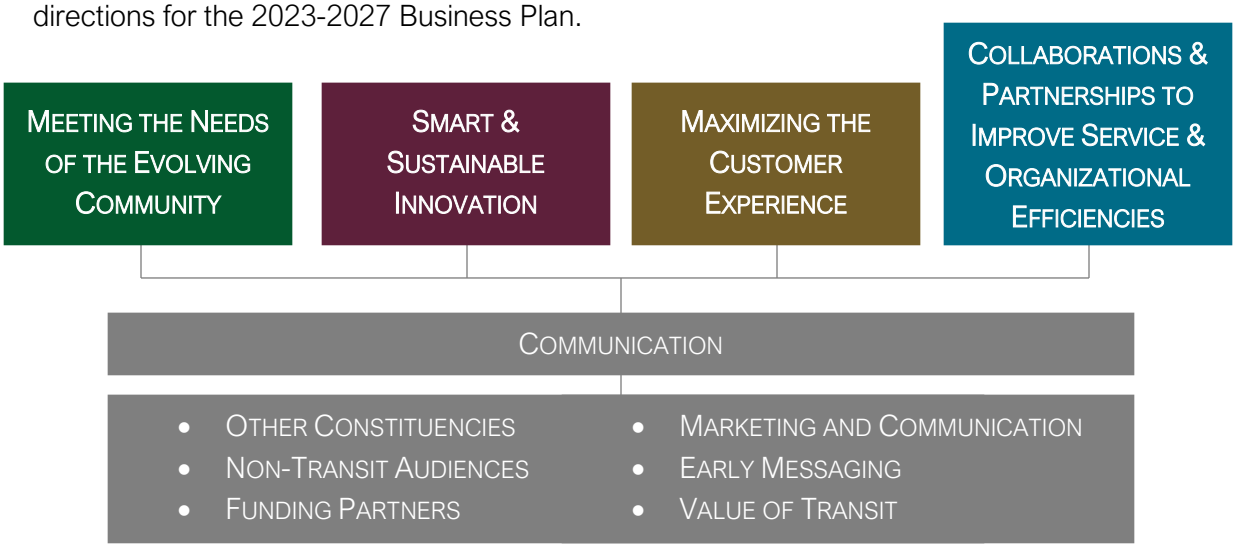

FIGURE 1 - 2023-2027 BUSINESS PLAN STRATEGIC DIRECTIONS

01 MEETING THE NEEDS OF THE EVOLVING COMMUNITY

Meeting the Needs of the Evolving Community focuses on the broader Brampton community and meeting its diverse needs as the city continues to grow and change. As part of this strategic direction, Brampton Transit will:

1. Continue to meet the challenges presented by **COVID-19** and take opportunities to renew and improve transit for the community.
2. Consider how COVID-19 has changed the **employment characteristics** of the city and adjust transit to meet **new commute travel patterns**.
3. Build upon the understanding of Brampton's **population diversity** to better anticipate and respond to changing transportation needs.
4. Continue to **respond to the growth** of the city, while also taking the opportunity to have transit and transportation **shape that growth**. This includes leveraging existing guidance within the Transportation Master Plan and Vision 2040.
5. Plan transit in collaboration with new development in a mutually beneficial way to increase the city's access to transit in **transit-oriented development (TOD).**
6. Be active in the broader community and be known for **community involvement** and **providing value** for Brampton residents.

02 SMART & SUSTAINABLE INNOVATION

Smart and Sustainable Innovation focuses on leveraging technology to support sustainability and growth of Brampton Transit as an organization. As part of this strategic direction, Brampton Transit will:

1. Continue its **electrification** efforts to meet its goal of a fully electric fleet. This includes significant infrastructure planning and implementation work.
2. Launch new **on-demand transit** services to improve service coverage and meet residents' diverse needs.
3. Continue to improve **organizational readiness, flexibility, and efficacy** to maximize the benefit of taking on innovative ideas and technologies.
4. Be selective about new **technology** and better integrate technologies into existing processes.
5. Leverage big data to make **data-informed** decisions that improve the customer experience (e.g., route frequency based on full buses).
6. Review and select **fare technology** that aligns with fare policies and Vision 2040.
7. Consider mobility in a holistic way as **integrated mobility options**. This includes exploring technology solutions (e.g., Mobility as a Service) and better integration with active transit.

03 MAXIMIZING THE CUSTOMER EXPERIENCE

Maximizing the Customer Experience includes various factors that can improve the customer experience. As part of this strategic direction, Brampton Transit will:

1. Work to keep transit **safe and secure** at all times for riders and employees. This includes promoting public perceptions of safety by building off the success of the award-winning public awareness program, See Something, Hear Something, Say Something.
2. Pursue universal **accessibility** by meeting and exceeding all applicable accessibility standards.
3. Maximize **transit reliability** so that riders can confidently rely on Brampton Transit.
4. Maximize rider **comfort.** This includes comfortable amenities like shelters, and improved access to important service information.
5. Plan and deliver **fast and frequent** service so that riders can be assured that transit is a fast transportation option with frequent service.
6. Review and revise **fare policy** that aligns with Vision 2040.
7. Improve riders' **access to information** about transit, including trip planning and real-time service information.

Collaborations and Partnerships to Improve Service and Organizational Effectiveness considers the importance of collaboration and partnership in having a more successful and effective agency. As part of this strategic direction, Brampton Transit will:

1. Continue to collaborate with peer agencies on **fare and service integration** in consideration of Brampton residents that use transit across the GTHA and visitors riding with Brampton Transit.
2. Explore opportunities to partner with an Energy-as-a-Service provider to support Brampton Transit's **electrification** journey.
3. Develop and strengthen the **connection to the city and the region** to integrate transit improvements with land use, planning, and economic development.
4. Continue to foster a **diverse and engaged workforce** so that employees reflect the city's diversity, a passion for transit, and pride for their work and valuable contributions.
5. **Continue to engage the community and stakeholders** to share the value of transit through a variety of engagement initiatives.
6. Enter **non-transit partnerships** (collaboration with local organizations that are not transit-focused) to find mutually beneficial initiatives and collaborations.
7. Explore opportunities for **revenue sharing** through partnerships and collaborations.

4 CUSTOMER EXPERIENCE

4.1 IMPROVING THE CUSTOMER EXPERIENCE

It is important to recognize the recent advancements Brampton Transit has made towards improving the customer experience and to build momentum as Brampton Transit refocuses its efforts and priorities. Key priorities, actions, and progress from the 2018-2022 Business Plan were:

1. Allowing Passengers to Know What Is Going On
2. Assisting with Communication Link
3. Transit Signal Priority Features
4. Trip Planning in a Multi-lingual Community
5. Enhancing Customer Service for Staff

These five key priorities have been advanced over the five-year life cycle of the previous Business Plan, having leveraged technology to provide real-time service information through the Triplinx app, provide free Wi-Fi at Brampton Transit Terminals, equip new buses with signal priority features (which also helps improve on-time performance), and improve data reliability.

The 2023-2027 Business Plan seeks to build on this platform of priorities where applicable but understands that customer priorities have changed over the last five years due to growth within the City of Brampton, changing travel patterns, and the COVID-19 pandemic. Therefore, opportunities were identified that inform a new Customer Experience Framework for the 2023-2027 Business Plan that responds to the current needs of the community.

The opportunities that inform the Customer Experience Framework are derived from previously identified "pain points" in the customer experience. "Pain points" is an industry term used to denote areas or experiences that hinder or detract from the overall customer experience. The following are the identified key "pain points" which have informed the areas of focus for improving the customer experience at Brampton Transit:

- Customers largely feel that there either aren't enough buses, that the buses are overcrowded, or that service is not frequent enough;
- Hours of service may not align to employment or business needs;
- Availability of real-time schedules and updates; and
- Interactions with customer service agents/call centre agents.

It should be noted that some progress has already been made to address the last two pain points, which should be reflected in a planned upcoming customer satisfaction survey.

4.2 CUSTOMER EXPERIENCE STRATEGY FRAMEWORK

To categorize the recommendations contained in the Customer Experience Strategy, a framework was developed that aligns with the Strategic Direction 'Maximizing the Customer Experience' component, and each component of the framework contains a set of recommendations related to the component. Figure 2, below, depicts the overarching Customer Experience Strategy Framework:

FIGURE 2 - CUSTOMER EXPERIENCE FRAMEWORK

Responsiveness

The "Responsiveness" part of the Customer Experience Strategy Framework focuses on ways that Brampton Transit should continue to use data and customer and community feedback to maximize the customer experience, which is a strategic direction. Recommendations related to responsiveness are focused on the formalization of data and analytic strategies, as well as the implementation of internal technologies in order to better use information to share, anticipate, and respond to user needs.

Access to Information

The "Access to Information" section of the Customer Experience Strategy Framework provides recommendations to guide Brampton Transit's continual dissemination of information and customers' ability to seamlessly access this information, as well as internal stakeholders ease of access to pertinent information. Access to Information recommendations target communication channels (e.g., social media) for the purposes of increasing their presence and streamlining information through dedicated channels for real-time service alerts and general marketing or communications.

Comfort and Reliability

Within the Customer Experience Strategy Framework, "Comfort and Reliability" is geared toward ensuring that customers continue to find Brampton Transit a reliable service, while finding the comforts needed for a friendly trip that meets their needs. Comfort and Reliability recommendations include the need for on-time performance monitoring, expanding the use of technology on and across Brampton Transit's fleet of buses, using data to make informed decisions, and developing partnerships to better disseminate relevant data and information to customers.

Safety and Security

"Safety and Security" represents the last pillar of the Customer Experience Framework. As the name implies, it focuses on perceptions and feelings of safety while using Brampton Transit at all times for both customers and employees, as well as feeling secure on buses, at stops, and in terminals. Safety and Security is similarly focused on universal accessibility. Recommendations under Safety and Security are aimed at inventorying service offerings and programs to inform future decision-making and to increase the awareness of offerings by increasing marketing efforts.


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5 ACCESSIBILITY

Brampton Transit's commitment to provide a fully accessible conventional transit service is driven by its efforts to improve accessibility on multiple elements of the customer experience. Brampton Transit's goal is to provide a service that is accessible and barrier-free. A separate Accessibility working paper was developed that summarizes the Accessibility for Ontarians with Disabilities Act (AODA) and the Integrated Accessibility Standards (IASR) (Ontario Regulation 191/11) (AODA) requirements, transit specific accessibility commitments made by the City of Brampton, current state of transit accessibility and the recommendations towards improving system accessibility going forward.

Brampton Transit, through the City of Brampton has been successful and diligent at achieving and maintaining full AODA compliance. Through an Accessibility Audit conducted by the City in 2021, two key transit-related areas of improvements were identified where the City and Brampton Transit can improve further alignment with AODA requirements:

- Accessibility Advisory Committees (AAC) - Members: A majority of the members of the committee shall be persons with disabilities. (AODA 2005, c. 11, s. 29 (3)).
    - The City of Brampton has plans to address this gap with updated 2023 Terms of Reference for the committee.
- Maintenance of accessible elements: Ensure that multi-year accessibility plans include procedures for preventative and emergency maintenance of the accessible elements in public spaces as required under this Part. AODA IASR Reg. 191/11 s. 80 (44-1).
    - The City of Brampton is in the process of updating its MAP to include preventative and emergency maintenance procedures.

Through the project team's review, one additional area where Brampton Transit can improve its alignment with the AODA was identified:

- Accessibility plans, conventional transportation services: Every conventional transportation service provider shall annually hold at least one public meeting involving persons with disabilities to ensure that they have an opportunity to participate in a review of the accessibility plan and that they are given the opportunity to provide feedback on the accessibility plan. (AODA IASR Reg. 191/11 s. 41(2)).[1]

[1] At present, Brampton Transit provides an annual update to the City's Accessible Advisory Committee which the City has deemed to be in compliance with the AODA. From a best practices perspective, broader engagement is recommended, which could be undertaken in collaboration across City departments.

- Currently, Brampton Transit meets its obligations through the working paper undertaken as part of the Business Planning process. Furthermore, Brampton Transit meets with the AAC on an annual basis to present on accessibility initiatives and updates.
- As part of the next Business Plan, Brampton Transit plans to develop a more comprehensive Multi-Year Accessibility Plan. This would incorporate expanded engagement activities to further understand system barriers faced from a broad cross-section of customers.

Brampton Transit has made strides in improving the accessibility of its services over the years. Key achievements include making the fleet 100% accessible, achieving AODA accessibility at 85% of transit stops, obtaining Rick Hansen Foundation Accessibility Certification for 2 existing transit facilities and implementing customer communication channels to communicate accessibility features. Brampton Transit can further improve accessibility and provide a barrier-free transit experience by having a better understanding of the needs of its customers with disabilities, and to use that understanding to address system barriers. To achieve this, the following recommendations were made in the working paper:

- Understand customer needs: Design and conduct public consultations and perform assessments to better understand the barriers faced by people with disabilities using transit.
- Continue to prioritize transit stops for improvement: Continue to update the transit stop database, with information on all accessibility features as well as ridership demand at the stops. This will accurately inform staff on which stop improvements to prioritize.
- Continue to improve customer communication: Launch a campaign[2] and leverage social media to broadly communicate system accessibility features.
- Update transit stop infrastructure guidelines: Review and update the accessibility section of the Transit Infrastructure Design guidelines to ensure continued compliance and consistency with universal accessibility design principles and AODA / City of Brampton requirements and include additional accessibility features that address identified customer challenges.

Brampton Transit is committed to making accessibility a key part of its services. Achieving accessibility is an ongoing process that improves with better understanding of barriers as well as innovations in technology. To provide universal accessibility in services, accessibility must continue to be considered into the culture and processes of an organization. The recommendations set forth in the Accessibility working paper will support Brampton Transit to continue to remove barriers and make transit accessible to all.

[2] Campaigns can involve promotions similar to those done for priority seating, where accessibility improvements were advertised on buses and shelters. This can be done through posters or banners on side of buses and shelters, messaging on IVR systems, banner on website and social media posts highlighting accessibility features.


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6 SERVICE PLAN

6.1 BRAMPTON TMP & SERVICE INVESTMENT TARGETS

The City of Brampton's Transportation Master Plan (TMP), last updated in 2015, provides the principal guidance to the Business Plan on service investment targets. For 2031, the TMP sets out a mode share target of 16% for local public transit[3] and recommends delivering 2.9M annual service hours. The Business Plan considered updated projections to account for slower population and employment growth and higher ridership growth, as well as more concentrated development. As a result, the Business Plan accounts for 2.3M annual service hours which is projected to be sufficient to achieve the 16% local transit mode share by 2031.

The 2023-27 Service Plan has been developed to grow sufficiently to achieve these revised measures while also considering current constraints including garage capacity, staffing, administrative capacity and the availability of supporting tools.

The result is that growth in service hours in the next plan, specifically between 2028-2031, will likely need to be a little faster than during the 2023-2027 period to achieve the TMP mode share target. The annual service hour growth target is 5.5% during the 2023-2027 plan and anticipated to be 7-9% after the plan. The 5.5% annual growth target will fluctuate on an annual basis according to immediate needs and the timing of various service requirements and will be subject to the City's annual budget approval process.

6.2 SERVICE OBJECTIVES

Targeted service changes and improvements are directed by Service Objectives (and Service Guidelines, discussed in 6.3). The Service Objectives follow from the Business Plan's Strategic Directions (see Section 3.2) and are intended to guide decision-making on service provision and the planning process. The objectives are connected to the strategic directions, shown as follows:

[3] The TMP mode share target of 16% for local public transit by 2031 is dependent on the implementation of two higher-order transit projects within the City of Brampton (Hazel McCallion Line LRT and the Queen Street BRT).

