BRAMPTON TRANSIT SERVICE GUIDELINES

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To the attention of:
Brampton Transit
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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