Planning, Design and Development

Brampton

Transportation and Transit Master Plan

Final Report – Executive Summary

November 2009

Revised February 2010

HDR | iTRANS
100 York Blvd, Suite 300
Richmond Hill, ON
L4B 1J8
Tel: 905-882-4100
Fax: 905-882-1557
www.hdrinc.com
www.itransconsulting.com

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Executive Summary to the Transportation and Transit Master Plan Sustainable Update 2009 Final Report

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Tel: (905) 882-4100
Fax: (905) 882-1557
www.itransconsulting.com

Project # 4587

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1. INTRODUCTION

The City of Brampton's (City) Transportation and Transit Master Plan (TTMP) Sustainable Update 2009 is a platform to move forward with the implementation of the transportation vision defined by the previous 2004 Brampton TTMP. This vision embraces compact communities, sustainable development, protection of the natural environment, economic vitality, and healthy communities while providing safe, affordable, and efficient transportation for people and goods.

The 2004 Brampton TTMP developed an integrated and balanced transportation system incorporating all travel modes. The plan focused on enhancing transit accessibility for residents and workers in Brampton, improving air quality, and ensuring a healthy, active community.

The City continues to strongly support the vision outlined in the 2004 TTMP. However, new planning initiatives such as the Provincial ***Places to Grow Act***, transportation initiatives from Metrolinx and other jurisdictions, recent growth trends, and the need to update the City of Brampton Development Charge By-law require an update to the TTMP that builds on the vision outlined in the 2004 TTMP.

This 2009 TTMP is a practical guide for implementing transportation investments, policies, and actions to the year 2031. This product builds upon and expands the transportation vision and supports strategies developed in 2004.

2. COORDINATION WITH THE CITY'S GROWTH MANAGEMENT PROGRAM

The 2009 TTMP is one of the key components of the City of Brampton's Growth Plan Response. The TTMP study has thus been conducted in close coordination with the City's Growth Management Program and Official Plan conformity exercise to implement the Growth Plan. It will support the Growth Plan key areas of focus:

1. Creating compact, vibrant, and complete communities
2. Supporting a strong and competitive economy
3. Optimizing infrastructure to support growth
4. Protecting natural resources

The 2009 TTMP is an integral element of the City's Response to the Provincial Growth Plan, as seen in
Exhibit 2-1.

This study has been carried out through an open public process as a Master Plan study under the Municipal Class Environmental Assessment Guidelines (June 2007) so that the study results can properly serve as direct input to any subsequent EA studies that may be deemed appropriate. The study addresses Phases 1 and 2 of the Transportation Master Plan process in the Municipal Class EA guidelines. Phase 1 defines the problem and / or opportunity while Phase 2 identifies alternative solutions, considers environmental implications, and consults with the public and affected agencies.

Exhibit 2-1: Brampton's Growth Plan Response

Public consultation was designed to:

- Provide an open line of communication with the public, other municipalities, and agencies
- Provide information to the public as a basis for engaging in active dialogue with the public and ensuring public participation
- Seek the public's input on the identification of issues, the development of alternative solutions, and the selection of the preferred alternative
- Ensure that the plan has general support from the community

Public consultation in this study involved:

- Public notices of study commencement and public open houses
- References to the study through the City of Brampton web site
- Two public open houses held at Brampton City Hall in September 2008 and February 2009

3. NEEDS, OPPORTUNITIES AND CHALLENGES

Brampton is a fast growing community with large areas of land available for development in the west and east. Healthy growth within the City is expected to continue over the next 23 years. Between 2006, the base year of the current transportation assessment, and the 2031 planning horizon, the City will increase its population by 68%, an additional 307,000 residents to reach 758,310. At the same time, Brampton employment levels are estimated to reach 320,000.

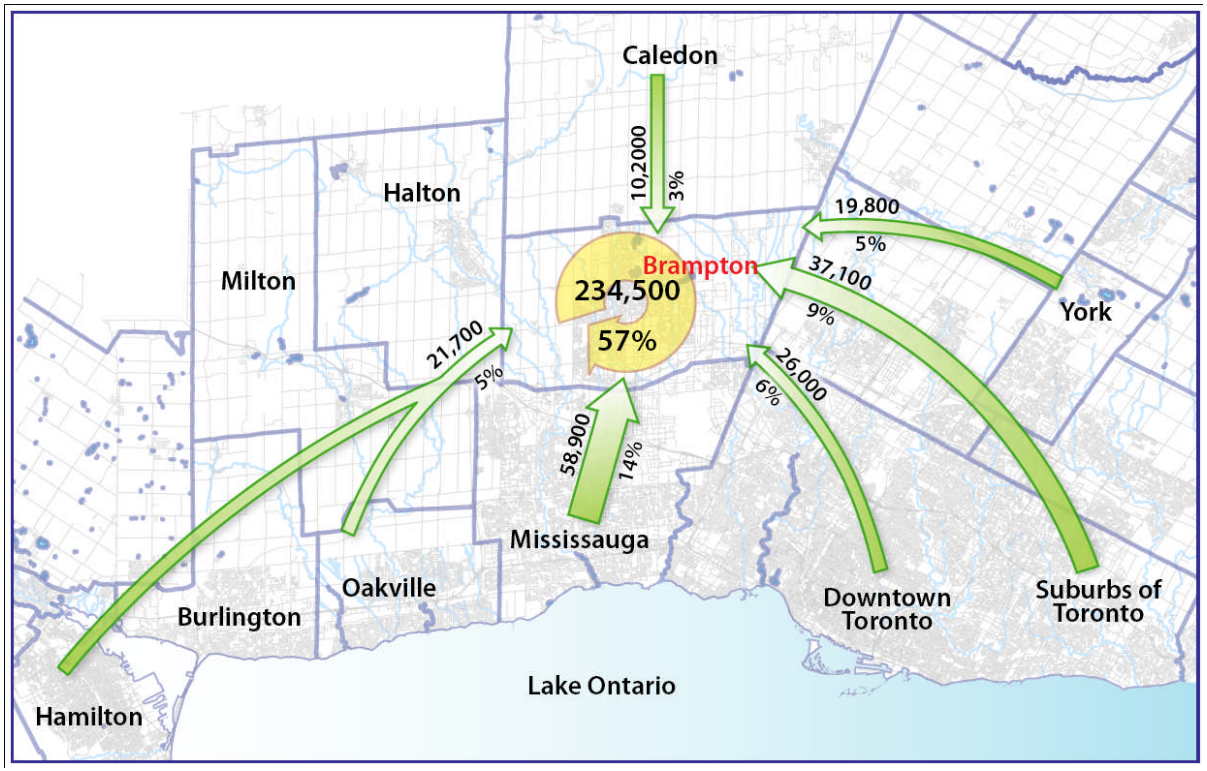


Exhibit 3-1: Travel to Brampton, PM Peak Period, 2031

A number of opportunities and constraints that have been identified are directly related to the provision of new infrastructure, capacity improvements for the existing network, and enhancements to the transit system in support of future development.

Opportunities and constraints to transportation system growth identified at this stage in the study include:

- Timing, function, and cost of the provision of the road network in North-West Brampton
- Timing, location, cost, role, and classification of the North-South corridor
- Timing and cost of the road network in Bram West
- Impact of environmental features and Greenbelt designated areas on the shape and function of the road network
- Further evolution of high-order transit in Brampton
- Enhanced connectivity between Brampton Transit, Mississauga Transit, York Region Transit, and GO Transit
- Impact of Metrolinx transit plan including the implementation of the Hwy 407 transitway and Mississauga transitway
- Existing congestion levels on area roads
- Need for additional road capacity crossing Hwy 410
- Need for additional road capacity north of Queen Street
- Need for improved connectivity with York Region roads
- East-west road requirements in the Central Area / Queen Street Corridor, with and without a Clark / Eastern Wellington connection
- Impact of the future East-West corridor

These areas of special interest are illustrated in **Exhibit 3-2.**

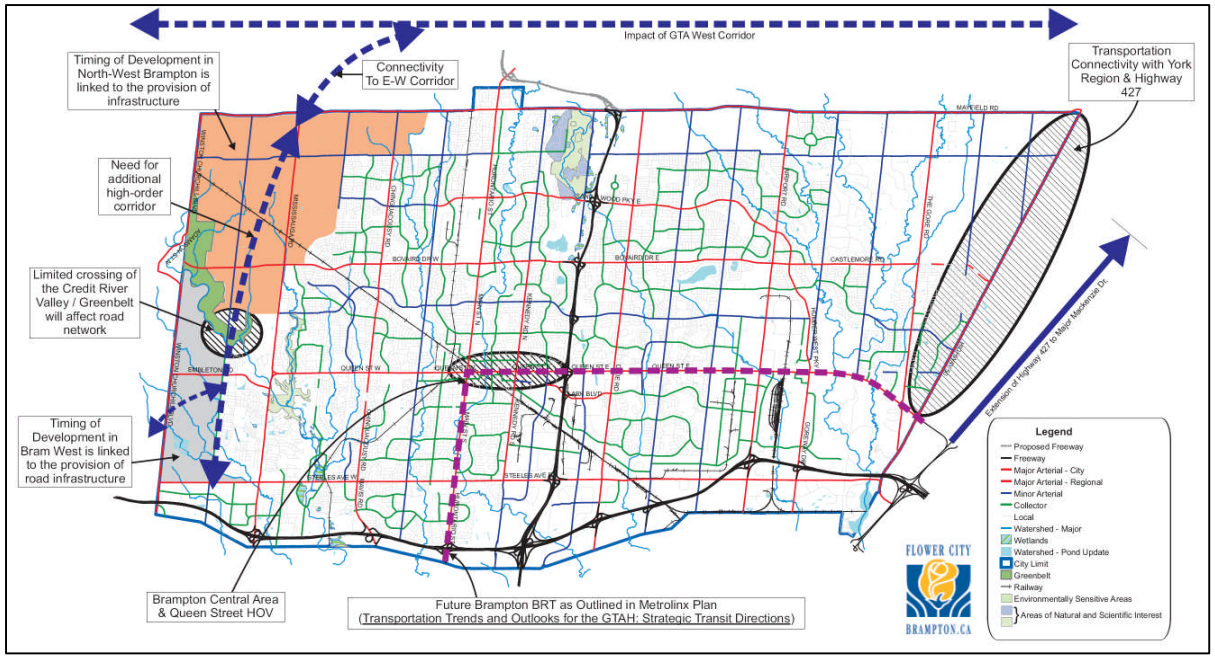


Exhibit 3-2: Constraints and Opportunities

4. ALTERNATIVE STRATEGIES

The following four alternative strategies are analyzed and evaluated across a broad spectrum of performance measures, outlined in the following section. **Table 4-1** summarizes each alternative strategy considered.