MEETING THE TRANSIT NEEDS OF THE EVOLVING COMMUNITY

CONTINUE TMP GUIDANCE AND COLLABORATION FOR NETWORK RESTRUCTURE

- The 2023-2027 Business Plan follows the direction set out in the 2015 TMP
- Inform subsequent updates to the TMP through on-going coordination to ensure strategic alignment

MATCH SERVICE TO DEMAND TO GROW RIDERSHIP MOST EFFECTIVELY

- Targeted changes and adjustments to service levels across the network
- Better grow ridership by matching service levels to levels of demand

UNDERSTAND AND ADAPT TO CHANGING TRAVEL PATTERNS

- COVID-19 significantly changed travel patterns; patterns are expected to evolve
- Adapting service to meet these evolving patterns is important to Brampton Transit's success

ENSURE EQUITABLE SERVICE PROVISION

- Equity-focused service planning is increasingly important and a desired area of focus
- Identify equity-deserving groups, how service changes affect them, and prioritize quality changes

CONDUCT MORE DETAILED TRAVEL MARKET ANALYSIS

- More resources should be directed toward better understanding of customer transit needs
- Enhancing data and analytics capacity will be key to a more efficient Brampton Transit

PROVIDE BETTER CONNECTIONS BETWEEN ORIGINS AND DESTINATIONS

- Door-to-door passenger travel times are an important feature of the customer experience
- Network design should consider minimizing travel times connecting major origins and destinations

ESTABLISH TRANSIT EARLY FOR NEW DEVELOPMENT

- Introducing transit early in new development areas helps establish a viable transportation option
- Where conventional service is not yet viable, alternative service methods should be considered

FOCUS INVESTMENT IN OFF-PEAK PERIODS AND WORK TOWARDS 24/7 SERVICE

- Service demand in off-peak periods have increased as a result of the pandemic
- Focusing service investment in off-peak periods will better service equity-deserving groups

SMART AND SUSTAINABLE INNOVATION

USE ON-DEMAND TRANSIT TO PROVIDE EXPANDED SERVICE SPAN AND COVERAGE

- On-demand transit can complement fixed-route service to expand service span and coverage
- Appropriate contexts should be explored to understand areas where fixed-route service does not work well, such as areas of low or dispersed ridership

MAXIMIZING THE CUSTOMER EXPERIENCE

ADDRESS EXISTING AND EMERGING CUSTOMER EXPERIENCE PRIORITIES

- Better understand, as well as meet, the needs of the customer
- Address current experience priorities such as crowding, reliability, passenger facilities

COLLABORATIONS AND PARTNERSHIPS TO IMPROVE SERVICE AND ORGANIZATIONAL EFFECTIVENESS

ENHANCE REGIONAL CONNECTIVITY

- Over 1/3 of Brampton's routes cross the municipal boundary
- There are opportunities for Brampton to build upon existing cross-boundary services

UNDERSTAND COMMUNITY BENEFITS OF REGIONAL VERSUS LOCAL CONNECTIONS

- Benefits of regional service differs from local services and should be explored
- Clear guidelines should be developed when Brampton will provide cross-boundary service

6.3 SERVICE GUIDELINES

Previous business plans presented "Service Standards" for which Brampton Transit was responsible for achieving and maintaining. Service standards, however, can restrict an organization's ability to adapt, which is particularly critical within current societal context, not to mention the wake of the COVID-19 pandemic. Therefore, this 2023-2027 Business Plan has evolved to using the term "Service Guidelines" to reflect the flexible direction with which they are intended for use.

The Service Guidelines build on the foundation of the previous Service Standards, altering them as appropriate to react to the current and anticipated future context within the City of Brampton. This section highlights all changes made to the previous Service Standards to create the new 2023-2027 Service Guidelines.

These changes relate to Route Class, System Proximity, Service Levels, Stop Amenity Guidelines, Passenger Comfort, System Utilization, and System Reliability. Previous Service Standards that are not listed for change conform to peer and industry standards and do not warrant an update at this time. The following Table 2 is a summary of the anticipated changes and affected Service Guidelines.

TABLE 2 - SERVICE GUIDELINE CHANGES

Affected Service Guidelines	Anticipated Changes

Route Class	• Introduce two new route classes:
	  ○ Night Route class
	  ○ Employer Shuttle class

System Proximity	• Increase two different coverage targets of population and employees within walking distance to:
	  ○ Transit (400m), from 80% to 90%
	  ○ Base grid/Züm stop (800m), from 85% to 90%

Service Levels	• Improve minimum service frequencies for weekday BRTs and develop guidelines for the Night Route class
Introduce Stop Amenities Guidelines	• Introduce guidelines to have more boardings at stops with shelters and be more proactive with stop amenity allocations
Passenger Comfort	• Add guidelines for when passenger load thresholds are consistently being exceeded.

System Utilization	• Introduce criteria that would trigger a review for on-demand service
	• Further introduce changes to:
	  ○ Route performance guidelines
	  ○ Minimum performance guidelines for on-demand transit

Additional details can be found in the 2023-2027 Service Guidelines document (Appendix A).

6.4 2023-2027 RECOMMENDED CHANGES

Over the course of this 2023-2027 Service Plan, Brampton Transit envisions a series of changes that will both reallocate and expand transit service so that Brampton residents will be better served. The changes are largely derived from, and align with, both the Service Objectives and the Service Guidelines introduced above.

These planned improvements will see modifications of the network in the western, northern, and southern regions of the city to serve new growth areas; adapt service to regional higher-order transit changes; address full-load capacity issues; meet system utilization guidelines, expand the Züm network; and introduce new services to mitigate gaps in the network including nighttime and on-demand services. Areas under consideration for changes are depicted in Figure 3 below:

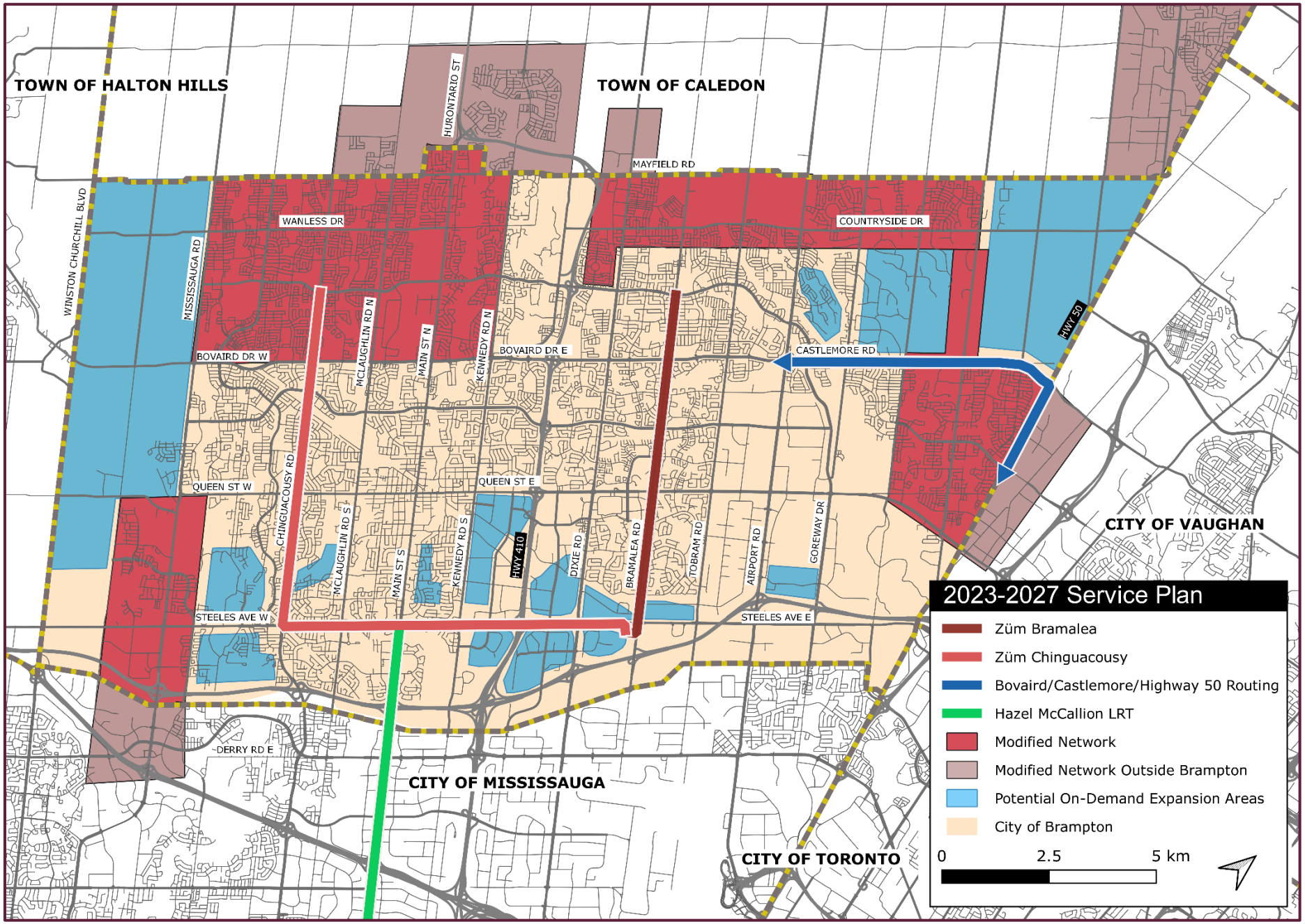


FIGURE 3 - 2023-2027 SERVICE PLAN NETWORK CHANGES

PLANNED IMPROVEMENTS

1. ADDRESS OVERCROWDING

   Reducing the number of overcrowded buses is a key short-term priority for Brampton Transit. Changes in travel patterns and ridership growth without the ability to implement service growth has led to an increasing number of full buses and generally overcrowded conditions further exacerbated due to the ongoing effects of the pandemic on resources.

2. IMPLEMENT ZÜM CHINGUACOUSY

   Züm Chinguacousy (Route 504), planned to be introduced in late 2024 and coinciding with the opening of the Hazel McCallion Line LRT, connecting Sandalwood Parkway to Bramalea GO Station, via Sheridan College and Gateway Terminal.

3. IMPLEMENT ZÜM BRAMALEA

   Planned for a 2026 launch to coincide with the GO service enhancement to effectively capture benefits from the 2-way GO service and to meet the expected growth in ridership. The new Züm route would also play an important part to enhance connectivity to the Kitchener Line from north and northeast Brampton.

4. CONTINUE TO EXPAND ZÜM SERVICE TO PEARSON AIRPORT

   Route 505A service to Pearson Airport will be enhanced through both service span extension and frequency improvements in the 2023-2027 period, based on demand and available resources.

5. ADJUST FREQUENCIES AND EXTEND SERVICE SPANS TO MEET SYSTEM UTILIZATION GUIDELINES

   Service investment will allow Brampton to effectively keep pace with continued growth, grow ridership, adapt to changing travel patterns and provide more equitable service. The specifics of where and how this investment will be implemented will be determined through the annual service plan process.

6. SERVICE MODIFICATIONS IN PREPARATION FOR REGIONAL HIGHER-ORDER TRANSIT PROJECTS

Introduction of two-way all-day GO service, Finch West LRT and Hazel McCallion LRT will increase ridership for Brampton Transit and require changes in the Brampton Transit network to optimize service provision.

7. ADAPT TO CHANGES IN RUNNING TIME

Continued increases in both traffic congestion and ridership will act to increase route running times. On-time performance standards will help maintain service quality. The specific routes impacted will be identified through on-going on-time performance monitoring and associated changes.

8. PROVIDE CONTINGENCY FUNDING FOR DETOURS

Contingency funding has been allocated to maintain service quality impacted by long-term detours and road construction.

9. INTRODUCE NIGHT NETWORK

Brampton Transit will incrementally implement a night network, aiming toward full overnight service. Starting in 2026, the night network will be introduced with a base route structure and level of service. The night network will be gradually implemented, with service spans extended to provide 24/7service by the end of 2027.

10. EXTEND SERVICE SPANS ON ROUTES WHERE DEMAND WARRANTS

Focusing more investment into off-peak periods, which includes extending service span during days of current operation but also introducing service on select routes during days with no service, such as Saturday or Sunday.

11. EXPAND ON-DEMAND TRANSIT SERVICE TO PROVIDE GREATER COVERAGE DURING ALL TIME PERIODS

An on-demand trial program will be launched in 2023. On-demand service may also be used to fill in coverage gaps within the service area during all time periods. Areas that could be considered for on-demand service area are shown in Figure 3.

12. INTRODUCE EMPLOYER SHUTTLES

Employer shuttles provide Brampton Transit with an opportunity to connect transit users and residents with large employers in harder to serve areas and at time periods with lower demand.

13. MEETING MINIMUM LEVELS OF SERVICE GUIDELINES

Routes connecting to Züm services and other higher-order services require an augmented frequency to establish better all-day service quality that meets updated Service Guidelines.

14. NETWORK MODIFICATIONS

Brampton Transit will review and redesign areas of its network, with a focus on the northwest, southwest, and northeast areas of the city. The majority of these modifications are planned to be implemented in the first half of this Business Plan to better connect to new growth areas and higher-order transit, as shown in Figure 3.

ANTICIPATED NETWORK MODIFICATIONS 2023-2027

Select areas of the city will have their network modified to provide enhanced efficiency and better connection opportunities to new growth areas and higher-order transit. These areas are anticipated to be the northeast, northwest, and southwest areas of the city, as shown in Figure 3.

The specifics of all service changes will be determined through targeted network studies of the area with further study and public engagement being required to determine exact service changes.

Objectives of the network changes are focused on:

- Enhancing connectivity
- Improving matching service to demand
- Extending services where appropriate
- Reducing service duplication
- Minimizing looping, branching, and indirect services
- Utilizing on-demand to better fill service coverage
- Adjusting service for new Züm routes

1. MODIFY NETWORK IN NORTHEAST

The northeast portion of the City of Brampton and bordering area have experienced numerous recent and upcoming developments. This includes all municipal boundary areas between Highway 410 at Mayfield Road in the northwest and Queen Street at Highway 50 in the northeast. These developments require a network review and redesign of the area to optimally provide new service coverage.

2. MODIFY NETWORK IN NORTHWEST

Coinciding with Züm Chinguacousy and the opening of the Hazel McCallion Line LRT (anticipated for late 2024), fixed-route services in the northwest will be modified to better address new growth in the area and provide improved connection to the new Züm route. As with the northeast modifications, further study and public engagement are required to determine exact service changes.

3. MODIFY NETWORK IN SOUTHWEST

Southwest route modifications will be less significant than in the northeast and northwest but are also mainly intended to better integrate the network into new growth areas with focus on employment lands in and around the Steeles Corridor. Further study and public engagement are required to determine exact service changes.

PLANNING CONSIDERATIONS

Several supplementary planning studies could be undertaken to potentially improve service efficiency and the quality of the transit experience for passengers. These planning studies listed below could be undertaken over the next five years and help inform further initiatives and include:

1. PEDESTRIAN ACCESS STUDY
2. TRANSIT PRIORITY STUDY/PLAN
3. HEADWAY MANAGEMENT STUDY
4. ADDITIONAL SERVICE OPTIMIZATION STUDIES

6.5 ANNUAL SERVICE PLAN DEVELOPMENT

The annual service plans highlight service initiatives and their investment implications throughout the 2023-2027 period. Each annual service plan is summarized in chart form that provides a description of the service initiative, the annual service hour implication and the peak vehicle requirement. This chart is followed by further description of the service changes and their rationale. Table 3 presents historical and estimated ridership, service hours and related metrics. Boardings per Revenue Vehicle Hour is a measure of system utilization, roughly measuring the number of trips provided for each hour a vehicle is on the road. Higher figures indicate a more efficient use of the service provided. However, too high of a number could result in a decline in service quality.

TABLE 3 - ANNUAL RIDERSHIP, SERVICE HOURS, AND RELATED METRICS 2019-2027

Year	Annual Ridership	Percent Increase from 2019	Approved Annualized Service Hours	Percent Increase from 2019	Annual Service Hour Increase	Boardings/ Revenue Vehicle Hour
2019	31,900,000		1,315,000*			25
2022	31,300,000	-2%	1,342,600*	2%		23
Projected 2023-2027 Service Plan Figures						
2023	35,600,000	12%	1,427,400	9%	84,800	25
2024	37,500,000	18%	1,500,200	14%	72,800	25
2025	39,200,000	23%	1,575,800	20%	75,600	25
2026	41,200,000	29%	1,654,100	26%	78,800	25
2027	43,200,000	35%	1,745,200	33%	91,100	25

*Approved annualized service hours

The 2023-2027 Service Plan provides guidance for annual service investment, specific service planning studies to be conducted and a high-level strategy for service planning for each year of the span of the plan. The recommendations should be reassessed and refined each year through the annual service planning process, and may be adjusted subject to the annual budget approval process, availability of resources (vehicles and front line staff) and emergent service priorities and service quality issues.

2023 SERVICE PLAN

The 2023 service plan focuses on implementing outstanding and still relevant elements from the previous Business Plan and increasing frequencies to address overcrowding and improve service quality. Annual service hour increases will be higher in this first year to address excessive system utilization caused by rapidly growing ridership and several years of service growth deferred due to the effects of the pandemic. The 2020 budget, which increased service by approximately 2%, was deferred for implementation in 2022 and early 2023. In 2021 and 2022, there were no additional service increases. Meanwhile, ridership has recovered to above pre-pandemic levels, and 2023 ridership is projected to be 12% higher than 2019.

Investments to improve frequencies are needed to allow Brampton Transit to better meet the System Utilization Guidelines. The specific routes and time periods that will improve will be decided in the annual service planning process. For 2023, it is likely that off-peak/shoulder periods will see a significant portion of the investment. The focus on investment in off-peak and shoulder (transition from off-peak to peak) time periods reflects the impact of changing travel patterns and growth in ridership outside of the traditionally defined peak periods. It is expected that the planned frequency investment will bring 60% of the conventional services currently exceeding the guideline to within the defined range as well as all Züm services.

The 2023 Service Plan also includes investments to extend the hours of operation on select routes identified by Brampton Transit staff, as appropriate. This would further the service objective to improve off-peak service. The hours of operation for Route 104 will be extended, which will build ridership on that corridor, setting the stage for the planned launch of Züm Chinguacousy in 2024.

2023 Highlights

Increase frequencies to alleviate overcrowding and grow ridership

Continue to expand Pearson Airport Züm service

Extend hours of operations on select routes

Implement service improvements deferred during the pandemic

2024 SERVICE PLAN

The 2024 plan focuses on providing service to new growth areas and adapting to several higher order regional transit projects that are expected to be implemented. It will see the introduction of a new BRT route, Züm Chinguacousy, as well as a series of route modifications.

