

Brampton



Brampton Rapid Transit Initiative

Submission to the
Transportation Association of Canada
Sustainable Urban Transportation Award

March 31, 2005

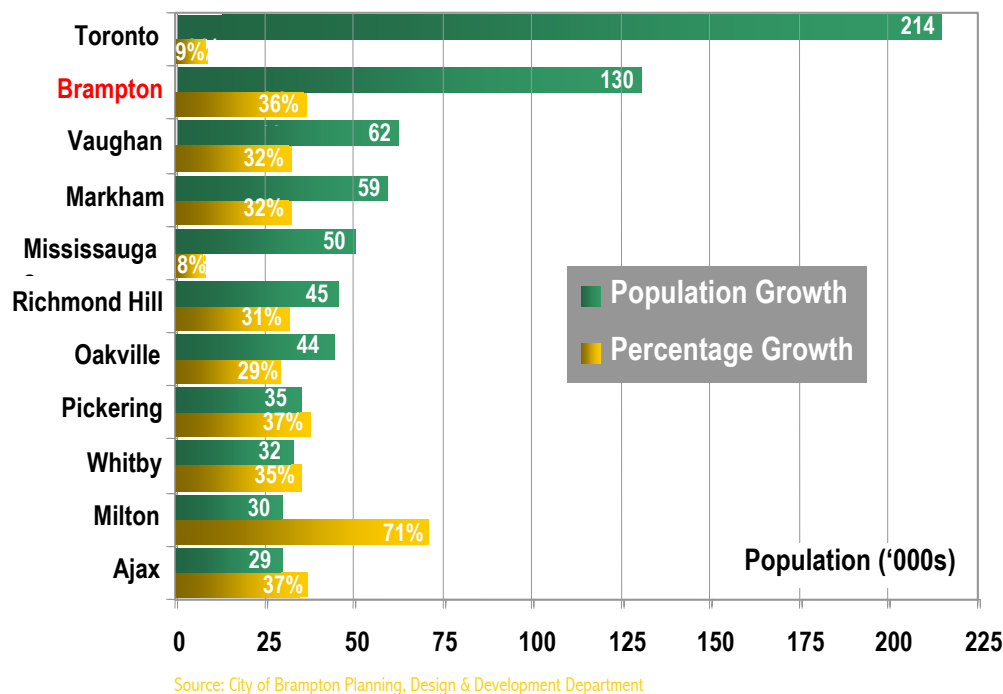


Brampton Bus Rapid Transit: the AcceleRide Initiative

Background

Centrally located within urban southern Ontario, Brampton is Canada's 14th largest city, and the third largest in the GTA. With the second highest rate of population growth among Canada's 20 largest cities, Brampton is expected to grow from a 2004 population of 387,000 to 680,000 over the next 25 years. Projections based on current rates of growth anticipate buildout to the urban boundary within ten years, some five years sooner than previously expected. During this time, Brampton will be second only to Toronto in terms of absolute growth, within the GTA.