Table 4-1: Alternative Strategies

Alternative #	**2031 Transit Improvements**	**2031 Road Improvements**
1 – No road or transit improvements	No change from existing	No change from existing
2 – Transit improvements only	Transit improvements recommended in 2004 TTMP	No change from existing
3 – Road and transit improvements from 2004 TTMP	Transit improvements recommended in 2004 TTMP	Road improvements recommended in 2004 TTMP
4 – Enhanced Transportation Network	Preliminary transit improvements recommended in the 2009 TTMP	Preliminary road improvements recommended in the 2009 TTMP

Each alternative is analysed on a network basis including all road facilities in the City of Brampton. Network performance measures include:

- Percent network congested by lane-kilometre
- Total travel time in vehicle-hours
- Total vehicle-kilometres travelled
- Annual greenhouse gas emissions in tonnes
- Annual hours of congestion

The alternative strategies are evaluated on a network basis consisting of all roads in the City of Brampton. The results are summarized in **Table 4-2**.

Table 4-2: Network Performance for Alternative Strategies

Performance Measure	2006 Model	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Peak hour % Network congested (lane km)	9%	58%	56%	21%	16%
Peak hour total travel time (hours)	12,800	58,200	52,900	28,300	26,900
Peak hour vehicle-kilometres travelled	931,000	1,808,400	1,754,500	1,862,800	1,839,600
Peak hour overall transit modal split	8.3%	8.3%	13.2%	13.2%	16.6%
Annual GHG per capita (tonnes / weekday peak periods auto travel)*	0.42	0.56	0.53	0.4	0.38
Annual hours of congestion	5,081,900	58,711,700	51,646,100	14,897,800	13,234,300

*Note: Future GHG estimates account for improvements in vehicle emissions. The 24% GHG decrease by 2031 is based on the average 0.94% per annum decreased in GHG emissions observed in Canada in transportation sector (small and large cars only) between 1997 and 2006 and reported by Natural Resources Canada (http://oee.nrcan.gc.ca/corporate/statistics).

Alternative 3, representing the 2004 TTMP recommended transit and road network, makes significant improvements upon the do-nothing scenarios. Its vision for a balanced transit and road network results in improved network performance in the 2031 horizon year. Alternative 4, building upon Alternative 3, incorporates further road and transit improvements in new growth areas, considers improved transit service city wide, accounts for new provincial, regional, and municipal planning initiatives, and results in an even better overall network performance in all measures of effectiveness.

Using population estimates of 452,000 and 758,000, the per capita performance measures comparing 2006 model and Alternative 4 are summarized in **Table 4-3**.

Table 4-3: Network Performance per Capita, 2006 vs. Alternative 4

Performance Measure (Per Capita)	2006 Model	Alternative 4
Peak hour vehicle-kilometres travelled	2.1	2.4
Annual GHG per capita* (tonnes / weekday peak periods auto travel)	0.42	0.38
Annual hours of congestion	11.2	17.5

*Note: Future GHG estimates account for improvements in vehicle emissions. The 24% GHG decrease by 2031 is based on the average 0.94% per annum decreased in GHG emissions observed in Canada in transportation sector (small and large cars only) between 1997 and 2006 and reported by Natural Resources Canada (http://oee.nrcan.gc.ca/corporate/statistics).

Comparing the recommended Alternative 4 scenario with existing (2006) conditions, the performance of the two transportation network measures (vkt and annual hours of congestion) on a per-person basis appears to decline slightly between 2006 and 2031. With the City's population expected to grow by over 300,000 (67%) and employment expected to grow by over 165,000 (106%) over this time period, the reality is that the transportation level of service will continue to deteriorate. The sustainable improvements proposed in this 2009 TTMP however, will help manage this growth so that in the future the City has a well utilized, but not overly congested, balanced transportation system.

5. RECOMMENDED TRANSPORTATION STRATEGY

TTMP policies promote an integrated and efficient transportation system to support a vibrant economy and high quality of life. Proposed transit nodes and corridors will be supported with higher density land use and a compact urban form supportive of sustainable travel through walking, cycling, and transit.

Some key policies building on the 2004 TTMP vision include:

- Public transit is the first priority for moving people
- Provision of a safe and comfortable pedestrian network
- Increased modal share of transit
- Optimized goods movement systems

This 2009 TTMP Sustainable Update ensures that the City's and Region's growth needs are met, that the requirements of the Places to Grow Act and Metrolinx are met, that active transportation is considered as a viable mode of travel, and that the long-term vision for goods movement is established.

5.1. Implementation Philosophy

The TTMP is designed to be a practical guide for implementing transportation investments, policies and actions into the urban transportation environment influenced by perpetually changing economic, financial, and political conditions. The recommendations made in this 2009 TTMP were derived from a number of assumptions and while the broad vision set forth by this TTMP would not change, timing and scope of road or transit investments might change subject to availability of funding, growth management requirements, results of Environmental Assessment studies, or other factors. Moreover, cognisant of the fact that major transportation planning studies are currently

being undertaken by the City and other agencies, modifications to the recommendations should be expected and considered on a case-by-case basis.

Short term transportation solutions should be synchronized with the long-term transportation vision for Brampton. For example, planning and design for interim road improvements should be compatible with the long-term vision and design for that road.

Interim road widening should look for solutions to allow constructing the road within its ultimate right-of-way and urban cross-section, with sidewalks and bicycle paths. Future widening to reach the ultimate number of lanes could take place within the roadway median. When circumstances prevent or make impossible interim road construction to its ultimate right-of-way and cross-section, the roadway should be constructed with at least one side pedestrian path (sidewalk) or paved shoulder (if it is a rural cross-section) to accommodate non-motorized traffic.

Further to the above, on-going coordination is required between the City of Brampton and adjacent municipalities to ensure that the transition of transit and road improvements are accommodated for, including but not limited to Right-of-Way standards, transit services, vehicle capacity, detail design, provision of HOV lanes, and bicycle lanes or multimodal pathways.

Peel Region roads should have designated right-of-way widths suitable for six- lane roadways.

Roadway congestion has become a fact of life and cannot be eliminated. The effects of congestion management measures, including modifications to intersection geometry, should minimize their impact on pedestrians, cyclists, and public transit and should support, not hinder the long-term vision for the corridor.

In the process of widening roadways that are designated as Bus Rapid Transit (BRT), Light Rail Transit (LRT) or other higher order transit corridors, staging opportunities should be investigated to ensure that balance between modes is maintained and long-term strategic objectives around increased transit and active transportation are achieved. Such staging opportunities should also consider transit and road network consistency with adjacent municipalities. Furthermore, widening

to six lanes in planned BRT / LRT corridors needs to consider the implementation of these additional lanes as High Occupancy Vehicle (HOV) / Transit-exclusive from the outset.

For corridors designated as BRT / LRT but not identified as requiring widening to six lanes, a four-lane cross section does not preclude operation of BRT / LRT service. Right-of-way for six lanes should still be protected for in these corridors where possible for the potential for HOV / Transit-exclusive lanes, or mixed traffic operation where right-of-way is unavailable. Arterial road sections identified as BRT corridors operating alongside four general purpose lane roadways and requiring at the minimum 36 meters right-of-way include:

- Hurontario Street and Queen Street through the Downtown and Central Areas
- Queen Street between Mississauga Road and McLaughlin Road
- Hurontario Street north of the Downtown Area and into Caledon
- Steeles Avenue east of Finch Avenue into Toronto
- Finch Avenue south of Steeles and into Mississauga and Toronto

Arterial roads recommended for bus rapid transit or other high order transit services should follow Transit Project Assessment process and be subject to Transit Municipal Environmental Assessment Study.

The implementation of BRT or LRT technology and associated infrastructure should be proactive and accelerated where possible and feasible.

The outstanding 2004 TTMP recommendation items should be implemented as planned.

The following sections discuss a detailed implementation process for transit and road networks as well as recommendations for active transportation, Travel Demand Management, and goods movement.

5.2. Transit Network Needs

5.2.1. Long-Term Transit Network

The recommended long-term transit network for Brampton consists of transit nodes connected by high-order transit corridors, in accordance with, and in addition to both the Provincial Growth Plan and the Metrolinx RTP.

The key elements of the transit network in the City of Brampton are summarized in **Table 5-1**:

Table 5-1: Transit Network Elements

Transit Network Element	Network Element Types
Transit Node	Mobility Hubs including Anchor and Gateway hubs, future mobility hubs, major transit station areas, and Transitway stations
Transit Corridor	BRT, primary, secondary, and community services
Regional Transit	GO Rail, and GO 407 Transitway BRT

As the City of Brampton transitions from a suburban to an urban environment, the transit nodes and corridors concept allows the City to grow strategically – putting land use in places that will support active and sustainable means of transportation as the City grows to the year 2031 and beyond.

The recommended long-term transit network for Brampton, illustrated in Exhibit 5-1, consists of transit nodes connected by high-order transit corridors, in accordance with, and in addition to both the Provincial Growth Plan and the Metrolinx RTP.