Route modifications in the northeast, northwest and southwest are all necessary to adapt to recent developments within the existing service areas and expand into new growth areas. Changes will enhance access to transit, improve connections within and outside these areas, and make service more efficient. Additionally, changes to the western network are required for the introduction of Züm Chinguacousy.

The 2024 Service Plan capitalizes on the planned launch of two LRT lines that will have a major impact on Brampton's transit system, the Hazel McCallion LRT and the Finch West LRT. Frequencies on various routes and time periods connecting into both LRTs will be increased to create sufficient capacity to meet the anticipated ridership growth. Significant frequency increases to select routes will aim to match service levels to the increased demand to connect to the Hazel McCallion LRT and will include an option to extend service north into Caledon. Considerations for enhancing connectivity to the Finch West LRT will be explored as part of the northeast Modified Network changes. If either LRT line is delayed, this could push service changes planned for LRT lines into future years, including the launch of Züm Chinguacousy.

The 2024 Service Plan also includes investments to extend the hours of operation on select routes. This also furthers the service objective to improve off-peak service. Investments to meet the system utilization frequency guidelines are de-emphasized in 2024 as other major changes are prioritized. Still, these investments will bring 10% of the conventional service and 80% of the Züm service above the guidelines which will improve service quality and help grow ridership.

2024 Highlights

Focus on servicing new growth areas and new higher order transit projects (LRTs)

Introduce Züm Chinguacousy

Network modifications in the northeast, northwest, southwest

Extend hours of operation on select routes

2025 SERVICE PLAN

While 2024 focused on new higher order transit projects and growing service into new areas, the 2025 service plan re-focuses investment into frequency increases. Sufficient budget is also available to expand on-demand services beyond the proof of concept launched in 2023.

Frequency increases within the conventional network will bring more routes into alignment with the service utilization guidelines as well as significantly improve passenger comfort, reliability and grow ridership in situations of high demand. Frequency increases are also expected to disproportionately benefit off-peak service. The specific routes and time periods to see improvements will be determined in the annual service planning process.

Investments would also be made to increase mid-day frequencies on select Züm Routes. This would meet the revised level of service guidelines, which will establish better all-day service quality across the Züm network.

The on-demand service expansion will be contingent on the success of the trial program launched in 2023. The 2025 expansion is expected to increase the number of people with access to transit and replace fixed-route areas with low-demand on weekdays between 6am – 7pm. Potential on-demand expansion areas are shown in Figure 3.

2025 Highlights

Focus on frequency increases

Expand on-demand transit services

Improve Züm midday frequencies

2026 SERVICE PLAN

Service improvements in 2026 will introduce Züm Bramalea, adapt to new two-way all-day GO service and introduce a night network. In addition to these elements, investments will continue to be made to increase route frequencies. 2026 is the anticipated launch date for two-way all-day GO service on the Kitchener Line. This enhanced service is a major driver of the 2026 service plan. The changes are expected to boost ridership and improve regional and long-distance travel. To effectively take advantage of this increase in rapid transit and to provide sufficient capacity to handle ridership increases, frequency increases are planned for routes connecting into Brampton GO stations. The specific routes and time periods that will see frequency increases will be established in the annual planning process.

Züm Bramalea will also be launched in 2026 to take advantage of the enhanced GO service. It fulfills rapid transit service planned for the corridor in both the Transportation Master Plan and Official Plan. While further work is required to finalize the service design, the 2026 Service Plan assumes a service between Bramalea GO Station and Sandalwood Parkway along Bramalea Road.

A key service objective of the 2023-2027 Business Plan is to introduce a night network. 2026 will be the first year of service investment dedicated towards this goal. In 2026, night network services are added between 11PM-2AM, complementing existing services. The night network will operate on approximately eight fixed routes, supported by on-demand vehicles.

Frequency improvements to meet system utilization guidelines constitute the majority of the annual service plan investment. Route frequency improvements aim to efficiently improve service quality and provide more equitable service with better off-peak frequencies. The specific routes and time periods to be improved will be determined in the annual service planning process.

2026 Highlights

Introduce Züm Bramalea

Adapt to the new two-way all-day GO service

Introduce a night network

Invest in frequency improvements

2027 SERVICE PLAN

The 2027 annual service plan includes the largest increase in total service hours from 2023-2027 Business Plan. Investment will be directed towards route frequency increases to meet system utilization guidelines, extensions to route operating hours, finalization of the night network, a further expansion to on-demand service as well as the introduction of employer shuttles.

The full night network will be completed in 2027. This expands services from 2AM to 6AM, providing effective 24/7 transit coverage across the City of Brampton. The on-demand service expansion will also expand transit access during off-peak periods. On-demand service areas will be expanded during times when not all routes are in service and into those areas that are outside 400m from a transit stop. The aim of the expansion would be to provide consistent access to transit and efficiently serve low demand areas throughout the day.

Route frequency improvements that aim to enhance service quality and grow ridership are another major investment in the 2027 service plan. 2027 frequency investments are designed to bring all service (conventional and Züm) above the system utilization guidelines to within the range.

Employer Shuttles will be introduced that connect employees with large employers in harder-to-serve areas and at lower-demand time periods. The shuttles would operate similar to School Specials, with direct routing between the employer(s) and major residential areas and/or a transit terminal at a specific shift time and build off the existing employment extras that are already operating within some key corridors.

2027 Highlights

Route frequency increases

Expand night network to create 24/7 service coverage

Expand on-demand transit services

Introduce employer shuttles


ELECTRIC BUS CHARGE STA
CHARGE
STATION
BRAMPTON TRANSIT
2151
Canada
ELECTRI
BramptonTransit
POWERED BY ELECTRI
SIEMENS
Canada
BramptonTransit
2151
POWERED BY ELECTRICITY
sportworks

7 CONSTANTLY EVOLVING

To successfully meet growing demand, transit agencies must evolve their services and have the resources to support the expansion. Brampton Transit has successfully navigated the extraordinary growth in ridership by increasing its service and implementing technology to support day-to-day management of service delivery. As shown in Figures 4 and 5, compared to its peers, Brampton Transit has been able to meet the 160% growth in service without a significant increase in spending on administrative and management resources.

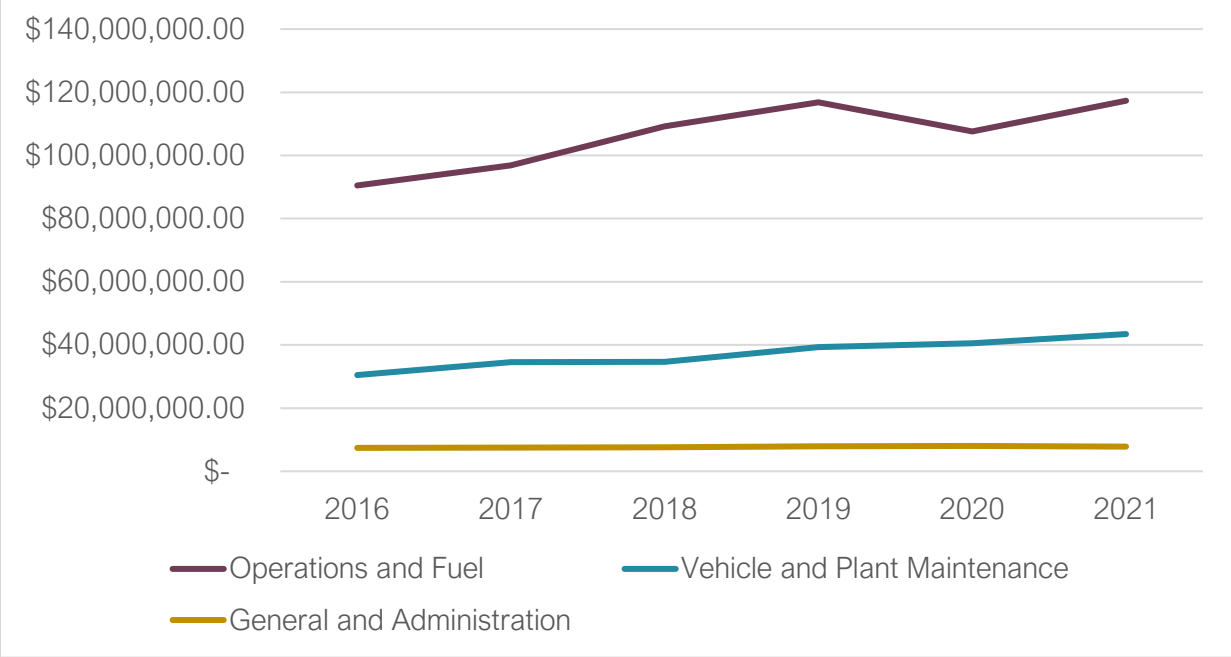


FIGURE 4 - BREAKDOWN OF BRAMPTON TRANSIT'S OPERATING EXPENSES (CUTA DATA)

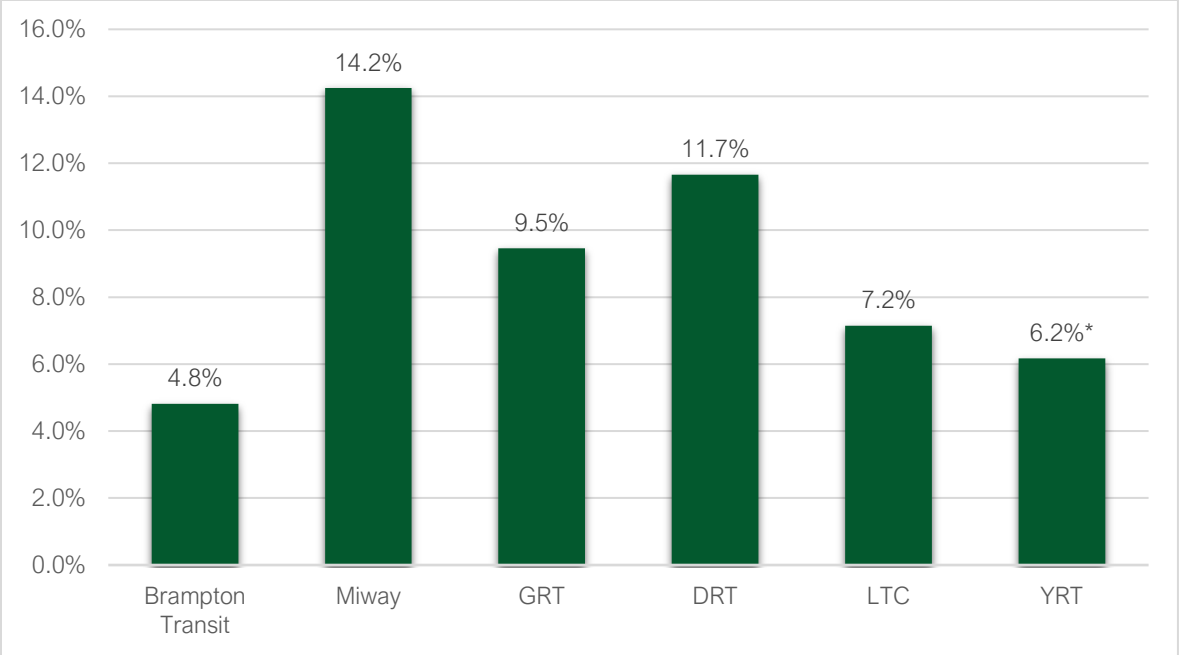


FIGURE 5 - PERCENTAGE OF TOTAL BUDGET SPENT ON GENERAL ADMINISTRATION EXPENSES[4]

* YRT % does not include general and administration expenses incurred through operation by its contractors.

Although it is not necessary to grow administrative staff on par with ridership, it is necessary to ensure sufficient roles and capacity are in place to effectively navigate and meet the needs of a significant increase in ridership and successfully transition the organization to provide service through zero emissions vehicles. Furthermore, with these changes, a growth in administrative staff can help maximize efficiencies and help Brampton Transit proactively plan services based on changing demographic and socio-economic needs. This will provide the unique opportunity for Brampton Transit to reflect on its growth, innovations and the changing needs of the organization and its customers. As Brampton Transit prepares to grow its services to meet the demand in the next five years and beyond, it is crucial to understand how it must evolve as an organization to successfully navigate the changing landscape of transit. The following sections highlight emerging skills and approaches that Brampton Transit may require to deal with opportunities and challenges associated with becoming a larger and more complex operation.

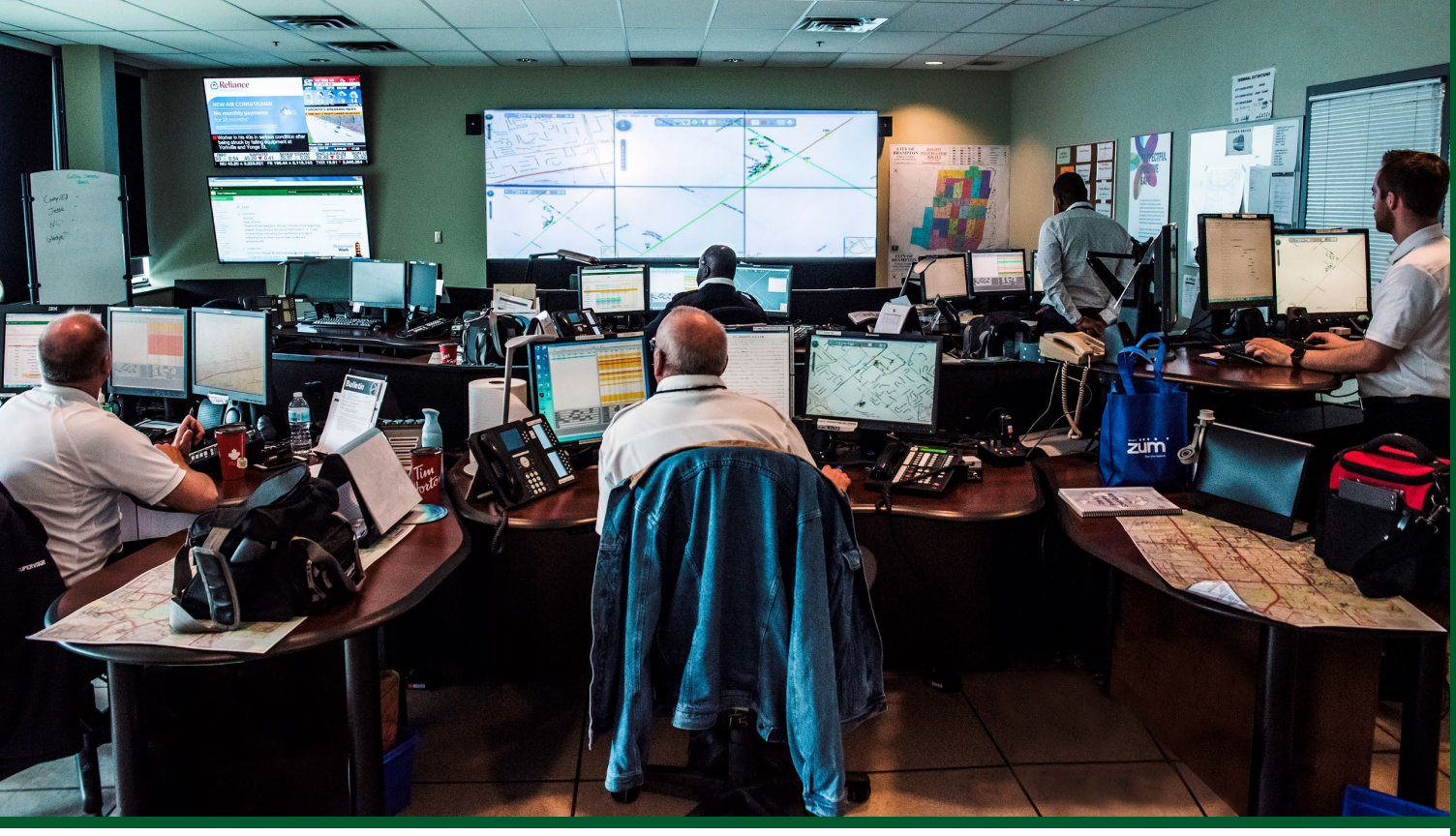
[4] Based on 2019 Canadian Urban Transit Association (CUTA) data

7.1 RESOURCES AND ORGANIZATIONAL READINESS

Employees are the backbone of any organization. As such, organizational readiness to succeed in meeting changing demands and growth is directly impacted by the readiness of staff to adapt to new way of delivering services. As Brampton Transit leads many of its peers into meeting its recovering ridership and advancing the electrification of its fleet, appropriate resources and collaborating strategies must be in place to address challenges and leverage opportunities.

Brampton Transit has experienced tremendous operational growth and demand, but internal capacity has not grown accordingly. This has resulted in staff taking on additional responsibilities to their regular day-to-day duties. Limited resource capacity can have long-standing effects on an organization from knowledge gaps to recruitment and absenteeism challenges to prolonging system improvements as well as organizational readiness to support electrification and cross departmental collaboration. These challenges have an organizational impact on Brampton Transit's ability to provide services meaningfully and efficiently. Addressing these challenges requires an organizational focus and commitment to provide staff with the resources, skills, and tools necessary to efficiently deliver services, continue to meet growth and prepare for electrification.