Fig. 1 GTA Population Growth, 2003-2013



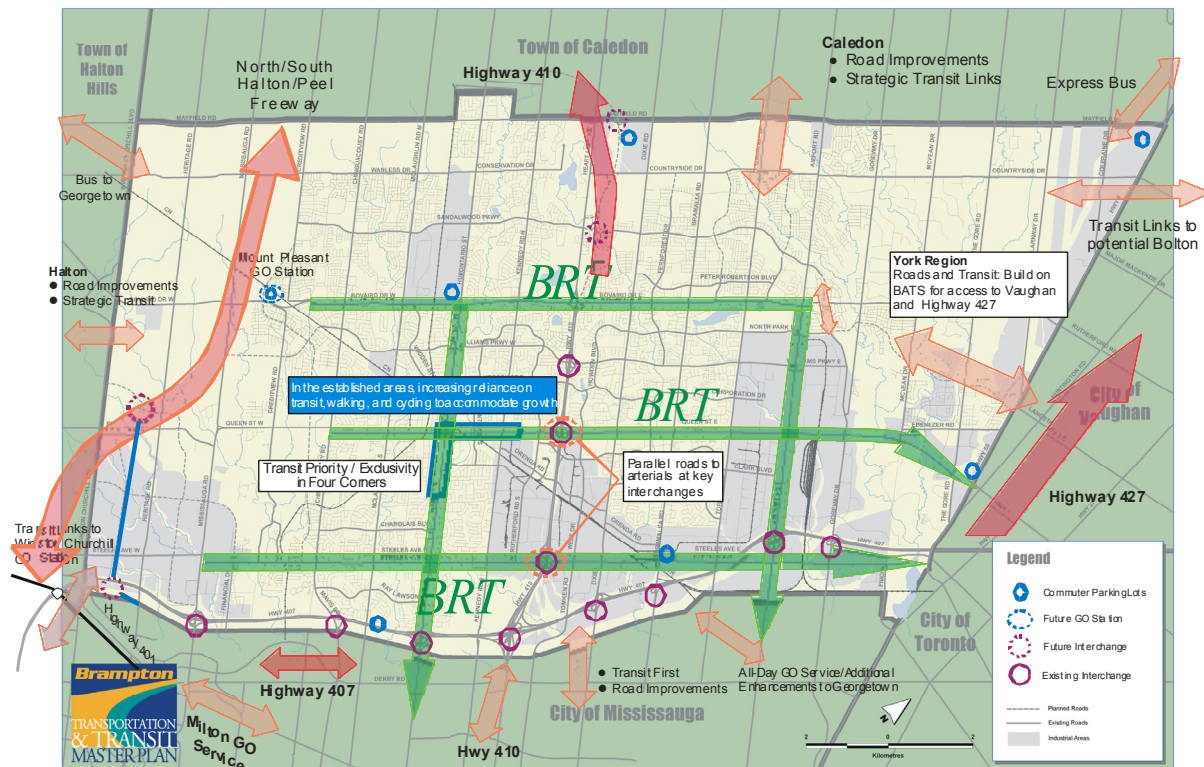
While Brampton's continued growth is an indicator of its economic strength and success in the GTA and the Province, it also creates major challenges to maintaining the safe and efficient transportation of people and goods. It has become abundantly clear that the current transportation situation that focuses heavily on accommodating the private automobile is unsustainable in the long-term. As travel within Brampton and interregionally in the GTA continues to grow, travel by car will continue to become more time consuming and unpredictable, and congestion levels will continue to increase, even with significant funding for road expansion. Effective strategies to increase the use of transit and alternative modes of transportation need to be pursued if the anticipated growth in Brampton and the GTA is to be effectively managed.



Strategic Transportation Plan

The AcceleRide bus rapid transit initiative evolved from the recommendations of Brampton's Transportation & Transit Master Plan (TTMP), approved in October 2004. The TTMP defines a long-term, 30-year balanced transportation strategy for managing the implementation of a transportation network that meets the demands of projected population and employment growth, with an emphasis on enhancing the role of transit. An important element of the TTMP is a Strategic Transit Framework that proposes the implementation of high-order transit services along major corridors to sustainable travel demand management.