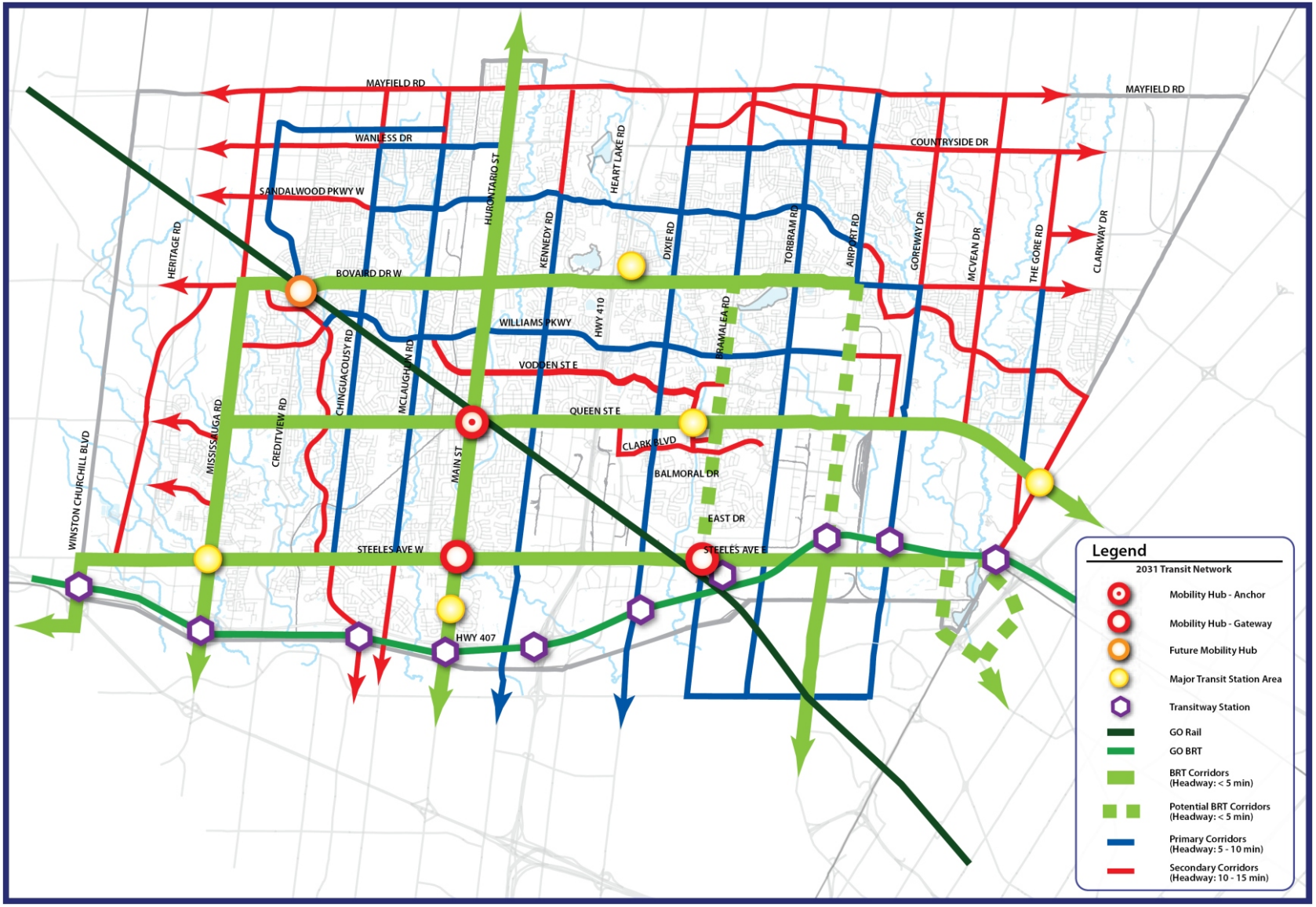
Transit service intensification, potentially converting some BRT corridors to LRT, is identified in the 2004 TTMP as a long term or 2031 strategic initiative. Further to that, the overall transit objectives as stated in the Brampton Official Plan support protecting for BRT corridors to be operated as LRT corridors in the future.The City should aggressively move towards dedicated transit lanes in centre median right-of-ways and seriously consider LRT technology as transit supportive land uses continue to be implemented, transit ridership grows, and funding becomes available. This is important to serve Brampton's long-term needs in coordination with other initiatives in the GTA to achieve convenient and appropriate transit service integration.

Further to the above, a framework to identify when to move towards higher-order transit must be identified so as to form a fundamental rationale for approaching senior levels of government for transit funding.

The City should strongly consider transitioning from mixed traffic BRT to dedicated rapid transit (BRT or LRT) in partially exclusive rights-of-way when investment grade transit ridership forecasts show demand of at least 2,000 to 5,000 per hour in the peak direction. Approximately ten years in advance of the ridership trigger, a number of items and studies should be addressed in advance of implementation, including but not limited to:

- Environmental assessments
- Securing funding sources
- Right-of-Way acquisition if still outstanding
- Preliminary and detail design
- Determination of technology

Further to the ridership demand, other factors should be considered for this framework, (including existing and projected levels of road congestion, land use development patterns and co-ordination with other infrastructure improvements) so as to maximize benefit from construction costs.



Note: Transit services will be provided to new growth areas in Bram West, Northwest Brampton, and Northeast Brampton. Determination of corridor types will be Established through the Secondary Planning Process. Connections to key future transit routes outside of Brampton should be provided as required.

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Exhibit 5-1

Ultimate Transit Network

5.2.2. Transit Network Implementation

By 2011, the first stage of BRT service will be implemented on Hurontario / Main and Queen Streets. The extent of the BRT service should be determined by a more detailed study, but at a minimum the BRT service should serve Queen Street east of Main Street and into York Region, and Hurontario / Main Street from the Sandalwood Terminal, south into the City of Mississauga.

With the implementation of BRT, Brampton Transit can continue to enhance its grid based transit structure with good transit service on primary and secondary corridors. Primary Corridors will run at five to ten minute transit vehicle headways, and incorporate transit priority measures including traffic signal priority, bus bays, queue jump lanes, etc.

Brampton Transit's future BRT service is set to launch in 15 months. Service, as identified in the *AcceleRide BRT Strategic Implementation Plan,* will be initiated in the following sequence:

- **Queen**: 2010
- **Main**: 2011
- **Steeles**: 2012
- **Bovaird**: 2014

The precise service implementation date for the Bramalea / Airport Road and Mississauga Road corridors, as identified in the 2009 TTMP update, is subject to detailed service planning and needs to be confirmed.

The Georgetown GO Line will have the following improvements in the near future:

- Peak hour train service every 15 minutes for Brampton, with selected trips serving Georgetown and Guelph. Counter-peak service will be every 30 minutes.
- Off-peak, all day train service twice hourly to Mount Pleasant, with bus service to Georgetown and Guelph.

- Capital program improvements include provision of an additional track and electrification if necessary

Meanwhile, the planned 407 Transitway will provide for longer-distance inter-regional service between Brampton and Halton and York Regions.

The recommended transit networks for 2011, 2016, and 2021 are illustrated in **Exhibit 5-2**, **Exhibit 5-3**, and **Exhibit 5-4**.