To proactively address the changing landscape of transit, it is recommended that Brampton Transit address resources and process gaps to achieve a state of readiness towards zero emissions and do its best to meet ridership demands. This will enable staff across Brampton Transit to be equipped with the resources, knowledge and skillset required to navigate and lead the changing landscape of transit.



7.2 TECHNOLOGY AND SYSTEMS

Brampton Transit has a full suite of technologies that support service development, delivery and maintenance. As the organization has grown, it has modernized its technologies to better support growth and other strategic directions. For example, the move towards fleet electrification to ensure transit is provided in a sustainable manner is supported by new technologies like charging infrastructure and state of charge monitoring tools. A new customer safety app and Customer Relationship Management (CRM) system reflect Brampton Transit's dedication to the customer experience. Additionally, on-demand transit, while starting out as a small trial program, could provide customers with new ways to connect to transit that will also require a certain amount of effort for user access control, hardware management, data management and support. Beyond the procurement of new systems, Brampton Transit has also identified the need to upgrade or replace existing core systems such as HASTUS scheduling application, CAD/AVL, and related technologies to continue to support its growing operations.

To successfully manage the maintenance and continual improvements of its various systems, it is critical that Brampton Transit expand the lifecycle planning approach for the full suite of existing and planned technologies. While Brampton Transit Business Systems staff hold deep knowledge on specific systems, a lifecycle planning approach for all technologies is an industry best practice that can help Brampton Transit fully leverage its technology. Good technology lifecycle planning ensures that technology is implemented effectively, meets business needs, and advances organizational and strategic goals.

As technology advances and Brampton Transit continues to grow rapidly it may be a challenge for the organization to ensure its technology planning and adoption is keeping pace appropriately. The large number, breadth and complexity of systems undergoing upgrades and/or replacement over the next few of years will have an impact on resource loading. For example, both the HASTUS and SmartBus projects will require significant System Administration involvement.

Additionally, as the fleet grows, there may be certain technologies and related processes that worked well for 400 buses but may not be as efficient for 600 buses. When combined with CAD/AVL and HASTUS replacements or upgrades, the vast increase in data available for Service Development and other departments to analyze may become challenging within the current business processes and tools. Therefore, there is a need to dedicate more resources to review business processes and document how this changing context is impacting business users and their needs. These two projects would benefit largely from having a dedicated Analyst/Data Scientist to explore the available data and business processes, as well as develop predictive models, KPIs, reports and dashboards.

7.3 INFORMATION AND DATA MANAGEMENT

Business data and analysis helps organizations understand current and past trends and informs future needs. Having a foundation of data to draw from can aid in finding new customers, increase customer retention, improve the customer experience, enhance marketing efforts, predict travel demand, prioritize investment, improve on-time performance, and streamline spending.

With a general business focus on data-based learning and decisioning over the past decade, advancements in machine learning and big data predictive analytics have had the impact of forcing the evolution of operational systems to generate and archive massive volumes of data for the purposes of future mining and analytics. The raw data from these systems is typically unstructured, and thereby not well suited to reporting or general consumption by traditional business units but may be rich in predictive insights under the right analytical environment. For this reason, industry practices are evolving to archive raw unstructured data from multiple systems in large repositories known as data lakes. Data scientists/analysts can then comb through the data using advanced analytical tools. As insights are gained and relevant data identified, the data can be structured into subject-matter-specific data marts, and/or further integrated into highly structured data warehouses to be made available to business intelligence reporting platforms.

Best practices call for the separation of reporting and operational databases to guard against over-taxing operational systems with repeated queries for reporting and analytical purposes. However, repositories and the cleansing management of data typically initiates discussions and decisions regarding the record keeping of various data, as well as it's verification. This results in the need for an overarching data governance strategy within an organization. The upcoming City of Brampton data governance initiative will better identify roles and responsibilities of those responsible for data cleansing and management within Brampton Transit, and may further inform the requirements for data lakes, marts, and warehouses, especially for new business technologies such as Zero Emissions Mobility.

It is critical, from the outset, to evaluate and determine what the organization wants from its data, and who should be responsible for data management. While some organizations establish data departments with representation in the C-suite (Chief Data Officer, etc.), cleansing typically falls to the end departments generating, interpreting and closest to the data. Brampton Transit's active participation in the upcoming data governance initiative should influence the project's governance recommendations.

7.4 MARKETING AND COMMUNICATIONS

As a result of the significant recovery and growth of its ridership base throughout the COVID-19 pandemic, Brampton Transit was not able to undertake significant customer research and experience surveys. Consequently, there is an emerging gap in understanding the new demographics, preferences and ridership patterns among new customers that would inform tailored marketing and communications efforts to these customers. Additionally, ridership patterns for existing or long-term customers may have changed over this timeframe as well, which would need to be determined.

While Brampton Transit has undertaken outreach to the city's largest employers and industries to encourage work trips, there may be an opportunity to further segment this customer group and engage with these businesses and their employees in more meaningful or effective ways. Brampton Transit has also undertaken significant efforts to improve the sustainability of its bus fleet and operations, which could be a key differentiator for Brampton Transit in attracting new riders and moving occasional riders from indifference to preference. Figure 6, below, shows the marketing and communications strategic framework developed for the 2023-2027 Business Plan.

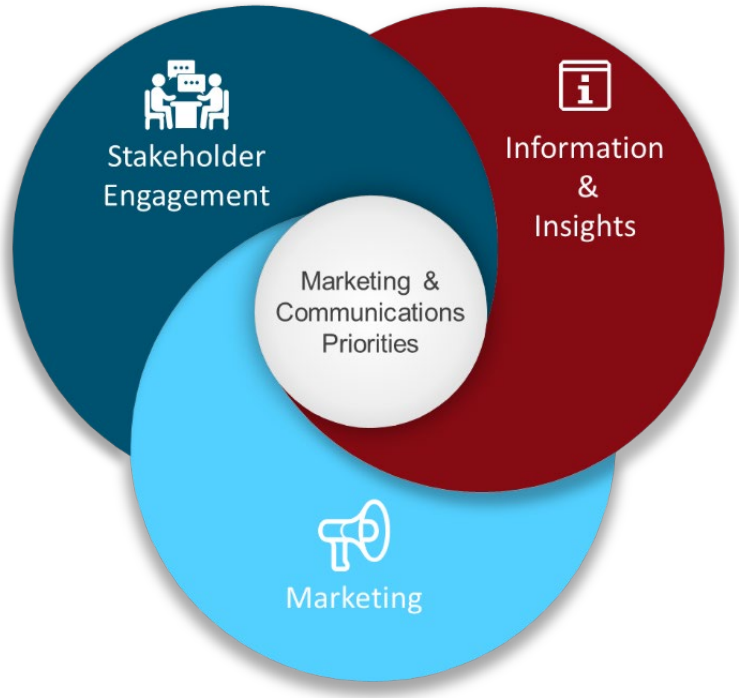


FIGURE 6 - MARKETING AND COMMUNICATIONS STRATEGIC FRAMEWORK

The framework was developed, focusing on three priority areas – Marketing, Information & Insights, and Stakeholder Engagement. Each of the three priority areas have associated "assessment domains" that provide addition focus to better structure recommendations. Table 4 shows the assessment domains as they relate to the three priority areas.

TABLE 4 - ASSESSMENT DOMAINS

Marketing	Information & Insights	Stakeholder Engagement
Multi-Channel Marketing	Marketing Analytics	Community Engagement
Brand Voice	Information Gathering	Business Engagement
Social Media	Service Information	Internal Engagement
	Mobile	

MARKETING

Marketing recommendations relate to the multi-channel marketing, brand voice, and social media for the purposes of growing the brand of Brampton Transit to be homogenous with reliability, safety, and comfort. Increased marketing efforts will allow efforts to ensure customer channels and touch points are available in multiple languages and formats enabling increased access to Brampton Transit and better dissemination of relevant news and updates that may affect day-to-day use and travel.

INFORMATION & INSIGHTS

Information & Insights recommendations relate to marketing analytics, information gathering, service information, and mobile. This series of recommendations are geared internally, to better increase the efficiency and quality of customer engagement and gathering of customer feedback to identify opportunities to improve the service.

STAKEHOLDER ENGAGEMENT

Stakeholder Engagement refers to all parties that rely on, use, or have an interest in Brampton Transit. As such, these recommendations relate to all internal, community, and business stakeholders. They focus on increasing access to engagement opportunities as well as gradually increasing the effectiveness of the activities themselves and exploring how the community could be better engaged.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8 ASSET MANAGEMENT

Brampton Transit maintains an extensive portfolio of assets to provide and maintain efficient transit services across the city. As per new Provincial regulations, Brampton Transit will be part of the City of Brampton's Asset Management Plan for non-core assets. Brampton Transit's assets include transit buses (including diesel, hybrid and electric vehicles), transit support vehicles, two operations facilities, several transit terminals, over three thousand bus stops and on-street assets, and several critical technologies. The following sections summarize the changes and enhancements to these assets over the next five years.

8.1 VEHICLES

Brampton Transit has a total fleet of 475 buses comprised of diesel, hybrid and electric vehicles. To date, Brampton Transit has made a significant investment to make one hundred percent (100%) of its buses accessible. All vehicles in service are low-floor models equipped with kneeling features, deployable ramps, audio and visual announcements and designated priority seating.

Table 5, below, illustrates the number of vehicles by vehicle type, highlighting their average age and assigned services.

TABLE 5 - REVENUE VEHICLE SUMMARY

Fleet Type	No. of Vehicles	Average Age	Service Assignment
Diesel 40'	334	10	Conventional Service
Hybrid 40'	43	11.5	Züm Service
Hybrid 60'	90	6.5	Züm Service
Battery Electric Bus	8	1	Conventional Service
Total	475		

Over the next five years, Brampton Transit is anticipating growth and replacement of their fleet. This includes an additional 125 vehicles for new and expanded services as well as 106 vehicles to replace vehicles at the end of their lifecycle. The following Table 6 outlines the annual growth and replacement vehicles by vehicle-type. Note that only conventional 40-foot vehicles are planned for replacement, and no additional hybrid 40-foot vehicles are planned for Züm services.

TABLE 6 - FIVE-YEAR VEHICLE GROWTH AND REPLACEMENT PLAN

Fleet Type	2023	2024	2025	2026	2027
Conventional 40ft (*Replacement*)	22 (*0*)	1 (*38*)	15 (*15*)	13 (*27*)	11 (*26*)
Züm Hybrid 40ft	0	0	0	0	0
Züm Hybrid 60ft[5]	8	16	3	10	7
Battery Electric Bus 40ft[6]	0	10	0	0	0
Fuel Cell Electric Bus 40ft	0	2	0	0	0
On-demand vehicles	0	0	5	2	0
Total Growth	**30**	**29**	**23**	**25**	**18**
Total Growth & Replacement	**30**	**67**	**38**	**52**	**44**

In addition to revenue vehicles, Brampton Transit has 20 transit support vehicles to support operations and facilities, seven trailers and three steel spreaders. The transit support vehicles largely include maintenance trucks and operations minivans. The useful life of these support vehicles ranges from 8-15 years and trailers range from 15-30 years. Although most of the existing support vehicles are aging, Brampton Transit has not been able to replace these vehicles due to supply chain challenges.

[5] Due to anticipated challenges with engine and parts availability, 60' hybrid buses may not be available and alternative vehicles will need to be purchased to serve the Züm lines.

[6] Brampton Transit is in the process of developing a ZEB Implementation Strategy & Rollout Plan. The Plan will determine how many battery-electric buses (BEB) will be purchased year-over-year. Once the plan is completed and there is additional infrastructure in place to support this transition, part or all of the 40' conventional growth vehicles will be allocated as BEB growth vehicles.

INNOVATIONS AND FUTURE GROWTH

Brampton Transit's first Battery Electric Buses (BEBs) went into service in May 2021. As part of Brampton Transit's zero-tailpipe emissions BEB Trial, eight buses went into operation serving Route 26 (Mount Pleasant Village) and Route 23 (Sandalwood). This zero-tailpipe emissions BEB trial is a first step into Brampton Transit's broader vision to transition to a zero-tailpipe emission fleet. Today, Brampton Transit operates eight BEBs and anticipates purchasing an additional ten for in-service 2024. Additionally, Brampton Transit plans to purchase and operate two Fuel Cell Electric Buses in the upcoming years to understand the impacts of this technology as part of the next five-year plan. In 2022, Brampton secured the largest municipal transit financing arrangement with Canada Infrastructure Bank (to date), that will be used to finance the higher cost of battery electric buses (up to $400M for up to 450 BEBs by the end of 2027).

To facilitate the anticipated future expansion of on-demand transit service following the current trial program, Brampton Transit will explore investing in a new fleet of vehicles dedicated to expand this service. The first five dedicated on-demand vehicles will come into service in 2025 with an additional two vehicles arriving in 2026.

In addition to new zero-tailpipe emissions vehicles and dedicated fleet for the on-demand transit service trial program, Brampton Transit continues to invest in additional conventional vehicles to support expanded transit services. Over the next five years, an additional 69 40-foot transit buses are planned to support expansion of conventional services and an additional 44 60-foot articulated transit buses are planned to support Züm service improvements and expanded Züm services along Chinguacousy Rd and Bramalea Rd. Brampton Transit is fully committed to fleet electrification and will continue to add electric buses through these additions as appropriate and feasible.

REFURBISHMENTS AND REPLACEMENTS

Brampton Transit's diesel and hybrid vehicles have an 18-year lifecycle and the battery-electric buses are expected to have a 15-year lifecycle. Given that the hybrid vehicles were recently refurbished (2021 and 2022) and the young age of the electric vehicles, Brampton Transit has planned to replace 106 40-foot diesel buses over the next five years.

Significant plans for refurbishment of the fleet are accounted for over the next five years. These refurbishments include major midlife overhauls, battery and articulated joint replacements, engine and transmission refurbishments, and several critical component refurbishments. Of these activities, major midlife overhauls, battery replacements and articulated joint replacements are undertaken at 12, 6 and 7 year intervals, respectively. Remaining maintenance activities are conducted at an "as required" basis. Over the next five years, Brampton Transit has planned for 167 major overhauls of its conventional and hybrid vehicles.

8.2 FACILITIES

Brampton Transit currently operates from two locations, the Clark Transit Facility located at 185 Clark Boulevard and the Sandalwood Transit Facility located at 130 Sandalwood Parkway West. The 2018-2022 Business Plan expected capacity issues at the current facilities in its five-year period. However, Brampton Transit deferred the expansion of its fleet when ridership fell due to the COVID-19 pandemic. As a direct result of the service expansion planned over the next five years, it is anticipated that capacity pressures at these two facilities will return and expansion plans will be necessary.

Brampton Transit has prepared for three significant improvements to their operational facilities, including the construction of a new third maintenance and storage facility. Details of the new third facility and planned improvements to existing facilities are summarized below:

- A new third transit facility is planned near the Highway 50 and Cadetta Road intersection in the northeast quadrant of Brampton to address projected fleet growth and electrification. Substantial completion for construction of phase one is currently anticipated by late 2026 and includes electrification and building capacity for approximately 250 buses. Phase Two of the facility will expand the capacity to a maximum of 440 buses. Subject to the City receiving the required funding this facility will be designed to support a fully electric bus fleet.
- Retrofitting the existing Sandalwood Facility (325 bus capacity) and Clark Facility (148 bus capacity) to support transition to a fully electric zero emission fleet will be required. Initial implementation planning is underway with CUTRIC as part of the ZEB Implementation Strategy & Rollout Plan, and capital applications for this work are envisioned to be submitted under the federal Zero Emission Transit Fund (ZETF). This will include the necessary electric vehicle charging equipment and allied infrastructure requirements.
- Additional renovations to Sandalwood Facility include significant safety and equipment improvements, supporting civil works to support upgrades, and improved staff wellness facilities.
- Planned upgrades to the Clark Facility include the expansion and renovation of operator lounge/dispatch areas, gasoline fueling system, maintenance washroom upgrades and an additional diesel fuel dispenser.

8.3 ON-STREET INFRASTRUCTURE

Brampton Transit maintains a variety of on-street infrastructure to support passengers waiting, boarding and alighting at over three thousand stops and several transit terminals. Additionally, Brampton Transit recently installed bicycle shelters at several locations throughout the city to improve active transportation connections to its services.

Over the next five-year plan, Brampton Transit hopes to achieve the following:

- Install an additional 125 shelters at bus stops throughout the city, ensuring that 90% of boardings happen at stops with a shelter;
- Invest over $4 million dollars in the addition, replacement or refurbishment of conventional and Züm shelters, subject to budget approvals; and
- Ensure that 90% of all transit stops have an accessible landing pad by 2027, with a target of 95% by 2032, through continued investment in the Pad Program.

Many stop locations throughout the Brampton Transit network include passenger information and other transit technology systems. Several of these systems are slated for replacement and refurbishment, including real-time departure information screens at select Züm stations, NextRide application and real-time departure displays at select transit terminals.