Fig. 2 TTMP Strategic Framework

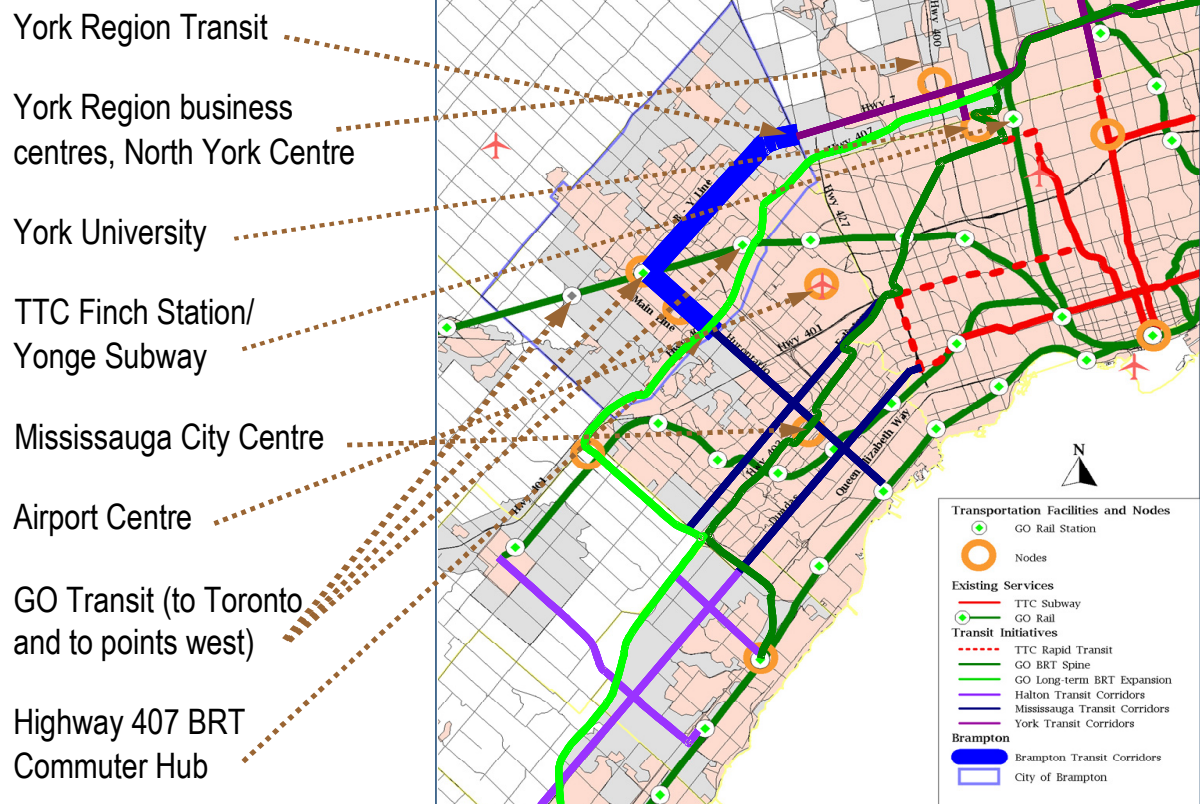


Several other municipalities and agencies are currently developing long-term transit initiatives, with corresponding short-term implementation strategies. It is important to ensure that these initiatives, from the customers' perspective, are complementary and that they provide an attractive transportation alternative that customers would find preferable to the automobile.

The implications of these initiatives are regional in scope, and Brampton's AcceleRide initiative is the "missing link" in the northwest GTA, that helps to complete an integrated GTA transportation/transit network.



Fig. 3 AcceleRide BRT: Connecting to GTA Transit



The key to transit's success in managing the growth of Brampton over the coming decades is providing fast and reliable service to key destinations. The TTMP strategic transportation framework emphasized the importance of transit and a system that links into the GTA rapid transit network. The key component of Brampton's high order transit is BRT service on the major north-south and east-west corridors that serve inter-regional, as well as local transportation demand.

Short-term Action Plan

The TTMP recommended a number of transit initiatives for inclusion in a Short-Term Action Plan, to address current/short-term needs and deficiencies and to begin working towards the longer-term "multi-modal" vision for transportation in Brampton, and in particular the strategic transit/BRT plan.

- ▶ Introducing improved services on Queen Street East and Main Street as the first stage in Bus Rapid Transit (BRT), "branded" as separate enhanced services to encourage commuter usage. These corridors will be identified as "Transit Priority Corridors" in the Official Plan.



- ▶ Working with the Region of Peel to implement transit priority on the following streets under their jurisdiction: Queen Street East, Steeles Avenue, Bovaird Drive, Airport Road (connections to Pearson Airport and the Airport Corporate Centre).
- ▶ Improving transit access to and from transit terminals in the City (including GO Stations). This would include changes to signals, pavement markings and signing to give transit vehicles priority.
- ▶ Working with York Region and their private sector partner, and with Mississauga Transit to improve inter-regional and inter-municipal transit service connections and integration, and develop a plan for long-term expansion of this concept.
- ▶ Expanding express services linking key residential areas to GO and Brampton Transit terminals in the City.
- ▶ Continuing transit service expansion in new growth areas.
- ▶ Improving service connections to employment zones in the airport area.

The AcceleRide Vision

AcceleRide is the first phase of Brampton's BRT plan and will deliver enhanced transit services in the City's two key corridors over the next 3-5 years. AcceleRide is intended to improve transit service and encourage increased commuter use of transit, as well as to address the issue of a coordinated transit network throughout the GTA over the next five years.