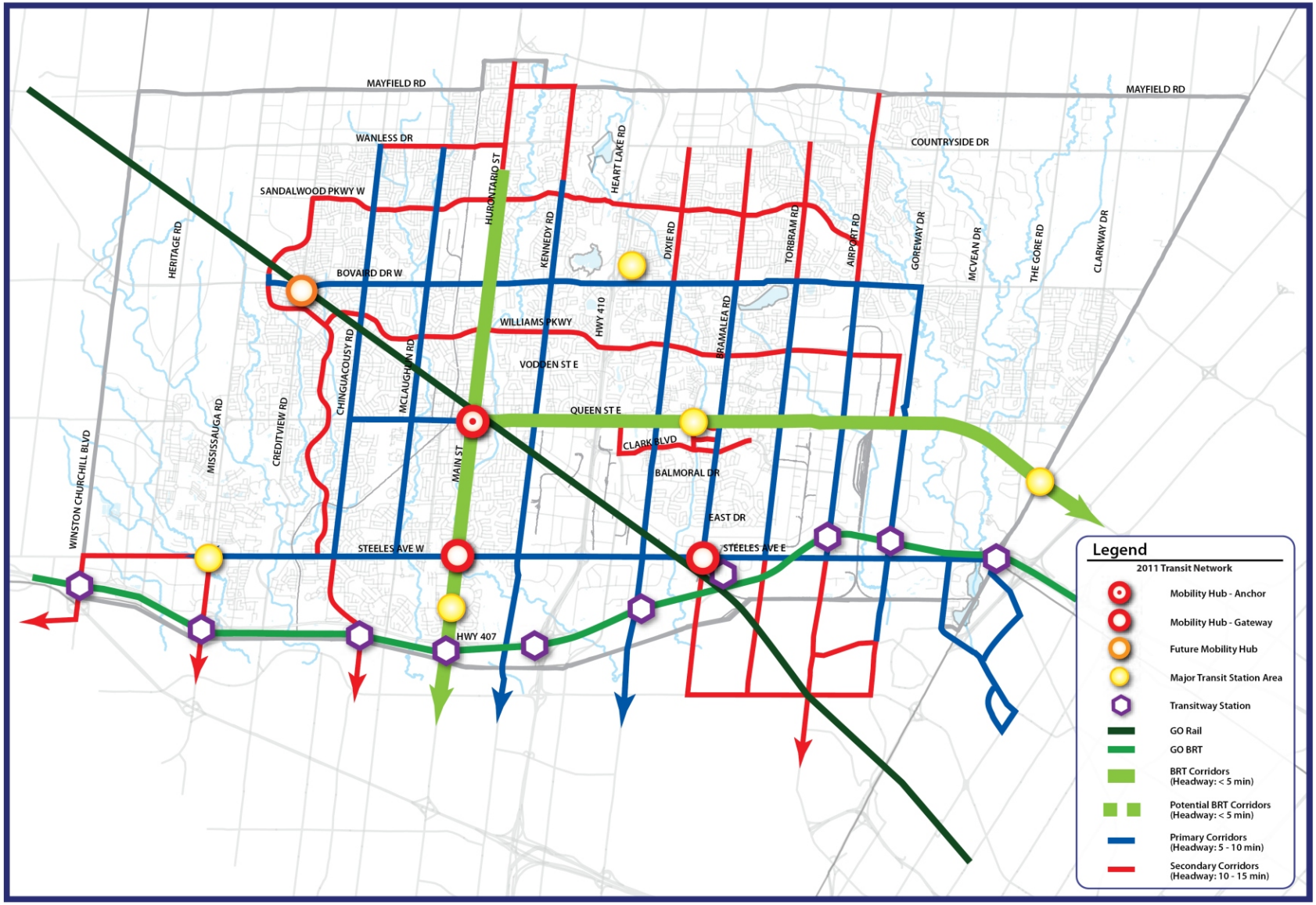

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Exhibit 5-2

2011 Transit Network

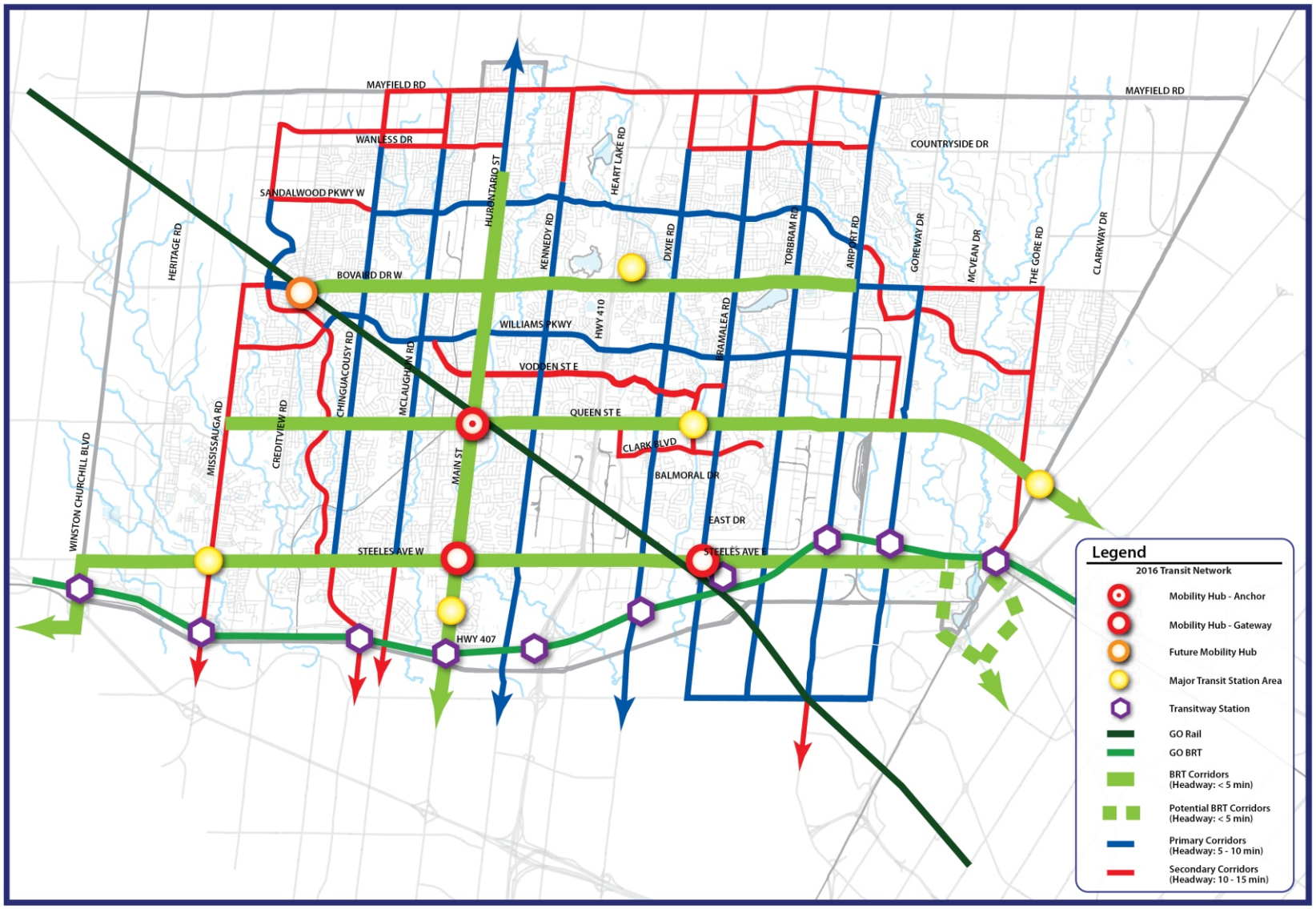

Exhibit 5-3
2016 Transit Network

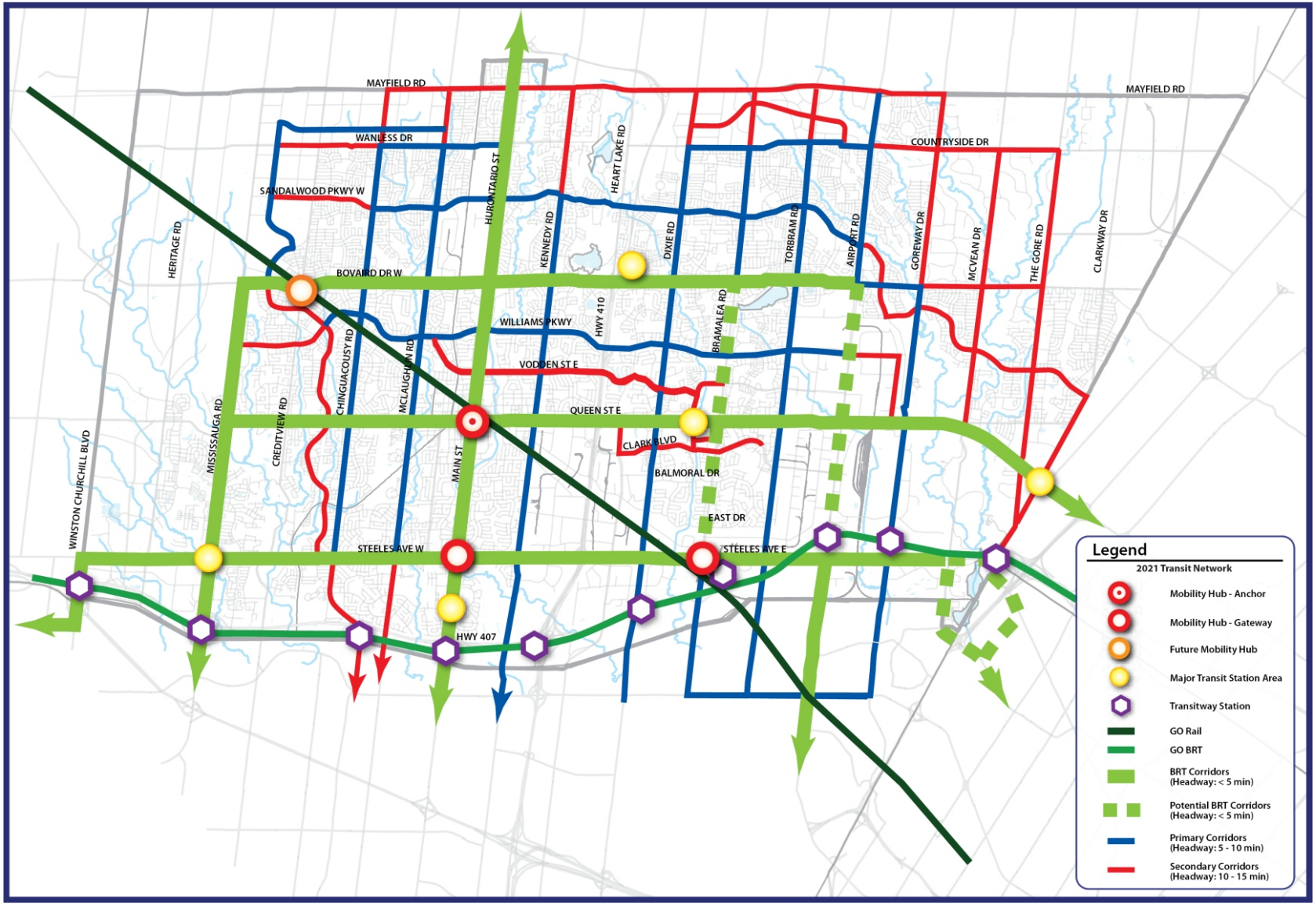

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Exhibit 5-4

2021 Transit Network

5.3. Roads

5.3.1. Long Term Road Network

The vision for a balanced transportation system includes improvements to all aspects of the transportation network to allow for the efficient movement of people and goods. A strategy for improving transit alone will not work.