8.4 TECHNOLOGY

Transit technology systems play a vital role in Brampton Transit operations and their ability to communicate to the public. Brampton Transit has a full suite of technologies that supports service development, delivery and maintenance. As the organization has grown, it has modernized its technologies to better support growth and other strategic directions. Several of these recent innovations include:

- Investing in charging infrastructure, electric vehicle monitoring tools, and an integrated energy management system to support the transition to a zero-tailpipe emissions fleet; and
- Deploying a new customer safety app and Customer Relationship Management system.

As part of this five-year plan, several strategic investments are planned to upgrade and modernize operational and customer-facing technologies.

PLANNED TECHNOLOGY PROJECTS

Brampton Transit is actively working to acquire, replace or upgrade many core technology systems. These systems include:

- On-demand transit management platform: includes dynamic scheduling and routing technology, driver interface and a customer-facing app and booking portal;
- SmartBus Computer Aided Dispatch / Automatic Vehicle Location, or CAD/AVL System Replacement: includes operational systems to monitor operations in real-time both on-street and within transit operations facilities, operator communications systems and automatic passenger counting technology;
- SmartBus Passenger Information systems: includes on-street signage, Interactive Voice Response (IVR) and customer service call routing systems;
- Evaluation and strategy to replace existing aging fareboxes;
- Transit scheduling system (HASTUS) upgrade;
- Expansion of electric chargers to support growth in electric fleet; and
- Modernization of Business Intelligence applications to provide streamlined data to better inform reporting, planning and decision making.

ADDITIONAL TECHNOLOGIES

In addition to the planned technology projects, Brampton Transit has identified the following technologies being of strategic importance, either as enhancements or as replacements for existing technologies that are coming upon the end of their useful life within the next five years:

- Conventional transit scheduling system (HASTUS) enhancements required support advanced optimization analysis including zero-emissions fleet planning and scheduling;
- Fuel management system replacement;
- Implementation of a comprehensive transit-specific data warehouse to support reporting and business intelligence; and
- Creation of a data lake to store all raw data generated by various Brampton Transit systems.


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0429

9 FINANCIAL PLAN

The Financial Plan details the fare strategy, projected operating budget and capital plan for the 2023-2027 Business Plan. The revenues and costs presented in the Financial Plan detail the funding, resources and assets required to support Brampton Transit to meet its changing and growing demands while maintaining fiscal responsibility to the taxpayers of Brampton. The section also describes steps the organization should explore to meet its fare-free goal by 2040.

9.1 FARE STRATEGY

Brampton Transit's primary source of operating revenue stems from fares. In 2018, the Brampton 2040 Vision was endorsed by council. The Brampton 2040 Vision established free transit as a city goal to promote equity and to better establish transit as a preferred transportation option within the community.

Achieving free fares as outlined in the 2040 Vision will require the City of Brampton to find alternative funding sources that are equivalent to the portion of revenue generated by fares today. This revenue shortfall is significant and will require support from other levels of government and potentially new funding tools to compensate. As such, until a sustainable source of additional funding is identified, it is recommended that Brampton Transit continue with its current fare structure, wherein fares are adjusted to align with inflation. Ensuring that fare increases do not exceed inflation will help keep fares affordable to customers while maintaining a stable revenue source that will help fund transit expansion in the city. While this approach will sustain ridership growth, it will not help advance the organization toward the fare-free goal established by the city.

However, Brampton Transit and the City of Brampton can take the following measures to work towards promoting equity and to better establish transit as a preferred transportation option within the community:

- Expand the Peel Affordable Transit Program: Brampton Transit should advocate to increase the discount offered by the program or for it to provide free fares and/or expand the program eligibility. The City of Brampton could also help to initiate changes to the program by offering funding, if an appropriate funding source becomes available.

- Advocate for regional fare integration: Brampton Transit should continue to be a strong advocate for fare integration, particularly with the TTC, given current double fare barrier between the two systems and the large travel flows between Brampton and the City of Toronto.

- Explore alternative funding: Over the course of this Business Plan, Brampton should explore alternative funding sources and advocate to higher levels of government for increased operational funding. Alternative funding sources could include elements such as real estate development, land value capture road tolls/cordon charge, parking fees or partnerships/donations and may require support from the provincial government to implement.

- Improve youth discounts: Brampton Transit can continue to explore U-Pass (multi-transit agency post-secondary pass) for Sheridan College, in collaboration with Oakville Transit and Mississauga Transit.

Once external funding alternatives are implemented, Brampton Transit can begin to apply some of the fare structures that support the move towards the 2040 fare free vision. To understand what these fare structures may entail, a modelling exercise was conducted to assess the variations in three general areas of fare structure. These areas are inflation, new fare-free products and changes in concession fare ratios. Based on the assessment, the move towards a fare free strategy would likely involve the following first steps:

- Expand fare-free products:
    - Expand fare-free to 12 and under
    - Fare-free pilot on one route
    - Expand fare-free to 19 and under

- Improve youth discounts:
    - Reduce youth-to-adult fare ratio from 82% to 50%, which would reduce the current youth PRESTO single-trip fares.
    - Increase non-resident seniors-to-adult fare ratio from 52% to 55%, which would increase the current senior PRESTO single-trip fares.

9.2 REVENUE PROJECTIONS

The majority of operating revenue comes from fare revenue. In addition to fare revenue, other revenue (such as those from advertisements) and government contributions support Brampton Transit in meeting its operational expenses.

Provincial funding through gas tax revenue have historically contributed about 8% of operating expenses. Municipal contributions have been a key source of funding to support transit agencies as they cover the difference between operating expenses and revenue and provincial funding. Historically, municipal funding has supported about 40% of operating expenses. Table 7 summarizes the expected revenues and revenue to cost ratios for the 2023-2027 Business Plan timeline. These projections assume the Business-as-Usual fare structure where fares will be adjusted based on inflation.

TABLE 7 - PROJECTED REVENUE AND R/C RATIOS

	2023	2024	2025	2026	2027
Fare Revenue	$98,700,000	$108,300,000	$116,100,000	$124,100,000	$132,700,000
Revenue-Cost Ratio	49%	51%	50%	50%	49%

The transition to free fares from the current relatively high revenue to cost ratio of Brampton Transit will require new funding sources to support the forgone revenue as well as additional service increase costs. Without significant changes to council spending priorities, increased provincial/federal operating funds or new and substantial funding sources, the move to fare free transit will place an oversized burden on property taxes.

9.3 OPERATING COSTS

Operating costs are driven by various expenses that are necessary to operate and maintain Brampton Transit's fleet and facilities. These expenses include transportation operations[7], fuel and energy, vehicle maintenance[8], premises and plant maintenance and general and administration[9]. Projected operating costs for the 2023-2027 Business Plan are summarized in Table 8 below.

TABLE 8 - SUMMARY OF OPERATING COSTS*

Operating Costs	2023	2024	2025	2026	2027
Transportation Operations	127,000,000	$136,000,000	$148,000,000	$158,000,000	$169,000,000
Fuel and Energy	$25,000,000	$23,000,000	$25,000,000	$27,000,000	$29,000,000
Vehicle Maintenance	$37,000,000	$40,000,000	$43,000,000	$47,000,000	$51,000,000
Plant & Premises Maintenance	$6,000,000	$6,000,000	$7,000,000	$7,000,000	$7,000,000
General and Administration	$10,000,000	$11,000,000	$13,000,000	$14,000,000	$16,000,000
Total Operating Expenses	205,000,000	$216,000,000	$236,000,000	$253,000,000	$272,000,000

*Expense projections account for both service and inflationary increases

[7] Transportation operations expenses are informed by projected growth in number of operators and supervisors, staff salaries and inflationary increases in licences and automatic vehicle monitoring costs for new vehicle purchases.
[8] Various factors are evaluated to determine vehicle maintenance costs, including growth in staff and their salaries, vehicle repairs and cost of key parts.
[9] Includes a 10% annual increase in costs to support the recommended increase in general administration resources.

9.4 CAPITAL COSTS

Capital costs pertain to the growth, replacement and major refurbishment of fleet, upgrades and construction of new facilities and shelters, installation of new infrastructure for Brampton's Züm route expansions and implementation of new technologies. Over the course of the 2023-2027 Business Plan, Brampton Transit will make a number of these investments to meet growth as well as deliver service more efficiently and with better quality. Table 9 summarizes the key capital projects planned to be implemented over the next five years.

TABLE 9 - SUMMARY OF CAPITAL COSTS

Capital Costs	2023	2024	2025	2026	2027
Revenue fleet growth and replacement	$30,250,000	$111,240,000	$72,570,000	$76,340,000	$96,630,000
Revenue fleet refurbishment and maintenance	$16,310,000	$18,830,000	$7,850,000	$14,050,000	$16,630,000
Non-revenue fleet	$260,000	$610,000	$1,420,000	$100,000	$720,000
On-street infrastructure	$930,000	$840,000	$1,130,000	$1,030,000	$960,000
Facilities[10]	$210,000,000	-	$3,000,000	-	$60,000,000
Technology [11]	$150,000	$1,000,000	$5,250,000	$2,000,000	-
High order transit[12]	$16,190,000	$5,000,000	$22,060,000	$1,320,000	$23,380,000
Other capital projects[13]	$1,690,000	$1,750,000	$2,270,000	$2,400,000	$2,290,000
Total Budgeted	**$275,800,000**	**$139,300,000**	**$115,600,000**	**$97,300,000**	**$200,700,000**
Total capital projects awaiting funding[14]	-	$7,000,000	$6,000,000	$73,100,000	$2,210,700,000

[10] Includes costs for construction and electrification of third transit facility, improvements and electrification of existing facilities and terminals.
[11] Includes already planned projects (SmartBus systems, farebox replacement, HASTUS upgrades).
[12] Includes Züm line expansions, Queen street BRT projects.
[13] Includes minor capital projects and technology maintenance and support.
[14] Includes additional facility and terminal renovations, autonomous vehicle project, recommended technology projects (data warehouse/lake implementation, fuel management and videowall upgrades)

Some capital costs are currently funded and financed through the Investing in Canada Infrastructure Program (ICIP), Canada Infrastructure Bank Financing (CIB) and the Zero Emissions Transit Fund (ZETF). ICIP funding has already been committed to projects approved in past budget years, such as the Phase 1 base build of the third transit facility, growth and replacement buses, bus refurbishments, the Transit Hub and Smartbus technology projects. ICIP funding is also allocated to bus purchase and refurbishment projects in 2023 and 2024. CIB financing and ZETF funding will be utilized to invest in electric buses and chargers, as well as the electrification of the third facility and electrification retrofit of Transit's existing Sandalwood and Clark facilities. There is no further funding committed for additional capital projects (including the Hazel McCallion LRT extension, Queen Street BRT, among others) which will be required to achieve the City's long term transportation goals. However, Infrastructure Canada has recently announced the creation of a Permanent Public Transit Fund of $3 billion per year, nationally, beginning in 2026-2027. The availability of this fund should be able to partially support Brampton Transit with its capital projects that are currently unfunded. However, given this funding may not be available until 2026, projects between now and then may need to be deferred to 2026 or beyond unless other funding becomes available.


26 MOUNT PLEASANT
TO MAYFIELD ROAD
2152
ELECTRIC
2152
BramptonTransit
POWERED BY ELECTRICITY
ONTARIO
503 18L

10 IMPLEMENTATION

Brampton Transit will be undertaking multiple projects throughout 2023-2027 to enhance service provision, organizational capacity, customer service and experience, technology capabilities, and fleet management.

A significant project that Brampton Transit is working on is the electrification of their fleet. Significant funding has been acquired and will be used to invest in electric buses and chargers, as well as the electrification of the third facility and electrification retrofit of Transit's existing Sandalwood and Clark facilities. As a result, planning for additional electric infrastructure upgrades and battery electric bus fleet plan is already underway (with up to 450 BEBs secured by the end of 2027). Advancing to an electrified fleet takes time, and will gradually happen over the course of this plan.

The implementation roadmap on the following pages summarizes all other key projects and actions for Brampton Transit from 2023 to 2027.

2023

Service Plan

- Launch on-demand service
- Restore service to pre-pandemic levels
- Investigate network modifications in the Northwest, Northeast and Southwest

Technology

- Implement Customer Relationship Management (CRM) software
- On-demand software goes live
- Develop farebox strategy

Transit Electrification

- Complete the Electrification Rollout Strategy
- Complete Phase 1 of Battery Electric Trial

Marketing

- Review marketing opportunities to highlight employees and their impact on the community

Customer Experience and Service

- Develop CRM-related processes
- Make a passenger safety inventory
- Review social media channels and evaluate need for a second channel for service alerts

Management Plan

- Support Maintenance and Service Development for electrification
- Investigate operator absenteeism and impact on service delivery

2024

Finch West LRT

Service Plan

- Evaluate on-demand service
- Change service in response to new Finch West LRT
- Assess need for and if warranted, conduct headway management study
- Implement network modifications in the Northwest, Northeast and Southwest

Technology

- Implement new CAD/AVL and supporting systems implementation

Transit Electrification

- Begin Sandalwood Facility Electrification Retrofit Project
- Introduce 10 new BEBs into service as part of Phase 2 Trial

Marketing

- Enhance bi-annual customer survey
- Increase multi-language, multi-channel touchpoints

Customer Experience and Service

- Develop campaign to enhance safety awareness
- Develop campaign to increase social media awareness
- Conduct customer journey mapping and heatmap

FIGURE 7 - IMPLEMENTATION ROADMAP 2023-24

2025 — Hazel McCallion LRT

Service Plan

- Expand on-demand service
- Change service in response to new Hazel McCallion LRT
- Implement Züm Chinguacousy
- Assess need for and if warranted, conduct Transit Priority Study
- Implement network modifications in the Northwest, Northeast and Southwest

Transit Electrification

- Introduce additional BEBs into service

Marketing

- Create alternative engagement processes/tools

2026 — Enhanced GO Service

Service Plan

- Implement Züm Bramalea
- Increase frequencies in response to enhanced GO service on the Kitchener Line
- Night network implementation Phase 1
- Assess need for and if warranted, conduct pedestrian access study
- Implement network modifications in the Northwest, Northeast and Southwest

Transit Electrification

- Complete Phase 1 of Sandalwood Facility Electrification Retrofit Project
- Introduce additional BEBs into service

Customer Experience and Service

- Use Automatic Passengers Counters (APCs) for real-time crowding info

2027

Service Plan

- Night network implementation Phase 2
- Assess need for and if warranted, conduct additional optimization studies
- Expand on-demand service
- Implement network modifications in the Northwest, Northeast and Southwest

Transit Electrification

- New Third Transit Facility opens
- Introduce additional BEBs into service

FIGURE 8 - IMPLEMENTATION ROADMAP 2025-27


transit


CHARGE
STATION
NO BOARDING
HILE BUS IS CHARGING
ampton Transit
VERED BY ELECTRICITY
SIEMENS
Canada

APPENDIX A

BRAMPTON TRANSIT SERVICE GUIDELINES

SUBMITTED BY:
LEFT TURN RIGHT TURN LTD.

To the attention of:
Brampton Transit
April 21, 2023

Table of Contents

1 INTRODUCTION

Service Guidelines provide a quantitative tool to aid in the consistent and fair evaluation of both existing and proposed services. This document provides guidelines that aim to balance competing service strategies and priorities in the design of service.

Because markets, customer expectations, and Brampton Transit's resources change over time, service guidelines are evolutionary by nature. Brampton Transit must be responsive to these changes in order to retain current customers and achieve and sustain ridership growth. Balancing customer expectations and budget constraints is a difficult challenge. Existing services must be monitored and modified continually to match service levels to demand and respond to opportunities for new or improved services. The dynamic nature of new urban developments, changing travel markets in Brampton Transit's service area and changing community values requires constant review of new service strategies, service expansion, or service re-alignment options. Brampton Transit must be able to rationally evaluate service changes and adjust service within the constraints of budget and equipment availability, in order to provide the highest quality service in the most efficient manner possible, using established Service Guidelines as a guide.

These Service Guidelines should be reviewed and updated, as necessary, in conjunction with the 5-Year Service Plan cycle to ensure that the established criteria are still relevant to Brampton Transit's operating environment; customer needs and expectations; and reflect current transit industry trends.

This Service Guidelines document was updated in December 2022 as part of the 5-Year Business Plan (2023-2027). It is based on a review of current performance and future goals, service standards and guidelines from Brampton's peer systems, and directions and input provided by Brampton Transit staff. This document is intended to follow from the 2023-2027 Service Strategy and to work as a tool in the Strategies' implementation and monitoring.

1.1 FROM SERVICE STANDARDS TO SERVICE GUIDELINES

The previous Business Plan presented Service Standards for which Brampton Transit was responsible for achieving and maintaining. However, service standards in transit within the current societal context, not to mention the wake of the COVID-19 pandemic, misrepresents their purpose. It is recommended that Brampton Transit change the term "Service Standards" to "Service

Guidelines" to better reflect how they are typically applied in actual use – as a decision-making framework to inform where and how services are provided across the city. For the rest of the document, the term Service Guidelines will be used.

1.2 TRANSIT SERVICE AREA

This service guidelines document is applicable to services provided in the Transit Service Area. The Transit Service Area is defined by the urban growth boundary in the City of Brampton.