Bus Rapid Transit (BRT) has been identified as the preferred technology to deliver an integrated system of facilities, services and amenities that collectively improves the speed, reliability and identity of bus transit in Brampton.

The main advantage of BRT is its flexibility, low initial capital investment requirements, and potential for incremental expansion. Furthermore, BRT does not preclude migration to fixed rail technology (i.e., Light Rail Transit) if warranted in the future.

Core elements of BRT include operational improvements through Transit Signal Priority (TSP) and geometric design, enhanced passenger information systems and amenities, and the "branding" of services to raise the profile of BRT beyond the negative image that bus transit has in the mind of "choice" riders.

As the first step of a long-term comprehensive BRT strategy, the AcceleRide initiative will address immediate needs and opportunities to deal with congestion and provide an efficient, attractive alternative to the private automobile by developing a transit network that:

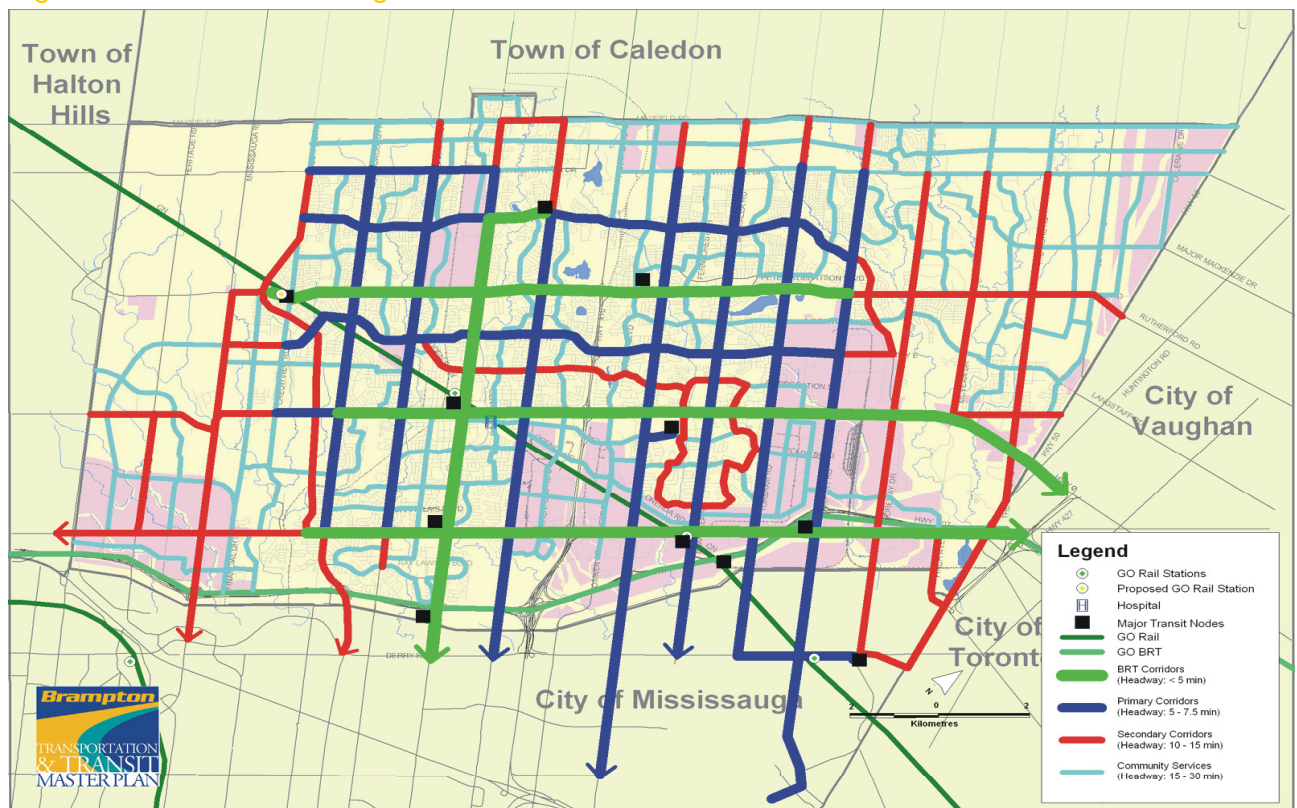


- ▶ builds on the strengths of existing local and regional transit services;
- ▶ complements the existing and emerging inter-regional transit network;
- ▶ promotes effective and efficient travel within Brampton and throughout the Region;
- ▶ expands opportunities for development and intensification in key corridors (further enhancing effective transit);
- ▶ builds on short-term initiatives, with flexibility to develop major transit corridors and services using a variety of technologies.