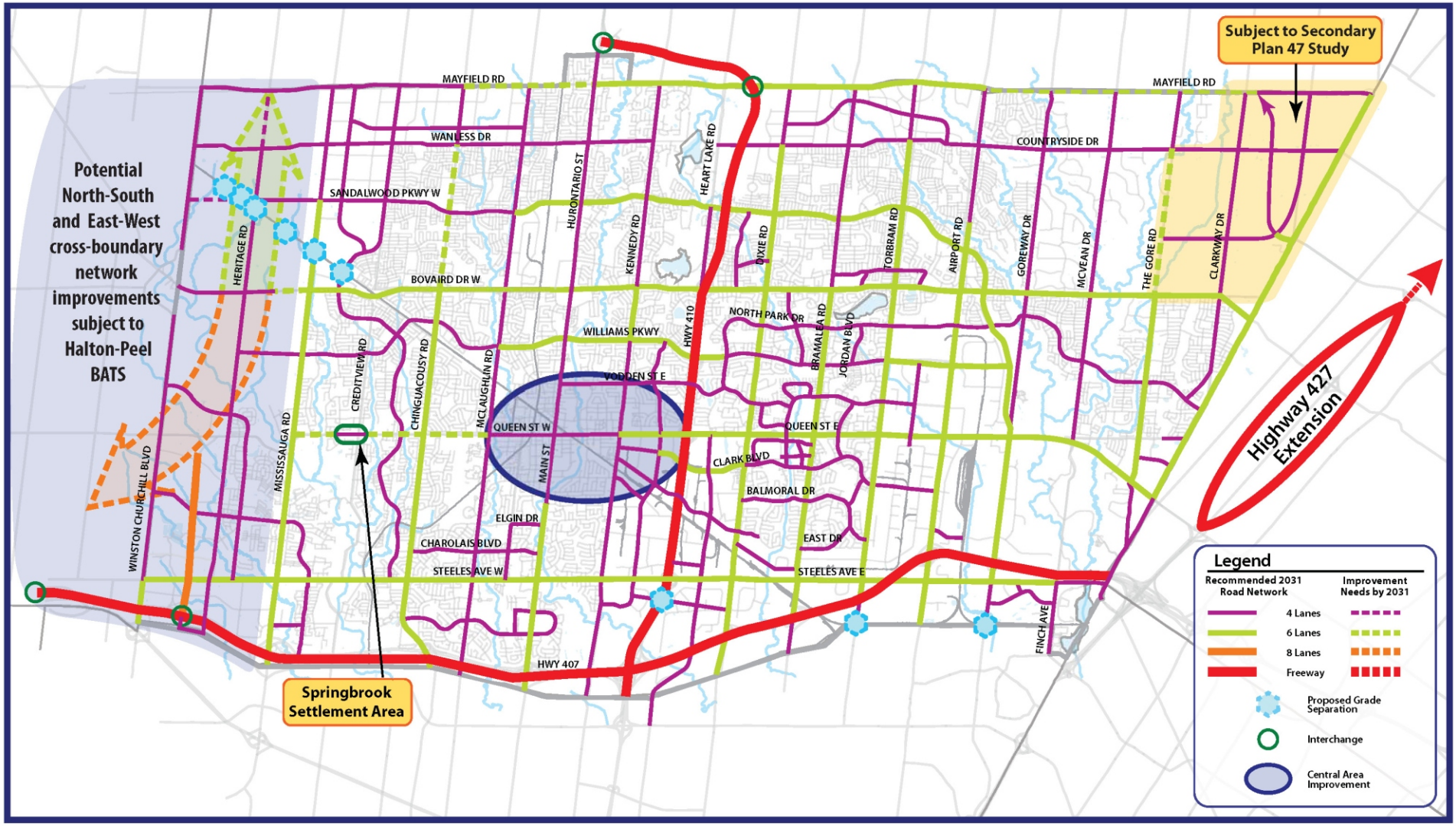
In addition to providing capacity for commuter auto travel demand, improvements to the road network also support both commercial vehicle traffic and transit trips. Ensuring the efficient movement of vehicles also reduces congestion and associated greenhouse gas emissions.

The vision of a balanced transportation system includes many road improvements that complement the major improvements proposed to the transit network. The results of recent studies in specific areas such as Bram West, Northwest Brampton, Northeast Brampton, and the Brampton Central Area are included.

The recommended long-term road network is illustrated in **Exhibit 5-5**

The recommended long-term (by 2031) transportation strategy will require an estimated $1.7 billion in capital roads projects over the 22-year period covered by this Transportation Master Plan. The estimates are based on roadway construction costs developed for the 2009 City of Brampton Development Charges By-law.

Regarding the road network in West Brampton, the on-going Halton-Peel Boundary Area Transportation Study (HP BATS) may refine the recommendations for the North-South Transportation Corridor (NSTC), and in addition, a corridor Environmental Assessment Study will be required to devise and recommend the corridor alignment.



All improvement needs on all Regional Roads depicted in these exhibits are subject to confirmation by Peel's Long Range Transportation Plan Update (LRTP Update). The upcoming LRTP Update will confirm and further define the road improvement needs required on Regional Roads with respect to capacity requirements and timing. To develop formal plans for specific road improvements, environmental assessment studies will need to be carried out and approved through the EA process.

Exhibit 5-5

Recommended Road Network Needs by 2031

5.3.2. Road Network Implementation

Recommended road network improvements in the short term are guided by the updated 10-Year Capital Works Program developed as part of the Development Charge Update component of this 2009 TTMP.

Significant recommended road improvements in the short-term include:

- Implementation of the updated 10-year Capital Works Program for road links and intersections developed as part of the Development Charge Update component of this 2009 TTMP
- Focus on increasing capacity across the Highway 410, Steeles Avenue, Brampton / Vaughan, and Brampton / Halton Hills screenlines
- Protect for the link of West Creek Boulevard to Biscayne Crescent across Highway 410
- Extension of Highway 410 north of Mayfield Road
- Highway 427 extension to Major Mackenzie Drive or beyond
- Queen Street capacity improvements from Centre Street to Highway 410 for future implementation of BRT and potentially LRT, recommended in the Queen Street Environmental Assessment – already underway
- James Potter Road will be completed between Williams Parkway and Steeles Avenue
- Financial Drive extension from Steeles Avenue to Heritage Road
- Continued expansion of the arterial and collector road network in new growth areas

Medium Term (2016) recommendations include:

- Introduction of a multi-modal transportation corridor in west Brampton (implementation of Bram West Parkway from 407ETR up to Bovaird Drive).
- Begin implementation of new or improved parallel roads around key freeway interchanges (i.e. Highway 410 crossings around Queen Street and Steeles Avenue). These are expected to off-load some of the local traffic from these keys through routes. Interchanges are often the focus for both development and for traffic congestion. Parallel collector roads can serve to facilitate

intensification of development and improve distribution of traffic. Clark Avenue is to be widened to six lanes by 2016.

- Continued expansion of the arterial and collector road network.
- Improvement of road links to Halton Region. Development will continue to the west of the City, and planning for effective access will facilitate employment and residential development in Brampton.

Longer Term (2021) recommendations include:

- East-west transit spine arterial in the Mount Pleasant area
- Extension of Westcreek Boulevard to Biscayne Crescent over Highway 410

Improvements by 2031 include:

- Widening of Queen Street from four to six lanes, west from McLaughlin Road to the Springbrook Settlement Area. Queen Street will be four lanes through this area
- Widening of Queen Street from four to six lanes from west of the Springbrook Settlement Area to Mississauga Road

Beyond 2031, two more improvements are recommended in the Northwest Brampton Area:

- Widening of North-South Transportation Corridor from six to eight lanes between Bovaird Drive and Mayfield Road
- Widening of Mississauga Road from four to six lanes between Sandalwood Parkway and Mayfield Road

Recommended road networks for 2011, 2016, 2021, and beyond 2031 are illustrated in **Exhibit 5-6**, **Exhibit 5-7**, **Exhibit 5-8**, and **Exhibit 5-9** respectively.