Cross-border services may be provided where warranted by demand, to service major trip generators or employment lands, or to connect to inter-regional services. These services should not duplicate services already provided by the adjacent municipality and must prove to have a high degree of cost recovery. Brampton Transit will work with adjacent transit service providers to create cross-border services bridging the municipalities together. The intent will be for integration, instead of duplication.

1.3 ROUTE CLASSIFICATIONS

Service guidelines are defined for the different route classifications that form the overall family of services provided by Brampton Transit. These include:

1. Züm BRT Routes;
2. Base Grid Routes;
3. Local Routes;
4. Conventional Express Routes;
5. Night Routes;
6. Community Bus Routes;
7. On-Demand Transit Services;
8. School Special Routes;
9. Contract Services; and
10. Employment Shuttle.

Table 1 summarizes all route classifications.

TABLE 1: ROUTE CLASSIFICATIONS

Route Classification	Definition	Criteria for Implementation	Alignment Notes
Züm BRT Routes	• Higher order transit routes • Designed to provide a frequent, high-quality service in designated corridors	• Identified as a Züm corridor in the Brampton Transportation Master Plan • May be considered "Priority Bus" in the context of the Metrolinx Frequent Rapid Transit Network	• Little or no deviation from corridors except to access multi-modal transit terminals

Route Classification	Definition	Criteria for Implementation	Alignment Notes
Base Grid Routes	• Provide basic minimum level of service and route coverage during most of the day	• Identified as Support Corridors in the Brampton Transportation Master Plan • Achieve minimum B/RVH as outlined in Section 2.6.	• Operates primarily in designated arterial corridors • Minimal or no deviation, except at major transfer locations • Generally perpendicular to and intersecting Züm BRT Routes
Local Routes	• Provide a feeder or neighbourhood circulation function supplementing and connecting to the Züm BRT Routes and Base Grid Route Network; major local activity centres or corridors; and transfer points	• New development or existing underserved area meeting criteria in Section 2.8.	• Operates on arterial roads as well as major and minor collectors • Operation on local roads should be limited and only considered to serve major passenger destinations where no other options exist, to meet service proximity objectives, or to accommodate operational needs such as a turn-around
Conventional Express Routes	• Conventional Express (Point) Routes carry significant numbers of passengers directly between two points • Conventional Express (Overlay) Routes duplicate a service within a specific corridor, making limited stops where significant ridership activity takes place at specific nodes	• Conventional Express (Point): Need identified for direct service between two major trip generators • Conventional Express (Overlay): Need for supplemented local service along specific corridor to increase capacity and enhance customer service, and/or as a precursor to future Züm Service	• Operate primarily on arterial roads, on major and minor collectors as required • Little or no deviation from main corridor
Night Routes	• Provide basic level of fixed-route service and coverage overnight • Complemented by on-demand services	• Routes should broadly cover the City of Brampton and be focused on the highest evening demand areas and late-night connection points • Routes should predominately take the form of a grid and be designed at a density to meet the system proximity guideline	• Operate in designated arterial corridors • Minimal or no deviation, except at major transfer locations
Community Bus Routes	• Fully accessible dynamic routing transit services typically designed for seniors and persons with disabilities who can use fully accessible conventional transit	• Need for service to/from higher density residences and community destinations of interest to the seniors market and persons with disabilities	• Custom designed to provide better access to facilities oriented to this market group, such as senior's apartments, medical facilities, community centres and shopping areas

Route Classification	Definition	Criteria for Implementation	Alignment Notes
On-Demand Service	• Provides flexible routing and scheduling within a defined service area based on customer requests for trips.	• Deployed in low demand periods and areas where Local Routes do not meet minimum productivity guidelines. Can also be used as a new mobility option in areas serviced by low frequency fixed routes to attract new customers.	• Flexible route design connecting passengers in a designated service area to a transit terminal or Züm station.
School Specials	• Fixed routes serving specific secondary schools which are otherwise not served by any existing route. There are two types of school specials: Local School Specials and Overlay School Specials.	• Local School Specials are provided when a secondary school is located more than 800 meters from the existing transit network • Overlay school specials are provided when a large movement of students would create significant overload conditions on existing fixed route service or • Catchment area for school cannot be serviced by an existing Local or Base Grid Route within the limits of the route directness criteria	• Fixed-route design • As direct as possible, with deviations into residential areas or major terminals as warranted by demand, to provide for coverage to catchment area, or to facilitate convenient connections
Employment Shuttle	• Routes operated to meet point-based employment demand (high volumes at a specific time and place) in areas that are difficult to serve by conventional service	• Should only be implemented if other route classes cannot efficiently serve the employment locations • Where the guidelines cannot be met, the service can also be considered through cost-sharing agreements with employers. • Contractual arrangements should have provisions to account for increasing ridership from other sources. (Additional employer-partners or general ridership).	• Fixed-route design • Direct routing between employer/s and major transfer point and/or residential area deemed significant to the employer/s • Alternative routing or flexible routing considerations may be applied in the event of a cost-sharing agreement
Contract Services	• Routes or route branches/extensions operated on behalf of a specific employer, institution, or adjacent municipality	• Operation of these services requires 100% cost recovery including all direct operating expenses and toll charges etc. • May be considered where regular service not warranted by demand and/or would duplicate other services.	• Varies depending on the destination served and type of service desired by the employer, institution, or municipality

1.3.1 Züm BRT Routes

Züm BRT Routes are higher order transit routes designed to provide a frequent, high-quality service in designated corridors with little or no deviation from these corridors except to access multi-modal transit terminals. Züm BRT Routes are operated using distinct and specially branded vehicles with intelligent technology systems, upgraded station stops and shelters, and transit priority measures such as queue jump lanes and transit signal priority. They are generally implemented proactively in intensification corridors where transit ridership growth is paramount. Züm routes may also be considered “Priority Bus” in the context of the Metrolinx Frequent Rapid Transit Network Plan

Designated Züm BRT corridors currently in operation or planned for launch within the scope of the Five-Year Business Plan (2023-2027) include:

- Queen Street (2010);
- Main Street / Hurontario Street (2011);
- Steeles Avenue (2012);
- Bovaird Drive (2014);
- Steeles West (2015);
- Queen West (2016);
- Airport Road (2018);
- Chinguacousy Road (planned 2024);
- Bramalea Road (planned 2026).

Additional Züm BRT corridors have also been identified in the City's Official Plan and Transportation Master Plan (TMP). These other corridors are not anticipated to be implemented within the scope of the Five-Year Business Plan (2023-2027).

1.3.2 Base Grid Routes

Base Grid Routes provide a basic minimum level of service and route coverage during most of the day. They are designed to fulfill the Transit Support Corridor roles as set out in the City's TMP. Base Grid Routes operate in designated arterial corridors with minimal or no deviation, except at major transfer locations such as multi-modal terminals, GO Stations, and major shopping malls and centres to provide connections, as required. They typically operate along the major travel corridors, both perpendicular to and intersecting the Züm BRT Routes.

Base Grid Routes also operate in combination with Züm BRT Routes, providing local service coverage between Züm BRT stations. In addition, most Base Grid Routes are identified in the AcceleRide (Züm) Strategy Implementation Plan as BRT Support Corridors. As such, Base Grid Routes are generally given more flexibility and time to reach their performance targets in light of the important role these routes have in feeding the Züm BRT network. Base Grid Routes currently operate along the following support corridors:

- Chinguacousy Road;
- McLaughlin Road;
- Main Street/Hurontario Street;
- Kennedy Road;
- Dixie Road;
- Bramalea Road;
- Torbram Road;
- Airport Road;
- The Gore Road;
- Steeles Avenue;
- Queen Street;
- Williams Parkway;
- Bovaird Drive; and
- Sandalwood Parkway.

Further corridors will be considered during this business plan subject to network design and system utilization metrics. Support Corridors currently serviced or partially serviced by local service routes

that may be upgraded to Base grid service within the scope of the Five-Year Business Plan (2023-2027) include:

- Mayfield Road
- Mississauga Road
- Castlemore Road;
- Countryside Drive;
- James Potter Road;
- Wanless Drive.

1.3.3 Local Routes

Local Routes form the balance of the fixed route network. They are designed to provide a feeder or neighbourhood circulation function supplementing and connecting to the Züm BRT Routes and Base Grid Route Network, major local activity centres or corridors, and transfer points where additional connections between routes can be made. Local routes should operate primarily on arterial roads and major and minor collectors. Operation on local roads should be limited and only considered to serve major passenger destinations where no other options exist, to meet service proximity objectives, or to accommodate operational needs such as a turn-around.

Local Routes are typically measured against a lower performance guideline than the Base Grid Routes, and generally provide lower levels of service and more limited operating periods, depending on demand and performance.

1.3.4 Conventional Express Routes

Conventional Express Routes serve high demand destinations with direct non-stop or limited stop service. While providing similar levels of direct express services as Züm BRT Routes, Conventional Express Routes do not receive the same minimum service frequencies and span of service, high quality technologies and branding as Züm BRT Routes, and are subject to the application of the Service Utilization Guidelines. Conventional Express Routes are often implemented as a result of high transit demands and/or as precursors to Züm BRT Routes. As described below, there are two types of service design that are used when establishing an Express Route, depending on their operating characteristic and the main function they fulfil:

1. Overlay Conventional Express Routes duplicate a service within a specific corridor, making limited stops where significant ridership activity takes place at specific nodes, and are used to increase capacity and enhance customer service. These are primarily implemented on the Base Grid Route Network, or as a precursor to Züm BRT Routes on designated/ planned Züm BRT corridors. Stop spacing along Overlay Conventional Express Routes should be designed to ensure that 75 percent of the passengers within the corridor can take advantage of the express service, and that the express service can be scheduled to save at least 15 percent of the regular route travel time, with a minimum time savings of 5 minutes.

2. **Point Conventional Express Routes** carry significant numbers of passengers directly between two distinct points, such as between terminals and major employment areas or educational institutions, and do not depend on a significant local service area for their passengers.

1.3.5 Night Routes

Night Routes are fixed routes that are planned to operate overnight between 11:00PM and 6:00AM seven days a week. Other routes will operate between these hours, however, if the route is not planned to operate the full overnight, it is not considered a Night Route. Night Routes are intended to provide a basic level of service across Brampton overnight. These routes may be complemented by on-demand service to provide broader coverage. The night network will follow key corridors to provide strategic connectivity across the city, while on-demand services would provide coverage in lower demand areas with connections into the fixed route network.

1.3.6 Community Bus Routes

Community Bus Routes are fully accessible transit services typically designed for seniors and persons with mobility challenges who can use fully accessible conventional transit. Rather than follow conventional routing patterns, they are custom designed to provide better access to facilities oriented to this market group, such as senior's apartments, medical facilities, community centres and shopping areas.

1.3.7 On-Demand Services

On-Demand Services provide flexible routing and scheduling within a defined service area based on customer requests for trips. These typically operate in shared-ride mode between a transit terminal or Züm station and a pick-up/drop-off location according to customer needs. To access the service, the customer must call or use their mobile phone to request a trip in advance of the trip pick-up time. The service is typically deployed for specific low-demand markets or in low demand periods and areas where Local Routes do not meet minimum productivity guidelines. The service can also be deployed to provide an alternative service option for passengers near low frequency fixed route services (as a tactic to attract new ridership).

1.3.8 School Special Routes

The criteria for introducing a School Special Route depends largely on whether or not the student catchment area for the relevant school is, or can easily be, serviced by an existing Local Route or Base Grid Route within the route structure guidelines and limits of the route directness guidelines for those respective service types. A School Special may be considered in cases where:

- The secondary school is located greater than 800 meters from the existing transit network; and/or
- A large movement of students would create significant overload conditions on existing scheduled fixed route service; and/or
- The catchment area for relevant school cannot be serviced by an existing Local or Base Grid Route within the limits of the route directness criteria for the respective services type.

Where the introduction of a School Special would duplicate existing services or shift current passengers from existing regular service routes without a corresponding increase in ridership, they are not recommended.

Where the operation of a School Special is warranted, the route structure should be designed to be direct as possible, with deviations into residential areas or major terminals as warranted by demand or to provide for route coverage to the school's catchment area, or to facilitate convenient connections for customers. School Special routes should be of a fixed-route design, to accommodate customer information needs.

1.3.9 Employment Shuttles

Employment Shuttles are specifically designed to meet employment related travel for an employer or employers that create a high-volume of demand at a specific time and place. The employer/s will often be in areas that are not conducive to conventional transit service and usually at lower demand time periods. This service class should only be implemented if existing route classes cannot efficiently serve the identified employment locations.

Where Employment Shuttle guidelines cannot be met, the service can also be considered through cost-sharing agreements with employers. This could include:

- Ridership guarantees (through pass purchases)
- Revenue support

Contractual arrangements should have provisions to account for increasing ridership from other sources. (Additional employer-partners or general ridership).

1.3.10 Contract Services

Contract services are routes or route branches/extensions operated on behalf of a specific employer, institution or adjacent municipality that may not be otherwise warranted or are a specific

service design. Operation of these services requires 100% cost recovery including all operating expenses such as highway tolls, permit fees, etc.

2 SERVICE GUIDELINES

2.1 SYSTEM PROXIMITY

The proximity guideline is meant to address the accessibility of transit by targeting a maximum walking distance that a customer will have to travel to reach a transit stop. Brampton Transit will attempt to operate routes throughout the Established Service Area, where economically and operationally feasible, so that this guideline is met.

An important distinction with this service guideline is the measure of 'proximity' to population and employment instead of focus on 'geographic coverage'. Proximity considers the density of an area that is serviced by transit as part of the walking distance calculation where geographic coverage addresses only the physical area within walking distance of transit service. A proximity guideline provides a more accurate measure of the ability of residents, students, and employees to access transit services. It will also lead to more effective decisions being made on where to focus transit services and intensification strategies to meet minimum service proximity targets.

With the introduction of on-demand service, service coverage and system proximity will improve and enable Brampton Transit to meet its goals and provide a more equitable service.

TABLE 2: SERVICE PROXIMITY GUIDELINES FOR MAXIMUM WALKING DISTANCE FOR RESIDENTS AND EMPLOYEES

Route Classification	Service Proximity Guideline
All Routes	90% of population/employees within 400m
Züm BRT / Base Grid Routes Only	90% of population/employees within 800m

This guideline relates to the goal identified in the Brampton Official Plan which states that "the City shall endeavour to provide a local transit stop within easy walking distance (300 to 400 metres) of all urban land uses." It should be acknowledged that the OP target is an aspirational goal for the long-term, and the system proximity objectives identified above are more achievable, short-term targets. Reaching the goal of the Official Plan will require further development of on-demand service, pedestrian network enhancements and a slower build out of new growth lands as areas under development often constrain the ability to implement transit service, which work towards realizing the goal identified in the Official Plan.

Adherence to the above guidelines requires consideration of land use, transportation, and transit decisions. Brampton Transit has a role to play in developing policy and processes in all three planning areas. This includes effective communication with the Planning & Development Department to ensure transit-supportive land use and transportation planning and in transit service planning to provide to sufficient coverage.

Developing Brampton-specific transit supportive guidelines as a subsequent study would effectively improve coordination with the Planning & Development Department. These guidelines could be used to help guide City policy and development approval processes.

Brampton Transit staff are a commenting agency in the development approval process for secondary plans, plans of subdivision, and site plans, including highlighting where proposed development contravene transit-supportive policy such as that related to walk distance, and land uses along higher-order corridors. A stronger role for transit within the approval process could also be an effective means of achieving the above guidelines.

2.2 ROUTE DIRECTNESS

Route Directness is a measure of how much a route deviates from the most direct road path between the start and end points of a route. The measure indicates a desire to limit additional travel time and distance resulting from route deviations and indirect or circuitous route design. Table 3 shows that it is measured as the ratio of the length of the proposed route (with deviation) to the length of the route along the most direct road path:

TABLE 3: ROUTE DIRECTNESS MEASUREMENT EXAMPLE

	Length of Proposed Route with Deviation / *Length of Route Corridor without Deviation*	=	***Route Directness Factor***
e.g.,	*5,500 m* / *5,000 m*	=	*1.1*

2.2.1 ZÜM BRT ROUTES

Züm BRT Routes are designed to operate on major arterial roads, and should not deviate from these arterials, except when necessary to access major transit terminals. A route directness factor of 1.0 should be strictly applied.

2.2.2 Base Grid Routes

Deviations on Base Grid Routes should be avoided, with the route directness measure within a range of 1.0 to 1.1. Minor deviations are permitted to service a major terminal or trip generator; connect to another route for the purposes of accommodating a major transfer movement; provide necessary coverage to achieve proximity guideline and/or match travel demands. Base Grid routes should ideally be anchored at a terminal or major activity centre, with one-way loops permitted at the extremities of the routes to allow for turn-around. The maximum travel time around a one-way loop at the extremity of a Base Grid Route should not exceed 5 minutes.

2.2.3 Local Routes

The configuration of Local Routes should be designed to provide as direct a service as possible between two points or communities, with deviations to serve local areas and major destinations as warranted by demand or to achieve proximity guidelines. The route directness measure for Local Routes should be used as a guideline, with a target range of 1.1 to 1.3. One-way loops are permitted at the extremities of the routes to allow for turn-around, to service a major terminal or trip generator, connect to another route for the purposes of accommodating a major transfer movement, provide necessary coverage to achieve proximity guideline and/or match travel demands. As a guideline, Local Routes should be designed such that the maximum travel time around a one-way loop at the extremity should not exceed 10 minutes.