It will also, however, contribute to the broader goals of sustainable development, a strong economy and improved quality of life by supporting:

- ▶ improved mobility in the GTA/Greater Golden Horseshoe;
- ▶ local, provincial, and federal growth management and sustainable development objectives that encourage intensification;
- ▶ local objectives to redevelop and intensify the City's core areas.

Fig. 4 Transit/BRT Strategic Framework to 2021





Beyond AcceleRide, subsequent phases of the City’s BRT strategy would see the expansion of enhanced bus services to additional corridors in the City, such as Bovaird Drive and Steeles Avenue, as well as improvements to conventional transit routes supporting the BRT service. The TTMP strategic plan calls for these services to be in place by 2021.

The City of Brampton has indicated its commitment to strengthening the role of public transit through an aggressive Ten-Year Capital Budget that would see a significant increase in the City’s transit fleet and support facilities. However, while a portion of this can directly contribute to the AcceleRide initiative, partnerships with senior levels of government are essential to successfully implement the City’s initial phase of the BRT system, and subsequent phases, as the system grows to address the transportation needs within and beyond Brampton’s boundaries.

Brampton’s rapid transit initiative promotes partnership with the Federal and Provincial governments to help meet the economic needs of the GTA-Golden Horseshoe. It promotes public transit, will ease future road/infrastructure costs, reduce gridlock, and promote intensification for sustainable development and effective urban growth management.

AcceleRide Implementation

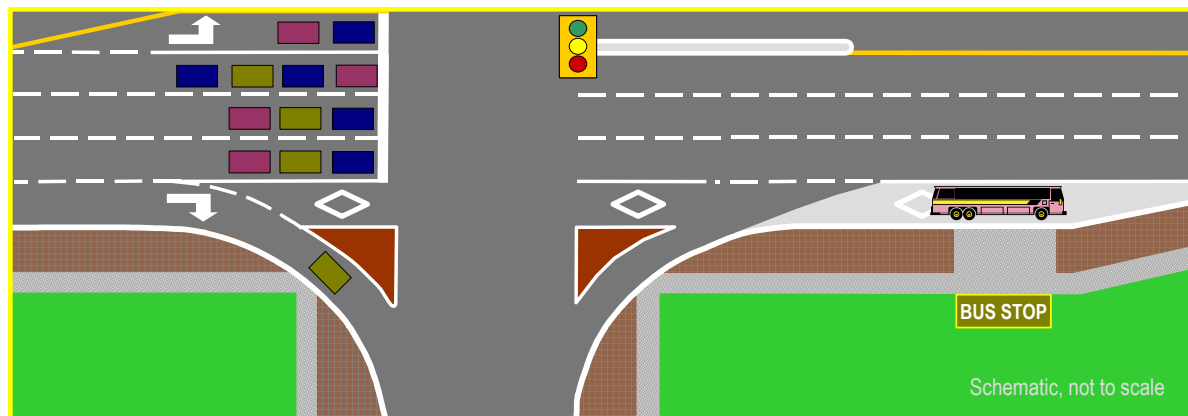
The implementation of AcceleRide BRT services on Queen Street and Main Street will comprise a number of general improvements to enhance transit access and operations in these corridors, including:

Running Ways

- ▶ AcceleRide BRT will run in mixed traffic, with transit priority improvements at intersections, where possible.
- ▶ Brampton was able to intervene in the Region of Peel’s Queen Street widening project (from Hwy 410 to Airport Road), to make changes to the design which would incorporate geometric improvements at intersections to facilitate BRT. The City committed \$2 million to this initiative, and has been working together with the Region to construct these improvements and to plan for their incorporation in future widenings.
- ▶ Figure 5 below shows the geometric design principle being applied at major intersections on Queen Street, where the right-turn channelization islands have been shifted to allow the extension of the right-turn lane into a transit-only lane, facilitating the movement of buses into a far-side stop. The intersection improvements are virtually complete, and next steps include signage and lane marking as well as the design and construction of the passenger waiting areas and shelters.