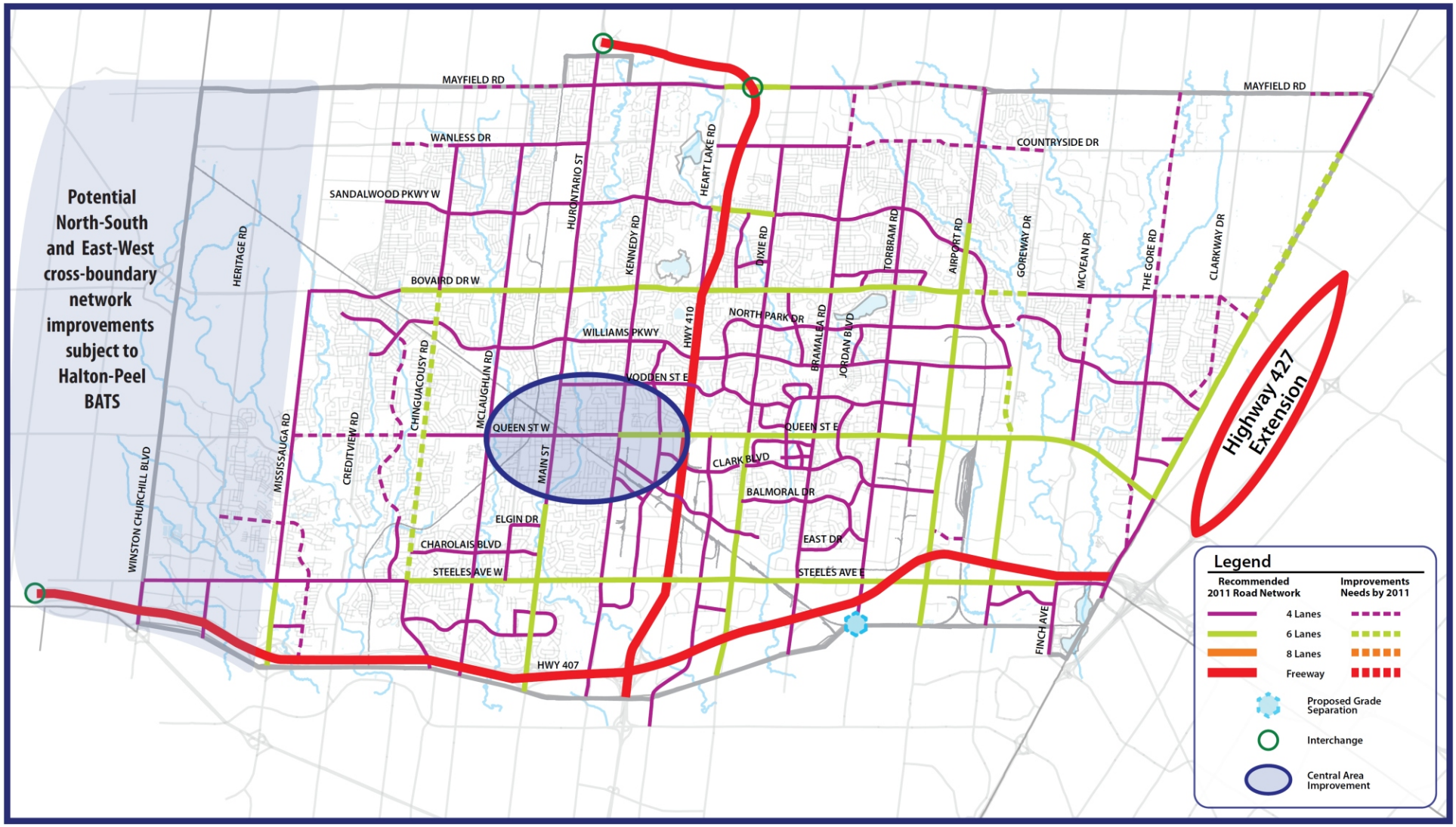


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Exhibit 5-6

Recommended Road Network Needs by 2011

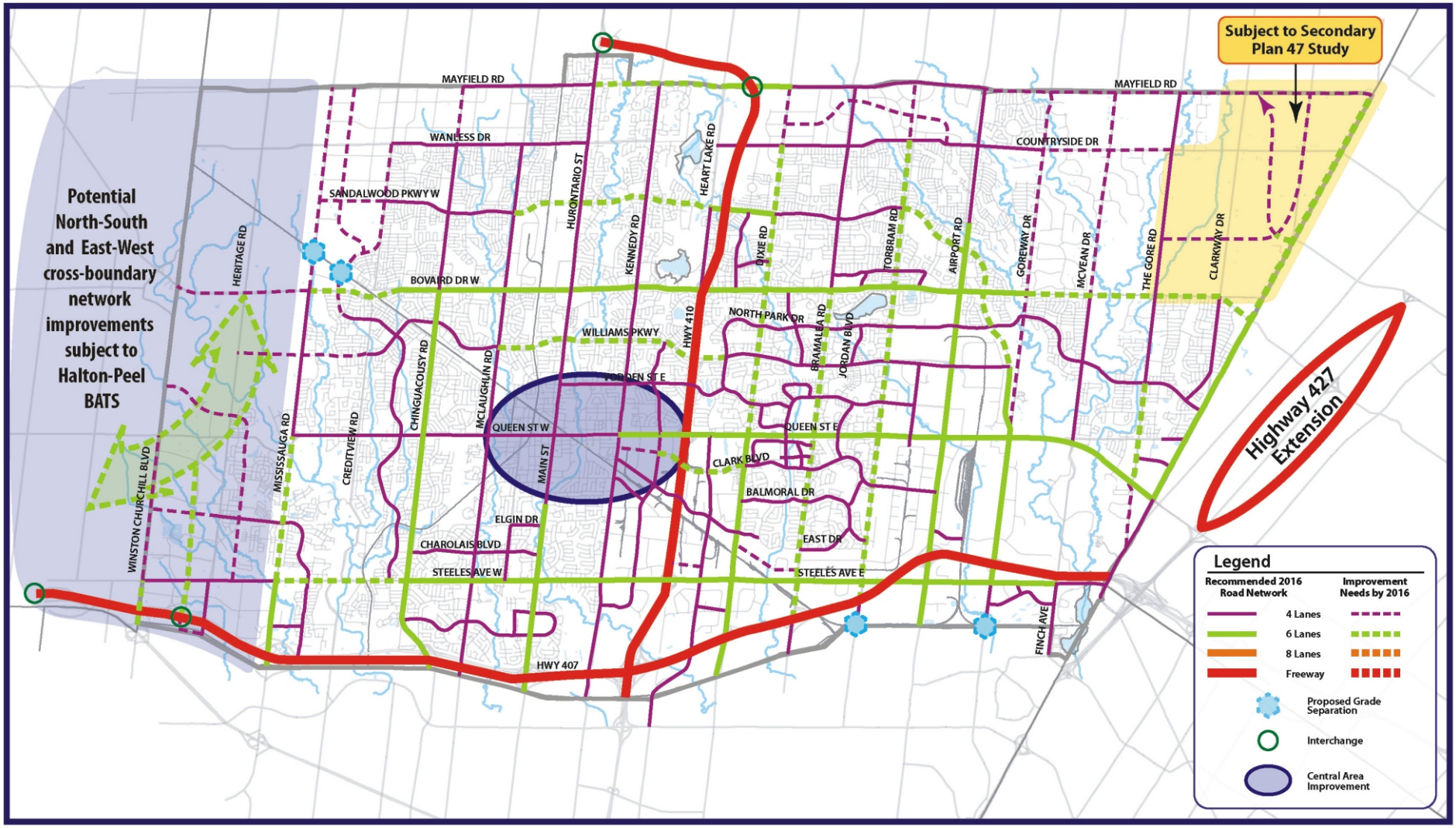

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Exhibit 5-7

Recommended Road Network Needs by 2016

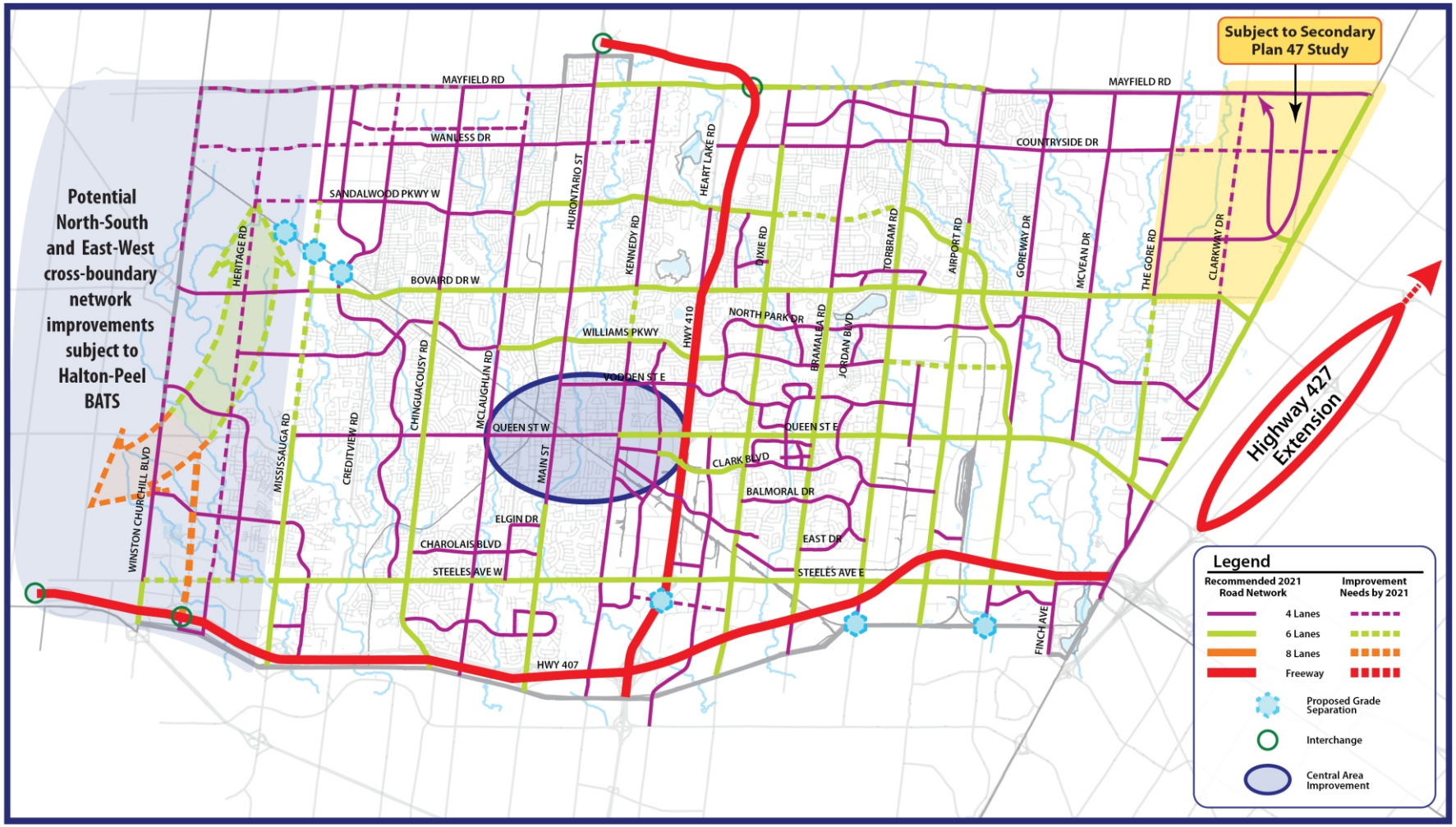

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Exhibit 5-8

Recommended Road Network Needs by 2021

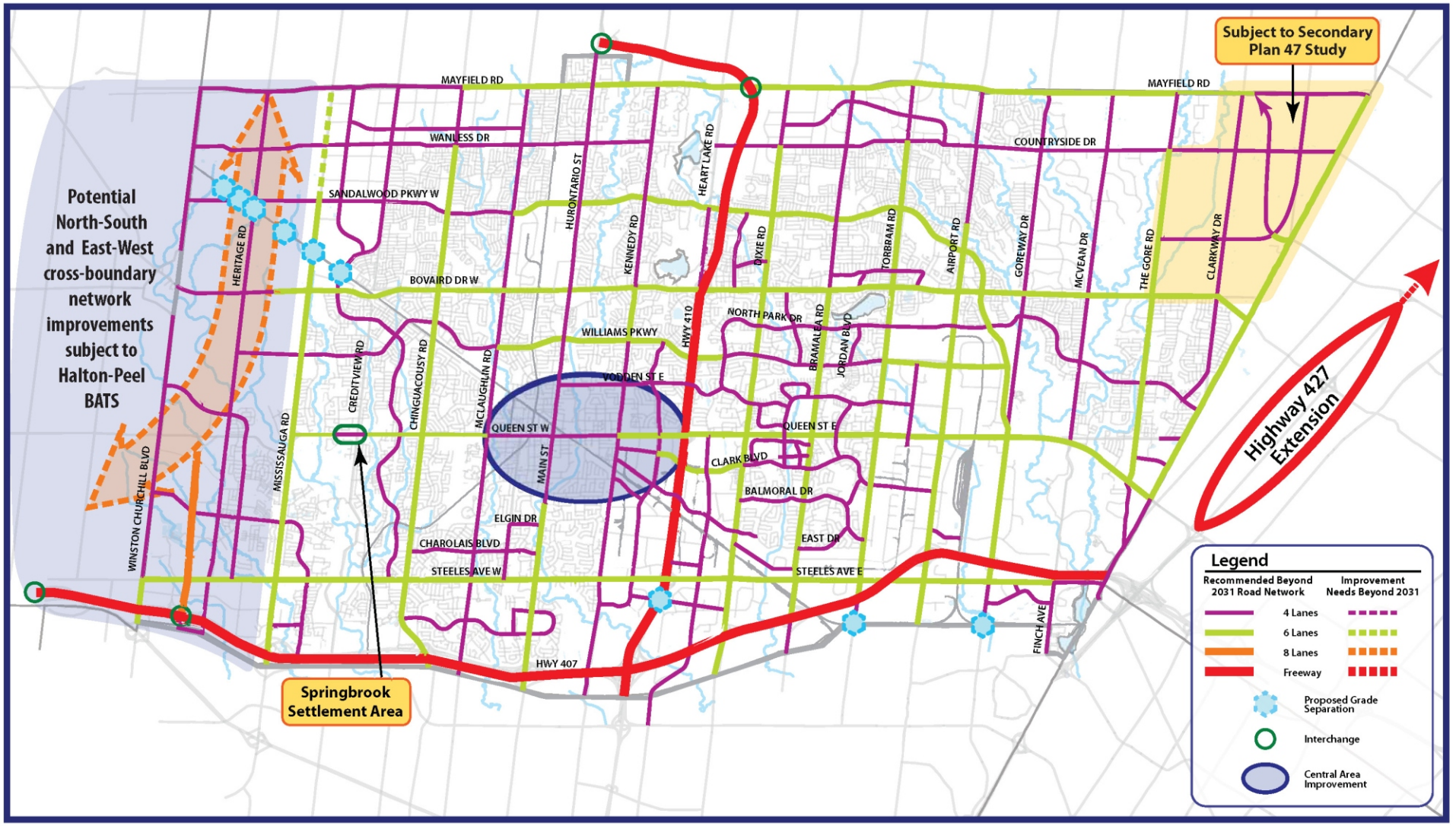

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Exhibit 5-9

Recommended Road Network Needs Beyond 2031

5.3.3. Northwest Brampton Road Improvements and New Constructions

Key features of the road network in Northwest Brampton to accommodate 2031 travel demand, including full build-out of Northwest Brampton, are listed below:

- North-South Transportation Corridor at six lanes between 407 ETR and Bovaird Drive by 2016, widening to eight lanes by 2031. Road function to be established by Halton-Peel Boundary Area Transportation Study. Final road alignment to be established during the EA and Preliminary Design Stage.
- Extension of North-South Transportation Corridor at six lanes from Bovaird Drive to Mayfield Road by 2031, widening to eight lanes beyond 2031. Road function to be established by Halton-Peel Boundary Area Transportation Study. Final road alignment to be established during the EA and Preliminary Design Stage.
- Bovaird Drive at six lanes between North-South Corridor and Main Street
- Mississauga Road at six lanes up to Sandalwood Parkway, four lanes between Sandalwood Parkway and Mayfield Road by 2031. Mississauga Road at six lanes beyond 2031.
- Chinguacousy Road at six lanes throughout study area
- Heritage Road at four lanes with an eastern by-pass of the proposed village core in the Bram West Secondary Plan Area (at Embleton Road)
- Mayfield Road at four lanes between Winston Churchill Boulevard and McLaughlin Road
- Connection of Williams Parkway to Heritage Road (at four lanes) and North-South Corridor
- Sandalwood Parkway Extension at four lanes between Winston Churchill Boulevard and Creditview Road

5.3.4. Mount Pleasant Secondary Plan Area Road Improvements and New Constructions

The preferred road network to support 2031 demand along with the development of the Mount Pleasant Secondary Plan included the following improvements:

- Creditview Road at four lanes between Bovaird Drive and Mayfield Road
- Sandalwood Parkway Extension at four lanes between Creditview Road and Mississauga Road by 2016
- Bovaird Drive at six lanes between Mississauga Road and west of Chinguacousy
- Wanless Drive at four lanes between Chinguacousy Road and Mississauga Road
- Mayfield Road at six lanes between McLaughlin Road and Chinguacousy Road
- Mayfield Road at four lanes between Chinguacousy Road and Creditview Road
- Construction of North-South Spine Road between Creditview Road and Mayfield Road by 2016
- Construction of an East-West Spine Road between North-South Spine Road and McLaughlin Road by 2021

5.3.5. North-South Transportation Corridor

The Halton-Peel Boundary Area Transportation Study (HP BATS) will recommend the long-term (2031) needs for the cross-boundary roads including North South Transportation Corridor in west Brampton. The 2009 TTMP network performance evaluations and subsequent recommendations are based on the "working assumption" of NSTC operating as a high order "Super Arterial" road, providing six to eight lane capacity, constructed to accommodate travel demand generated by the Bram West, Northwest Brampton, and Mount Pleasant areas as well as potential growth in surrounding areas such as Halton Hills and Caledon. The term "Super Arterial" coined for this facility reflects its unique operational characteristics defined by speeds higher than speeds on a typical urban arterial (80 km/h vs. 60km/h), eight lane cross-section and restricted access via signal controlled, at-grade intersections.

The NSTC alternative adopted for the TTMP analyses assumes a "Super Arterial" road beginning south of Highway 407 ETR at Heritage Road and ending at Mayfield Road in the north. The corridor constructed at eight lanes north-south up to Bovaird Drive is located between Winston Churchill Boulevard and Heritage Road. A six lane cross-section was assumed north of Bovaird Drive to Mayfield Road. With its alignment undetermined at this time, it was anticipated that it will be located between Winston Churchill Boulevard and Mississauga Road. The potential alignment was shown previously in the recommended 2031 road network in Exhibit 5-9. It is anticipated that the NSTC section north of Bovaird Drive will require an eight lane cross-section beyond 2031.

The NSTC will be required between Highway 407 ETR and Embleton Road to support development in the Bram West Secondary Plan Area (SPA). The Bram West Parkway portion of the NSTC (between 407 ETR and Williams Parkway) is recommended to be built, as planned in the 2004 TTMP, initially at six lanes with the potential for widening to eight lanes by 2031.