2.2.4 Conventional Express Routes

The route directness measure for Overlay Conventional Express Routes should be equal to or less than that of the underlying Base Grid Route. Within the express or limited stop portion of the route, the route directness measure should be 1.0.

The route directness measure for Point Conventional Express Routes should be 1.0, in areas where the route is running express and outside of any distinct location that the route is servicing (i.e., major employment area). A more indirect routing may be required for coverage purposes in distinct locations and should involve only a few stops.

2.2.5 Night Routes

Night Routes will run the route patterns as existing routes, predominantly Base Grid Routes. As such, route directness should mirror that of the Base Grid Routes.

2.2.6 Community Bus Routes

For Community Bus Routes, service proximity is generally the primary consideration, and the routes are typically somewhat circuitous in order to directly serve higher density residences and community destinations of interest to the seniors market and persons with disabilities. Where a Community Bus route is intended to be a general-purpose route for low demand areas, a more direct alignment (similar to a Local Route) should be considered. No specific route directness guideline for Community Bus Routes is recommended but it is suggested that the total time in the bus for a person making a return trip should not exceed 60 minutes, with 30 minutes preferred.

2.2.7 On-Demand Transit Services

Route directness will vary according to whether an on-demand service is a flex route or trip pooling in orientation. The number and location of trip requests will also impact route directness. In planning for and monitoring on-demand service, the average and maximum passenger travel times should be evaluated against those of other service options.

2.2.8 School Special Routes

School Special Routes are expected to be more circuitous in order to provide service to area residences, terminals, and schools. While the route directness value should always be minimized, no specific route directness guideline for School Special Routes is recommended.

2.2.9 Contract Services

These routes are designed in partnership with a specific institution or adjacent municipality. No design guideline applies.

2.2.10 Employment Shuttle Routes

Route directness for employment shuttles will vary according to the residential locations of employees and the number of employers being served on a specific shuttle. Both direct terminal to employer routing and circuitous routing that serves multiple residential hubs and employers may be considered. No design guideline applies.

2.3 SERVICE LEVELS

Service levels define the frequency of service and the span of service for each route classification.

The span of service for each service type will determine the availability, flexibility and convenience of the service for transit customers. Minimum span of service targets are applicable to the Züm BRT, base grid and local routes.

Different frequency targets are identified for different service offerings and during different periods. This communicates to the customer the minimum level of service they can expect when riding Brampton Transit.

As a general guideline, clock-face headways should be implemented for any route operating with a scheduled headway greater than 10 minutes. Clock-face headways are an important marketing tool that allows schedule times to repeat each hour, making it easy for the customer to remember the bus schedule, and can also aid in improving connections. They are applied as a guideline only since the required frequency cannot always be achieved without incurring unwarranted additional operating cost.

2.3.1 Züm BRT Routes

Typically, higher service levels are provided on the Züm BRT Routes to provide an increased service quality on these corridors. The minimum service frequency for Züm BRT routes is 20 minutes. Outside of the minimum span of service where ridership demand does not warrant at least a 20-minute service frequency, Brampton Transit should operate a Base Grid Route rather than a Züm BRT Route in the corridor. Table 4 shows Züm BRT Route minimum service levels by operating period.

Table 4: Züm BRT Route Minimum Service Levels

Operating Period	Minimum Service Frequency	Minimum Span of Service
Weekday Peak	15	6:00 am to 9:00 am / 3:00 pm to 6:00 pm
Weekday Base	15	9:00 am to 3:00 pm
Weekday Evening	20	6:00 pm to 9:00 pm
Saturdays	20	7:00 am to 9:00 pm
Sunday / Holidays	20	8:00 am to 6:00 pm

2.3.2 Base Grid Routes

Base Grid Routes are intended to provide a basic minimum level of service. Higher service frequencies are encouraged on Base Grid Routes to support the Züm BRT network and provide an increased service quality along the main arterial corridors. The following table shows Base Grid Route minimum service levels by operating period.

TABLE 5: BASE GRID ROUTES MINIMUM SERVICE LEVELS

Operating Period	Minimum Service Frequency	Minimum Span of Service
Weekday Peak	15	6:00 am to 9:00 am / 3:00 pm to 6:00 pm
Weekday Base	30	9:00 am to 3:00 pm
Weekday Evening	30	6:00 pm to 11:00 pm
Saturdays	30	6:00 am to 11:00 pm
Sunday / Holidays	30	8:00 am to 10:00 pm

Where ridership performance targets are not met on Base Grid Routes that also operate in support of Züm BRT corridors; the minimum frequency targets for service along the corridor can be met by calculating the combined frequency of Züm BRT Routes and Base Grid Routes that provide service on the same corridor.

Minimum service frequencies for branches of Base Grid Routes follow Local Route level of service criteria as outlined below.

2.3.3 LOCAL ROUTES

The actual service levels and hours of operation for Local Routes are subject to demand and meeting the minimum utilization targets, based on boardings per revenue vehicle-hour Section (2.6.2.3). When the operation of local service is warranted by demand, the minimum service levels should apply. Table 6 shows Local Route minimum service levels by operating period.

TABLE 6: LOCAL ROUTE MINIMUM SERVICE LEVELS

Operating Period	Minimum Service Frequency	Minimum Span of Service
Weekday Peak	30	6:00 am to 9:00 am / 3:00 pm to 6:00 pm
Weekday Base	60	9:00 am to 3:00 pm or based on demand
Weekday Evening		6:00 pm to 9:00 pm or based on demand
Saturdays		6:00 am to 6:00 pm or based on demand
Sunday / Holidays		8:00 am to 6:00 pm or based on demand

Local Route level of service criteria still apply to the minimum service frequencies for branches of Local Routes.

2.3.4 CONVENTIONAL EXPRESS ROUTES

For both Overlay and Point Express services, minimum service frequencies and span of service criteria do not apply. Passenger loading, ridership demand and performance guidelines determine the service level. These services are typically only operated during the weekday peak periods.

2.3.5 Night Routes

The Night Route service span is categorized to fall outside of the current service spans minimums for the Base Grid Routes. Routes are planned to provide a minimum level service and as such do not have a minimum service level. Frequencies will be dictated by the round-trip time of a single vehicle on a route.

Table 7 Night Routes Minimum Service Levels

Operating Period	Minimum Service Frequency	Minimum Span of Service
Overnight	None	11:00 pm to 6:00 am

2.3.6 Community Bus Routes

Minimum service frequencies and spans of service do not apply. Service frequency is determined by customer demand and the nature of the service provided.

2.3.7 On-Demand Service

Minimum service frequencies and spans of service do not apply. Service frequency is determined by customer demand and the nature of the service provided.

2.3.8 School Special Routes

Minimum service frequencies and spans of service do not apply. Service levels are determined by school bell times, passenger demand, and are measured against the appropriate minimum performance levels as outlined in Section 2.6.2.8.

2.3.9 Decision Process for Modifying Service Levels

The following process will guide actions taken by Brampton Transit to ensure compliance to the above guidelines.

- Modifications to service levels can be proactive (e.g., based on anticipated ridership growth due to a new development); or based on the overall performance of a route.
- An increase in service frequency should be considered on a route in three instances:
    1. When the passenger comfort thresholds identified in Section 2.5 are exceeded on 50% of more trips at a full load point on a given trip over 3 months.
    2. Additional round trip time is needed on a given route and time period and providing it also enables a frequency increase which is justified by a B/RVH performance that exceeds the class average.
    3. The system utilization review trigger as identified in Section 2.6.2.9. has been reached

- Potential reductions in service frequency span of service, and/or route modifications should be considered when the targets by operating period identified in Section 2.6.2.9 are consistently not achieved over a 6-to-12-month period.

- If any Züm BRT, Base Grid, or Local (only in the weekday peak) routes fall below the minimum ridership threshold, modifications to the route should be made to improve overall ridership productivity while meeting the minimum service hours and frequency identified in this guideline. These measures can include the following:
    - Reduction in the service hours;
    - Reduction in frequency;
    - Adjustments to routing (i.e., improve directness);
    - Operational adjustments (i.e., interlining); and
    - Re-designation of the route (i.e., from Base Grid to Local Route).

2.4 STOP AND SHELTER LOCATIONS

Bus stops represent customers' first physical interaction with a transit service and should therefore create a positive first impression. Brampton Transit maintains a separate bus stop standards & technical guidelines document that outlines in detail requirements, guidelines, and operating procedures for bus stops and shelters.

Bus stops must be designed for barrier-free access and sited with safety and security considerations in mind. An accessible bus stop is defined as providing a barrier free connection between the bus and surrounding pedestrian network (including a flat, level, hard surface landing area and necessary connectors), and providing passenger amenities which are user-friendly to persons with mobility challenges. As many bus stops as possible should be made barrier free, accounting for natural barriers (such as geometrics or gradient) and unique challenges (such as excessive cost to meet accessibility criteria due to physical characteristics). Further direction on this is provided in the Accessibility Working Paper.

Bus stops must be located to avoid interference with emergency services station, fire routes, school crossings, pedestrian crossovers, and regulatory signage. They must be located an adequate distance away from any pedestrian crossing/network and railway grade crossings.

Shelters are installed based on a priority list. The need for a shelter is evaluated based on four criteria: Passenger usage, passenger wait time, physical applications (exposure to weather, sight line hazard, lighting, street crossing hazard), and the type of area being serviced. Each criterion is evaluated on a specific point-scale. Larger shelters may be warranted at special locations (such as

institutions, major trip generators, or terminals), high-use stops (greater than 125 total boardings), or major transfer points. This shelter warrant evaluation should be conducted proactively to highlight the stops that would score higher and therefore be of greater priority.

To maximize the customer experience most efficiently, shelters should be located at stops that represent 90% of boardings within the City of Brampton.

2.5 PASSENGER COMFORT AND DELAY

Passenger Comfort and Delay sets a guideline of comfort for passengers while on board transit vehicles. It also monitors the number of passengers that are unable to board buses at a stop due to overcrowding. If it is observed that acceptable passenger comfort and delay guidelines are exceeded, corrective actions can include adding trips to the schedule in the form of a frequency improvement or trippers; the introduction of an Overlay Express Route; and/or restructuring the service to distribute demand among several routes. When many routes report high demand, priority for corrective action will be based on the degree of demand in excess of seated capacity and the overall average ridership of the route.

For peak period services, a threshold of 150 percent of seated capacity is the typical passenger comfort and delay guideline for many systems. Establishing and adhering to a fixed loading may be somewhat problematic given the range of vehicles currently operated. Similar sized buses in the fleet have similar overall capacities but differ in their seating capacities depending on configuration. As the objective of this guideline is to limit standees to a reasonable level in order to maintain a comfortable level of service quality, the 150 percent threshold remains appropriate for Base Grid Routes and Local Routes during the busiest operating periods (weekday peak). Consideration should be given to matching the seated capacity of the vehicles to the ridership levels on the route, to avoid unnecessary increases in service levels. Express and School Special routes generally operate during the peak period and are subject to the same thresholds as the Base Grid Routes and Local Routes.

For off-peak periods, it is appropriate to strive to provide a seat for all customers in consideration of generally less frequent service. A threshold of 100 percent of seated capacity is appropriate on all services during weekday off peak and weekends.

Routes crossing a municipal boundary, such as those routes currently operating into Mississauga, York Region or Toronto, are subject to the regulations of the Public Vehicle Act, which prescribes a limit of one standee per three seats (133 percent).

Züm BRT routes need to maintain their brand and provide high service quality and comfort. As such, a threshold of 133 percent of seated capacity is appropriate.

Community Bus Routes typically cater to clientele who are often restricted in their mobility. Therefore, it is appropriate to set a threshold of 100 percent of seated capacity.

Similarly, On-Demand Transit services are typically operated using smaller vehicles that do not accommodate standees. Therefore, it is appropriate to set a threshold of 100 percent of seated capacity. Table 8 summarizes the number of passengers that correspond to the capacity thresholds mentioned above for each type of bus in the Brampton Transit fleet.

TABLE 8: PASSENGER LOAD ACCORDING TO SEATED CAPACITY GUIDELINES

Bus Type	Percent of Seated Capacity		
	100%	133%	150%
60 ft	56	74	84
40 ft	39	52	58
30 ft	27	35	40

Table 9 below outlines the passenger comfort thresholds for each service type by operating period.

TABLE 9: PASSENGER COMFORT GUIDELINES

Service Type	Operating Period					
	Weekday Peak			All Other Periods		
Bus Type	60 ft	40 ft	30 ft	60 ft	40 ft	30 ft
Züm BRT Routes	74	52	-	56	39	-
Base Grid Routes	84	58	-	56	39	-
Local Routes	-	58	40	-	39	27
Overlay Express	84	58	40	56	39	27
Point Express	84	58	40	56	39	27
Community Bus Routes	-	39	27	-	39	27
School Special Routes	-	58	40	-	-	-

2.5.1 Monitoring and Decision-Making Process

Passenger Comfort and Delay measures are calculated at the full load point on any given trip. If passenger loads exceed the seated capacity guidelines of the bus and the passenger comfort and delay guidelines as defined in Table 8 and Table 9 more than 50% of the time over a 3 month period, remedial action should be considered. Remedial action could take the form of a tripper bus or if there are numerous points on a route that are frequently exceeding the comfort delay guidelines over an extended period, the addition of a line bus/es and a frequency increase should be considered.

Additionally, remedial action should be considered if the full load point on any given trip exceeds its passenger load threshold more than 50% of the time over 3 months.

2.6 SERVICE UTILIZATION

Service Utilization is a measurement of the effectiveness of the application of the system's resources against established criteria.

To establish thresholds for route performance requires an acknowledgement that various services, even within the same route classification, will vary in their performance, with some exhibiting superior performance and others exhibiting lower performance levels. To meet a variety of system objectives, top-performing routes must be allowed to support other lower performing routes, while continuing to ensure that:

- "Class Average" targets for each route classification meets system objectives
- "Route Minimum" performance targets for each of the individual routes is established and met.

In addition to this, it is important that productivity triggers be set which identify routes that may warrant a service level increase when "Class Average" targets are exceeded over a certain threshold. These are referred to as "Triggers for Improvement".

Route performance should be assessed on the basis of total boardings per revenue-vehicle-hour, since this statistic will appropriately credit those routes that perform a significant transfer role in the system.

2.6.1 System Utilization

Different classes of routes have different performance expectations, ridership potential, equity implications, and network impacts and the performance target values should be established separately for each route type, while ensuring that the overall average can be met. Separate threshold levels should be established for peak versus off-peak services, to reflect the relative operating and capital cost structures of the respective operating periods as well as differences in rates of ridership return and equity implications. Also, triggers for service improvements are provided to identify when service levels should be improved on individual routes.

Prior to the COVID-19 pandemic, in 2019, Brampton Transit achieved a system average of 25 boardings/revenue vehicle hour. Given increasing intensification, greater focus on Züm service and internal opportunities to enhance service efficiencies, the long-term target for Brampton Transit is 28 boardings/revenue vehicle hour for all operating periods. It is recommended that Brampton Transit continue to target a longer-term goal for increased boarding/revenue vehicle hour by 2041, in line with the span of the current Transportation Master Plan. The target value should be reviewed and revised, as required, with the five-year Business Plan cycle.

2.6.2 Utilization by Route Classification

The rationale for utilization targets for each route classification is explained below with the actual targets detailed in Table 8 and Table 9.

2.6.2.1 ZÜM BRT ROUTES

Züm BRT Routes are expected to perform at a high level and make a significant contribution to the system-wide performance targets. However, they are also designed and branded to provide a high basic minimum level of service and should not be subject to the strict application of the utilization targets without considering the potential effects on the brand. Significant investments have been made in Züm BRT Routes for the long-term, to account for Brampton's population and employment growth, and allow for continual improvement and expansion of the Brampton Transit network. In some cases, service may still be growing along Züm BRT Routes. Reducing service along Züm BRT Routes not currently meeting service utilization guidelines is not recommended. If a Züm BRT Route is not meeting the service utilization guidelines, analysis should be completed to better understand the reasons behind this.

2.6.2.2 BASE GRID ROUTES

Base Grid Routes are expected to perform at a high level and their operation is intended to provide a basic minimum level of service and route coverage and support the Züm BRT network. The

performance of Base Grid Routes is expected to make a significant contribution to the system-wide performance targets. If the targets outlined in Table 9 cannot be consistently met or there is no evidence of ridership growth trends towards meeting the targets, consideration should be given to modifying the route or removing the Base Grid Route designation from the route (or a portion of it), subject to maintaining the minimum proximity guidelines. This change in route classification would permit a wider range of remedial actions, including service level adjustments, route restructuring, and operational modifications such as interlining.

Most Base Grid Routes are identified in the TMP as BRT Support Corridors. These routes are required to provide a basic level of service in support of the Züm BRT network that they connect to. As such, Base Grid Routes operating below the route utilization minimums will be given more flexibility and time to reach their performance target considering the important role these routes have in feeding the Züm BRT network (provided that underperforming routes show consistent ridership growth towards the minimum utilization thresholds). If the route does not show consistent and significant ridership growth over the first 6-12 months of implementation, it should be modified or reclassified as a Local Route with the necessary Service Design Guideline adjustments made.