Fig. 5 Transit Priority Measures on Queen Street



Stations & Shelters

AcceleRide BRT stops will be designed as high quality public spaces. Improved passenger facilities (shelters, benches, landscaping, trash receptacles, security lighting, surveillance, ‘smart kiosks’) make the service more comfortable and attractive, and will increase the profile and visibility of transit in the corridors.

Vehicles

AcceleRide will introduce distinct BRT vehicles that are comfortable, attractive, accessible, and “clean” by virtue of alternative/hybrid fuel technology. While Brampton Transit’s fleet currently runs on biodiesel, hybrid diesel-electric vehicles are being considered for AcceleRide. For reasons of cost-effectiveness and efficiency in mechanical support, discussions are now underway with North American manufacturers to supply a BRT vehicle.

Intelligent Transportation Systems

- ▶ Supporting 5-minute headways is dependent on moving more transit vehicles through traffic, and in addition to intersection modifications to provide queue-jump lanes at key intersections, Transit Signal Priority (TSP) is a key component of the BRT system. A TSP implementation plan is being initiated and will involve partnership with other City departments, as well as the Region of Peel.
- ▶ Service reliability and customer convenience will be enhanced through improved communications and passenger information systems such as:
 - Real-time/“next-bus” schedule information
 - Information on location and timing of connecting cross-routes
 - Off-board fare collection
 - Safety and security-related features



The City is already involved in several ITS initiatives that will ultimately serve AcceleRide and the evolving BRT network:

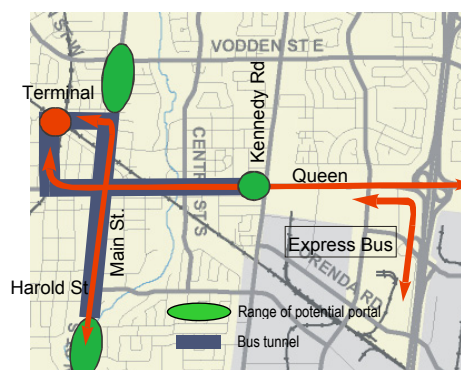
- ▶ Working with Transport Canada on a TSP Algorithm Research and Development project;
- ▶ Implementing SPIDER, an advanced transit operations management system;
- ▶ Participating in the GTA Fare Integration Strategy.

Service Enhancements

- ▶ Increased service frequency to 5-minute headways in the Main Street and Queen Street corridors.
- ▶ Convenient connections and modal integration at station and terminals.
- ▶ Improved east-west connections (with York Region services) to the TTC.
- ▶ Establish north-south connections with GO services in the Highway 407 corridor, emerging services in the 403 corridor, to Mississauga.
- ▶ Brampton has discussed opportunities for the planning and construction of a multi-modal commuter facility at Highway 407 and Hurontario Street with Mississauga and GO Transit staff.. This facility will integrate Hwy 407 GO BRT with Mississauga Transit and Brampton Transit/AccelerRide BRT services in the Hurontario/Main Street Corridor.
- ▶ Brampton Transit currently has in place interlined service and fare agreements with York Region Transit and with Mississauga Transit. It is expected that these arrangements will continue to be maintained and enhanced as the respective transit authorities contemplate and initiate transit service improvements, including BRT initiatives.

Downtown Transit Priority

Brampton's historic downtown – the “Four Corners” – where Queen Street and Main Street intersect, is the location of a major transit terminal that brings together local transit and GO Transit bus and rail. Opportunities to improve transit service in this area are extremely limited. A preliminary strategy to address these constraints in the short-term to accommodate AcceleRide BRT, will see the replacement of on-street parking with HOV/bus-only lanes. (While existing on-



street parking will be accommodated in new “off-street” facilities, it is also expected that improved transit and travel demand management strategies will reduce the need for new parking spots in the downtown.) To maintain effective transit service in the long-term, potential solutions include transit-only streets through the downtown, and ultimately an underground bus tunnel and expanded terminal to achieve exclusivity transit priority.



Projected Costs and Funding

The TTMP recommendations are projected to cost approximately \$1.3 billion over the next 15 years. Transit improvements are estimated to cost \$326 million, of which \$200 million is allocated to BRT.