It is anticipated that roughly 20% of both population and employment growth occurring in North West Brampton, defined as SPA's 52 and 53, will trigger the need for the construction of NSTC north from Embleton Road to Bovaird Drive and Mayfield Road. Without the NSTC, additional development in North West Brampton tipping over the 20% level would result in severely congested conditions in this section of City's road network. However, it should be noted that likely greater than 20% of the projected employment can be supported, since employment uses located in this area would increase travel demand in the underutilized off-peak direction of traffic (during peak periods). Conversely, more residential growth would place additional stress on the already congested peak direction of travel.

Based on this analysis, Brampton should at this time plan and protect for a minimum as presented in **Table 5-2**.

Table 5-2: NSTC Implementation Timing

Southern Terminus	Northern Terminus	Number of Lanes	Year
Heritage Road / Meadowvale Blvd	407 ETR	4	2012
407 ETR	Steeles Avenue	6	2012
Steeles Avenue	Embleton Road	6	2014
Embleton Road	Sandalwood Parkway	6	2016
407 ETR	Steeles Avenue	8	2018
Steeles Avenue	Embleton Road	8	2019
Embleton Road	Bovaird Drive	8	By 2031
Sandalwood Parkway	Mayfield Road	6	By 2031
Bovaird Drive	Mayfield Road	8	Beyond 2031

5.3.6. Norval Bypass

The Norval Bypass has been proposed by Halton Region to provide an alternative route for east-west traffic between Halton Hills and Brampton to bypass Norval. Although it would improve east-west inter-regional connectivity, the Norval Bypass is not required to accommodate planned development and growth in Brampton. An alternative alignment for the Norval Bypass as previously proposed by Halton, with a new crossing of the Credit River, is not recommended in this study because of its significant environmental impacts. However, the need for improved east-west connections and alternative network improvements between Halton Hills and Brampton are being examined in the ongoing Halton-Peel Boundary Area Transportation Study which is jointly funded by the City of Brampton, Halton Region, and Peel Region.

5.3.7. Northeast Brampton Road Improvements

The road network needs and improvements in Northeast Brampton have been evaluated by the Peel-Highway 427 Extension Area Transportation Master Plan study. The study recommends the extension of Highway 427 to at least Major Mackenzie Drive by 2021 and north of Major Mackenzie Drive by 2031. Further to the extension of Highway 427, the required road network improvements within the City of Brampton include a combination of road widenings, the provision of a new north-south arterial road connection from Highway 50 and Major Mackenzie Drive to Mayfield Road located between Coleraine Drive and Clarkway Drive by 2016, the realignment of Coleraine Drive to intersect with the new north-south link, and an east-west connection from the realigned Coleraine Drive west to the Gore Road. The recommended road network is presented in Exhibit 5-10.

5.3.8. Impacts of GTA West Corridor

The GTA West corridor was identified in the Provincial Growth Plan as a strategic link between the Urban Growth Centres in the west of the GTA, potentially connecting the City of Guelph with the North-western part of the GTA connecting to the future extension of Highway 427, and terminating at Highway 400. The corridor, if approved, is expected to provide a choice route for heavy truck traffic, both for inter-provincial goods movement travel and more locally contained aggregate and construction industry travel. In all, the GTA West corridor, when completed, will provide clear benefits to the City by reducing congestion over certain screenlines, providing additional capacity and a more direct corridor for goods movement and accommodate growth in Brampton. The TTMP strongly supports the implementation of this strategic corridor.

5.4. Central Area

5.4.1. Transit Strategy

The Brampton Central Area is a vibrant place to live and work with a strong image and is identified in the Official Plan as the "heart of the City". The Downtown Area in particular was identified in the "Provincial Places to Grow" document and the Metrolinx RTP as an Urban Growth Centre (UGC) and an Anchor Hub – a central place where people will live, work, play, and also a place to facilitate transit travel to, from, or through the area. The Queen Street Corridor, between Kennedy Road and Highway 410 and part of which is also located in the UGC, has great potential to develop into a mixed-use, transit-oriented, pedestrian-friendly environment. As stipulated in the Growth Plan, UGC's are to develop at a minimum density of 200 people and jobs per hectare by 2031. Given this significant growth, transit priority and infrastructure improvements are essential to the development of the area.