2.6.2.3 LOCAL ROUTES

The primary function of local routes is to maximize service coverage and to feed into the Base Grid Route Network. This often requires a more indirect routing and lower frequencies than Base Grid Routes. As such, Local Routes are not expected to perform at a level as high as the Base Grid Routes. If the targets outlined in Table 9 cannot be consistently met, consideration should be given to a range of remedial actions, including service level adjustments, route restructuring, and operational modifications such as interlining. When adjusting individual routes and services, care must be taken to consider the impacts on the connecting routes and services that users may be relying on.

Over the course of time, due to development/intensification and/or ridership growth, Local Routes may become candidates for reclassification to a Base Grid Route. A Local Route may be reclassified to a Base Grid Route if:

- The Local Route exceeds its daily class average utilization for all operating periods consistently, and
- The design of the Local Route can match the route classification criteria for a Base Grid Route, as set out in Section 1.3.3.

It should be noted that a reclassification of a Local Route into a Base Grid Route requires specific service level adjustments and increases to ensure that the route conforms to the applicable Base Grid Route Service Design Guidelines. Reclassification of a Local Route to a Base Grid Route should only be implemented if the applicable Base Grid Route Service Design Guidelines are achieved with the existing service level or can be achieved with only minor service adjustments. A reclassified route's utilization should be closely monitored for the first year to ensure that it meets or exceeds the Route Minimums for Base Grid Routes.

2.6.2.4 CONVENTIONAL EXPRESS ROUTES

Performance indicators differ for each type of express service:

1. Point Express are routes designed to provide direct non-stop service between specific points, where warranted by a significant volume of demand, and as such, need to perform at the highest of guidelines to justify the exclusivity of the service.

2. Overlay Express are routes with limited stop service and operate on the Base Grid corridors as a supplement to Base Grid routes that are over capacity. Therefore, it is appropriate to apply the utilization target of the associated Base Grid route to Overlay Express Route subject to the following conditions:

    a. the introduction of an overlay express route must maintain the performance levels of the associated Base Grid route at current levels; and

    b. the projected performance of the new Overlay Express Route must exceed that of the current Base Grid route.

2.6.2.5 NIGHT ROUTES

Night routes are intended to provide a base level of service overnight at very low frequencies. As a result, the expected ridership return is lower. The ridership return on service investment is also better at a lower B/RVH threshold. Lastly, overnight service provides an important equity function. All these factors lead to lower system utilization thresholds for the Night Routes.

2.6.2.6 COMMUNITY BUS ROUTES

Community Bus Routes are typically catered to senior citizens who travel during off-peak periods. The route is designed to place greater emphasis on access than directness of travel and speed. As such these routes are expected to operate at a generally lower utilization than the other fixed route classes in the system.

2.6.2.7 ON-DEMAND SERVICES

On-Demand Services can be put in place to service lower demand periods or areas of the city, or to provide an enhanced level of service for a targeted market (e.g., Local access to GO Train service). The service is designed to be coverage focused with connections to fixed route transit that are used primarily in low demand areas or periods with less opportunity for mass transit. As such these services are expected to operate at a generally lower productivity than Local Routes in the system, however, should do so at a lower total net operating cost in a head-to-head comparison for a specific area/period. A range between 3 to 15 boardings per revenue vehicle hour is appropriate for this type of service. Services operating on a pooling model should range between 3 to 8 boardings per revenue vehicle hour while flex route service has a higher expectation of utilization with a range 6-15 boardings per revenue vehicle hour.

2.6.2.8 SCHOOL SPECIAL ROUTES

The specific performance guidelines applied to School Special Routes depend on the individual nature of the route under review.

Local Route guidelines shall be applied to School Special Routes when:

- the School Special Route significantly deviates from the Base Grid and Local Route network to provide the necessary coverage, or;
- the use of existing services would require more than two transfers.

Overlay Express Route guidelines shall be applied to School Special Routes when:

- the School Special Route substantially duplicates the coverage of an existing Local or Base Grid Route, and/or;
- existing services do not have the capacity to accommodate this specialized demand and an overlaying School Special Route is necessary.

In all cases, there is no maximum utilization guideline applicable to school special routes, as these routes are designed to serve a high demand in a short amount of time.

If students are being left behind due to crowding, the passenger crowding and delay guidelines discussed in Section 2.5.1 should be used, and a "tripper" (extra bus) should be added if the delay exceeds the guideline threshold.

Alternatively, a "tripper" (extra bus) scheduled to accommodate the surge in demand from the school and maintain the regular route at normal loading guidelines should be considered.

2.6.2.9 *EMPLOYMENT SHUTTLE ROUTES*

As a dedicated service with a limited operating span, employment shuttles are less cost-effective and operationally challenging than other routes. They are also not intended to serve as coverage providers or to produce network effects. The goal is to capture a particular travel flow more efficiently. Due to these factors, a higher utilization threshold is expected for the service. Guidelines have been set to match those of the Base Grid Routes and thereby create an equal measure for service investment in the two services.

2.6.2.10 *SERVICE UTILIZATION GUIDELINES*

Individual route performance should be assessed annually, as a minimum, based on both the overall daily service utilization (Table 10), as well as at the operating period level (Table 11).

Table 10 below summarizes the daily class average targets that should be achieved by route classification. This will be used by Brampton Transit planning staff to assess individual route performance relative to other routes within its class.

TABLE 10: ROUTE PERFORMANCE GUIDELINES – DAILY ROUTE CLASS AVERAGE (BOARDINGS PER REVENUE VEHICLE HOUR, B/RVH)

Service Type	Class Average		
	Weekday	Saturday	Sunday/Holiday
Züm BRT Routes	64	61	55
Base Grid Routes	48	48	44
Local Routes	32	29	28
Conventional Express Routes (Point Express)	45	40	35
Conventional Express Routes (Overlay Express)	45	40	35
Night Routes	23	23	23
Community Bus Routes	10	10	10
On-Demand Transit Services	5	4	4
School Specials (Local)	25	-	-
School Specials (Overlay)	37	-	-
School Specials (Overlay)	37	-	-
Employment Shuttles	48	48	44

Table 11 below summarizes the minimum route utilization targets as well as triggers for service enhancement by each route classification by time period. Triggers and minimums were defined through an evaluation of relative prioritization of investments. This included establishing available

resources, estimating ridership returns, equity considerations prioritizing off-peak service and prioritizing Züm service due to its network effects.

2.6.3 Monitoring and Decision-Making Process

Ridership data generated from the APC system, in conjunction with service hour statistics from the Hastus scheduling software should be used to obtain boardings per revenue hour data for the overall system, by route and time period as well as the class averages, route minimum thresholds and improvement triggers for each service type. This analysis should be completed, as a minimum, on an annual basis and serve as a primary input to the Annual Service Plan process.

It is noted that new routes may not meet service utilization guidelines for several months after they are implemented. In many cases, investment is needed to incent ridership growth. Routes should be monitored according to **Table 13**.

Routes consistently not meeting the prescribed **minimum thresholds** would be subject to review and consideration of the best option to improve performance. Options for remedial action would be subject to consideration of the characteristics of each route and its classification but should include frequency reductions or replacing service with on-demand. When adjusting individual routes and services, care must be taken to consider the impacts on system proximity objectives and the connecting routes and services that users may be relying on.

Should a particular route or spatial area fall below 15 B/RVH, further analysis should be conducted to consider replacing the route with on-demand services. The most successful on-demand flex routes can achieve up to 15 B/RVH.

The **class average** represents the average utilization target that all routes in the Route Classification should achieve during each operating period.

The **Trigger for Improvement** indicates the level of utilization which should trigger consideration of improvements to the route (subject to resources for service expansion being available). This could include reclassification of the route if warranted.

TABLE 11: ROUTE PERFORMANCE GUIDELINES – BY OPERATING PERIOD (BOARDINGS PER REVENUE VEHICLE HOUR, B/RVH)

Service Type	Weekday Peak		Weekday Off-Peak		Saturday Day		Saturday AM/Base/Eve		Sunday/Holiday Base		Sunday/Holiday Eve	
	Min Threshold	Improvement Trigger	Min Threshold	Improvement Trigger	Min Threshold	Improvement Trigger	Min Threshold	Improvement Trigger	Min Threshold	Improvement Trigger	Min Threshold	Improvement Trigger
Züm BRT Routes	50	82	40	70	45	65	40	65	35	60	35	60
Base Grid Routes	35	65	25	50	25	45	25	45	25	45	20	40
Local Routes	15	45	10	35	10	35	10	35	10	35	10	35
Conventional Express Routes (Point Express)	55	65	45	50	45	50	45	50	40	45	40	45
Conventional Express Routes (Overlay Express)	30	66	20	66	25	50	15	50	15	40	10	40
Night Routes			10	30			10	30			10	30
Community Bus Routes	5	20	5	20	5	20	5	20	5	20	5	20
On-Demand Transit Services	3		3		3		3		3		3	**
School Specials (Local)	15	33	-	-	-	-	-	-	-	-	-	-
School Specials (Overlay)	30	50	-	-	-	-	-	-	-	-	-	-
Employment Shuttle	35	65	25	50	25	45	25	45	25	45	20	40

2.7 SERVICE RELIABILITY

Service reliability is a significant service quality factor influencing ridership, customer satisfaction and the reputation of the transit system. The reliability of service operating to published schedule times is consistently ranked first in importance in customer satisfaction surveys.

A person using any transportation mode has an expectation that the service will be there according to the schedule and services that cannot meet their published schedules lose the loyalty of their customers. Consistently reliable arrival times also reduce waiting times for passengers at stops and such performance is critical during inclement weather. A high 'on time' performance will improve transit system credibility and build a positive image of the system.

2.7.1 ON-TIME PERFORMANCE

The On-Time Performance Guideline sets out guidelines for schedule adherence and transfer wait times. In order to maintain good schedule reliability, the following performance guidelines apply to all services:

- Buses shall be no more than 3 minutes early and no more than 5 minutes late arriving at published timing points, 90 percent of the time.
- At no time will a bus depart early from a major terminal.

Brampton Transit's longer-term on-time performance goal is to arrive within 1 minute early and 5 minutes late, 90 percent of the time.

2.7.2 INTER-REGIONAL SERVICE CONNECTIONS

Brampton Transit provides feeder service to five GO Rail Stations: Mount Pleasant, Brampton, and Bramalea within Brampton, as well as Lisgar and Malton in Mississauga. Many Brampton Transit routes serve one or more of these GO Stations and a significant number of Brampton Transit riders use the service to access GO rail and bus services. Providing connections to GO Trains can be difficult due to their scheduling, which may not be aligned to Brampton Transit schedules during all periods. In order to promote improved passenger connections to the GO service, the following guideline applies:

- Where possible, trips that are designated to meet train times shall be scheduled to arrive not less than five (5) minutes before scheduled train departure times and depart not less than five (5) minutes after scheduled train arrival times.

- Scheduled trip times for arrival or departure on routes serving GO Rail stations may be shifted a maximum of three (3) minutes, if such a schedule adjustment will provide a regular train meet connection, as set out above, without significantly impacting schedule or connections on the balance of the route.

- If a choice needs to be made on which train trips to meet due to a service frequency mismatch between GO Trains and the headway of the connecting service, preference will be given to schedule the connection with an express train trip, where feasible.

- When required due to known operational delays impacting GO Rail services, at the discretion of the Operations Department, routes serving GO Rail Stations may hold for an additional three (3) minutes past their scheduled departure time, if it is determined that the additional wait time will provide the train meet connection without significantly impacting schedule or connections on the balance of the route.

2.7.3 Monitoring and Decision-Making Process

Schedule Adherence data is generated from the SmartBus system, with on-time performance measured at the route and time period level. Actual times are compared with published times and measurements obtained to show the status of performance as being "on-time", "late" or "early". Exception reports are created for specific periods, to show the details of services not meeting the on-time performance guideline.

Daily, weekly and monthly exception reports could be generated by the Smart Bus system to show the time and location of individual buses not meeting the on-time performance guideline. Analysis of consistently "early" and "late" arrivals is required by operations and service development staff to determine the root cause of the schedule adherence problem.

If the above on-time performance guidelines are not met on a regular basis for a specific route, Brampton Transit should consider adjusting the published schedule and/or route timing, providing additional training for drivers or, in the case of Züm BRT and Base Grid Routes, modifying or adding transit priority measures.

2.8 GUIDELINES FOR SERVICE EXPANSION

2.8.1 Service to New Areas

This guideline sets both a policy direction and performance targets that should be achieved when introducing a new bus route or extending a route into a new area. A new transit route may be required as residential areas are developed, to improve the transit system proximity or in response to growth in major commercial, institutional or employment areas.

Brampton Transit staff will actively work with the City's Planning & Development Department to provide new route design and stop locations to serve growth in advance of development approval. This coordination will contribute to the implementation of transit-oriented design (TOD) principles in the new growth areas. New growth areas designed using TOD principles should be designed to achieve 100% of the population and

employment within 400m (actual walk distance) coverage with transit service on long linear arterial or collector roadways.

Performance of new or extended services will be assessed at regular intervals after implementation to determine whether ridership is growing and whether minimum performance targets are expected to be met.

In order to consider introducing transit service into new areas, two requirements must be met:

1. The roadways on which the proposed route will operate on are in a condition to support regular transit operations. Proper infrastructure (curbs, sidewalks, street lighting, etc.) should be in place and construction activity should be at a level where construction equipment will not interfere with the safe operation of transit vehicles or impede on-time service delivery.

2. The occupancy of the neighbourhood must be substantial enough to support the efficient operation of public transit. Targets for the introduction of new services are outlined in Table 12.

TABLE 12: POPULATION THRESHOLDS FOR NEW SERVICE

Type of Area	Minimum Residents/Employees within 400m of Each km of Expanded Service*
Residential Area	400 residents
Employment Area	500 employees
Mixed Use Area	450 residents/jobs

** The population/employment data used in this calculation should exclude those within 400m of an existing route.*

2.8.2 MONITORING AND DECISION-MAKING PROCESS

Services introduced in new areas not previously served by transit should be guaranteed for a minimum 12 months of operation to ensure adequate time for travel patterns to adjust and for year-round ridership patterns to be assessed. At the end of the 12 months, the service must meet the minimum performance thresholds required for its class of service.

Within this trial period, interim targets are set to ensure that a service which is clearly not capable of meeting the ultimate targets is identified as early as possible. Monitoring should be performed at 3-, 6- and 9-months intervals to ensure that the new service is trending towards the appropriate guideline. Targets for these interim periods are:

- 3 months: 25 percent of the minimum target;
- 6 months: 50 percent of the minimum target; and
- 9 months: 75 percent of the minimum target.

The actual values of these (boardings per revenue vehicle hour) are shown in Table 13.

If the performance at the end of each period has not reached at least 75 percent of the target value, the route should be re-examined to identify potential changes to improve its performance. If the same guideline is not met in the next period, the identified changes should be implemented.

TABLE 13: MONITORING SERVICE UTILIZATION TARGETS (BOARDINGS PER REVENUE VEHICLE HOUR, B/RVH)

Service Type	Weekday Peak	Weekday Off-Peak	Saturday Day	Saturday AM/Base/Eve	Sunday/Holiday Base	Sunday/Holiday Eve
3 Month Target						
Züm BRT Routes	13	10	11	6	8	6
Base Grid Routes	8	5	6	4	4	3
Local Routes	4	3	3	3	3	2
Conventional Express Routes (Point Express)	14	11	13	11	11	11
Conventional Express Routes (Overlay Express)	8	5	6	4	4	3
Night Routes		3		3		3
Community Bus Routes	1	1	1	1	1	1
On-Demand Transit	1	1	1	1	1	1
School Specials (Local)	4	-	-	-	-	-
School Specials (Overlay)	8	-	-	-	-	-
Employment Shuttle	8	5	6	4	4	3
6 Month Target						
Züm BRT Routes	25	20	23	13	15	13
Base Grid Routes	15	10	13	8	8	5
Local Routes	8	5	5	5	5	4
Conventional Express Routes (Point Express)	28	23	25	23	32	23
Conventional Express Routes (Overlay Express)	15	10	13	8	8	5
Night Routes		5		5		5
Community Bus Routes	3	3	3	3	3	3
On-Demand Transit	3	3	3	3	3	3
School Specials (Local)	8	-	-	-	-	-
School Specials (Overlay)	15	-	-	-	-	-
Employment Shuttle	15	10	13	8	8	5
9 Month Target						
Züm BRT Routes	38	30	34	19	23	19
Base Grid Routes	23	15	19	11	11	8
Local Routes	11	8	8	8	8	5
Conventional Express Routes (Point Express)	41	34	38	34	34	34
Conventional Express Routes (Overlay Express)	23	15	19	11	11	8
Night Routes		8		8		8
Community Bus Routes	4	4	4	4	4	4

On-Demand Transit	4	4	4	4	4	4
School Specials (Local)	11	-	-	-	-	-
School Specials (Overlay)	23	-	-	-	-	-
Employment Shuttle	23	15	19	11	11	8