Within the next five years, AcceleRide is expected to be fully implemented. The total capital cost (i.e., roadway infrastructure, capital equipment) for the initial development/implementation of the Queen Street and Main Street lines is approximately \$55 million, exclusive of land acquisition costs.

Fig. 6 AcceleRide Capital Costs (\$ millions)

Infrastructure and Cost Element	Queen Street Line		Main Street Line		Other Costs	Total Cost
	Description	Cost	Description	Cost		
Roadway & Signal Infrastructure (TSP & Intersection Improvements)	8 major and 14 minor intersections	\$4.65	12 intersections	\$2.5	\$0.8	\$7.95
Station Infrastructure (Stops)	8 major and 14 minor stops	\$3.4	4 major and 8 minor stops	\$1.8	\$3.0	\$8.2
Capital Equipment (40' Low-Floor Bus)	34 new vehicles+spares	\$20.5	16 new vehicles+spares	\$9.5		\$30.0
Communications Equipment (Automatic Vehicle Location System)	34 vehicles+spares	\$0.7	16 vehicles+spares	\$0.3	\$2.0	\$3.0
Contingencies	--	\$3.5	--	\$1.7	\$0.7	5.9
Total Capital Costs	--	\$32.75	--	\$15.8	\$6.5	\$55.05

An additional \$35 million is required to operate the BRT service in the two key transit “spines”, and for system support – capital and operating costs for upgraded transit services in primary corridors connecting to the Queen and Main lines, as well as a share of the new transit garage that will have to be designed to accommodate BRT vehicles.

The total annual operating cost (net municipal cost after revenues) for the Queen Street and Main Street BRT services is estimated at approximately \$5.1 million (approximately \$1.9 million annually over and above current operating costs, after revenues). While the City has made a commitment through its budgeting process and endorsement of the TTMP recommendations to strengthen the role of transit, development charges and municipal tax revenues alone are insufficient to fund Brampton’s transportation and transit needs. Development charges, as defined under current legislation, cannot generate the funds needed to expand transit services, (including AcceleRide), and the municipal tax base is neither an adequate or a sustainable source. To successfully implement AcceleRide,



partnerships between the City of Brampton and other funding agencies/senior governments will be necessary, and “non-traditional” funding sources will be pursued.

The TTMP identified several alternative delivery mechanisms that could be employed by the City to manage its assets and secure funding for transportation projects, including AcceleRide. These include special levies, corporate sponsorship, funding partnerships, and strategic budget allocations. A detailed business case analysis which will include a thorough analysis and assessment of realistic alternative funding strategies is being initiated.

Conclusion

The fast pace of growth in Brampton is an opportunity to lead development by implementing efficient and effective transit services so that new residents have a viable transportation alternative to their cars from the time they move in.

Brampton is confident that the AcceleRide BRT initiative is a positive first step to meeting its transportation challenges in a sustainable manner, and to building an integrated GTA transportation network.

It is in our collective best interest to get out of our cars and onto public transit. Brampton’s Bus Rapid Transit plan and the AcceleRide initiative play an important role in supporting sustainable development, a strong economy and improving our quality of life.

- ▶ *Improved mobility* – AcceleRide complements the existing and emerging inter-regional transit network in the GTA, and will help to manage traffic congestion, reduce auto dependence, and improve access to jobs.
- ▶ *Growth Management and Sustainable Development* – AcceleRide supports shared local, provincial and federal objectives to curb urban sprawl and encourage intensification and sustainable development. Through greater investment in public transit, the BRT plan will help to manage aging infrastructure by decreasing reliance on roads. The flexibility of BRT allows for cost-effective, incremental growth of a system can respond to changes in employment, land-use, community patterns and technology, that can be integrated with other regional initiatives, and that can respond to funding opportunities as they arise.
- ▶ *Environmental Benefits* – AcceleRide will help to reduce energy consumption and improve air quality through reduction of greenhouse gas emissions, helping to meet Canada’s Kyoto targets.
- ▶ *Economic Development* – AcceleRide will improve public transit in the GTA Golden Horseshoe – the largest global marketplace in the country – and promotes the efficient movement of goods and services for the economic benefit of all.