While it is outside the scope of this 2009 TTMP document, to provide a detailed strategy and analysis of alternatives for transit through the downtown core, it is definitely stressed here that the Brampton Central Area is the cornerstone of the Brampton Transit network and thus is a vital component of the GTA's transit network. As a regional urban growth centre, an effective, viable, efficient strategy must be identified to allow the area to develop to its fullest potential. The 2009 TTMP recommends the Hurontario / Main Higher-Order Transit Study to develop the engineering alternatives and the ultimate vision for the area. Further to this on-going study a future Queen Street higher-order transit study is recommended to develop engineering alternatives and the vision for the Queen Street Corridor, while the Hurontario higher-order transit section north of the Brampton GO Station and up to the existing Sandalwood Parkway Terminal will require its own study in the near future.

The redevelopment of the Peel Memorial Hospital (PMH) campus provides an opportunity for planned transit service in the vicinity to implement transit infrastructure on site. Suggestions have

been put forward at public meetings around the idea of an alternative "Downtown Transit Terminal" on the hospital lands. Pending more detailed findings through the Hurontario/Main Street Higher Order Transit Study and future work to evolve higher order transit along Queen Street, it is not recommended that the PMH site be pursued as an alternative location for the Anchor Hub designated in the Metrolinx Regional Transportation Plan at the current Downtown Brampton GO Station

The advantages in continuing to support the Mobility Hub location just north of the Queen and Main intersection, connecting to the existing Downtown Transit Terminal and the existing Brampton GO Station, far outweigh the PMH site, and include:

- Existing transit infrastructure facility in the Downtown Transit Terminal, currently serving Brampton Transit, GO buses, and Greyhound buses
- Intermodal connectivity with the Brampton GO Station and local bus services using the existing Terminal
- Serves the significant residential, employment, and cultural land uses and events including the "Four Corners," Roselea Park, the Rose Theatre, and City Hall

While the PMH site would serve a significant employment centre in the Hospital, the Queen and Main "Four Corners" location is too vital to not be designated as the Anchor Mobility Hub for the City. Furthermore, the on-going Hurontario / Main Higher-Order Transit Study is currently assessing options for connecting to the Downtown Terminal, and is not considering any alignments for the Hurontario / Main higher-order transit to connect to the PMH site.

While it should not be designated as a Mobility Hub, plans for the PMH site should definitely include transit infrastructure on site as a transit stop on the Queen Street higher-order transit route. It is still an important location to serve with transit as a significant travel destination for patients, visitors, and employees. Since PMH is located east of Main Street at Queen and Centre Streets, and that Centre Street is identified in the *AcceleRide BRT Strategic Implementation Plan* as a transit

stop, a future Queen Street higher-order transit study should analyze in detail the transit interface here and how the Queen Street higher-order transit route will connect to the PMH site.

5.4.2. Road Network Strategy

Road network improvements in the Brampton Central Area have been identified in the Official Plan as necessary to ensure sufficient transportation capacity to support proposed and existing development, to promote new development, and to address emergency preparedness and risk management.

The TTMP Sustainable Update 2009 recommends that the following road improvements be carried forward and at a minimum be protected for as an opportunity for future road network connections and to accommodate the growth and development potential in Downtown Brampton and the Queen Street Corridor:

- Clark Boulevard-Eastern Avenue Connection (between Rutherford and Kennedy Road)
- John Street transit, cyclist and / or pedestrian connection between James Street and Centre Street
- Denison-Mill Connection
- Ken Whillans Drive Extension
- Queen Street access management and driveway consolidation

The implementation of these improvements will accommodate and support redevelopment and intensification of the Downtown Core and improve local access between the Downtown Core and adjacent neighbourhoods currently constrained by lack of north-south and east-west capacity. The improved road network will benefit emergency vehicle access to the Peel Memorial Hospital and generally support its redevelopment. The recommended improvements will also better manage Queen Street traffic congestion and assist in achieving its ultimate vision – improving the level of service for BRT and providing enhanced network flexibility and continuity.

The final recommendations for improvements to the road network in Central Brampton are summarized in Table 5-3 and Exhibit 5-10.

Table 5-3: Recommended Central Brampton Improvements

Improvement	From	To	Recommended Timing*
Queen Street EA Recommendations	Centre Street	Highway 410	Capital improvements underway
Ken Whillans Extension	Church Street	Nelson Street / Union Street	2011**
Clark – Eastern Connection	Kennedy Road	Rutherford Road	2016
John Street Extension	James Street	East of Centre Street	2018
Denison – Mill Connection	Park Street	Mill Street	Long-term improvement
Queen Street Access Management Improvements	Centre Street	Highway 410	Long-term improvement

* Recommended timing based on Brampton 10 year capital program

** Timing may be deferred based on ongoing EA and current issues

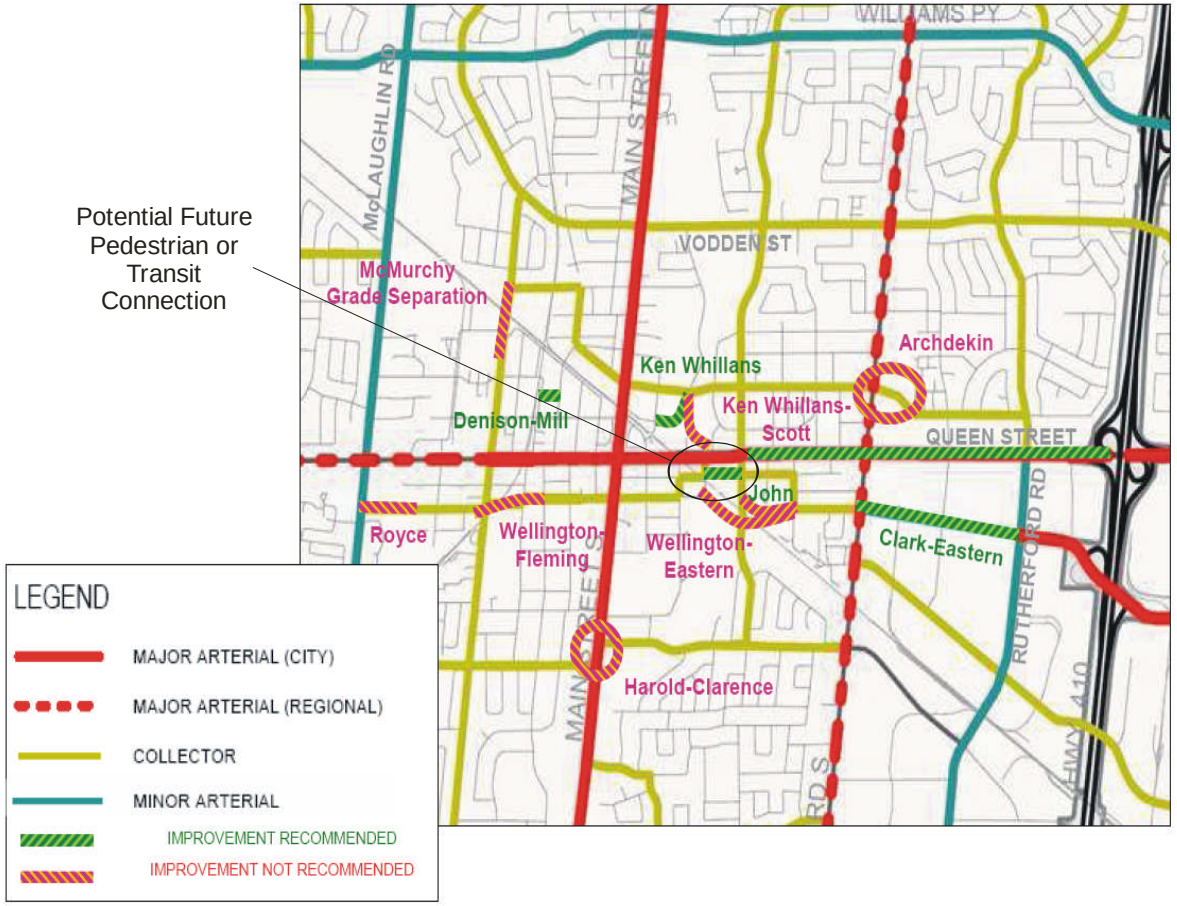

Exhibit 5-10: Brampton Central Area Recommended Road Improvements

5.5. Active Transportation

Active transportation is a key component of the overall transportation system.

The City of Brampton's Pathways Master Plan, developed in 2002 and subsequently updated in 2006, set the vision and a step-by-step implementation plan for Brampton's extensive pathway systems.

The City should continue to support and implement the recommendations of the Pathways Master Plan and the Official Plan policies developed from the Master Plan recommendations to meet the overall objectives of:

- Providing a city-wide pathway system
- Promoting bicycle use beyond recreational trips, i.e. work, shopping, entertainment
- Encouraging walking as healthy and environmentally friendly, such that it is the preferred travel mode for short trips
- Promoting the safe movement of pedestrians, especially those with disabilities, throughout the City
- Developing a beautiful and informative trails system that promotes the Brampton Flower City concept

In addition to the above the City should also:

- Ensure a complete and high-quality sidewalk network on all streets serviced by transit
- Ensure separation of cycling lanes from general purpose traffic lanes or high occupancy lanes
- Continue creating designated bike lanes on major streets that are used for utilitarian cycling
- Work with other jurisdictions, local road safety or cycling groups to establish an educational campaign for cyclists and motorists on how to share the road safely
- Secure bicycle facilities at existing and proposed transit hubs.

Further to continued support of the Pathways Master Plan, the City should continue to support urban design policies that promote pedestrian and cyclist friendly environments, appropriate massing to promote conducive transit access, and use urban design to promote the attractiveness of public areas as desirable 'activity' spaces. The principles that promote active transportation not only as a travel mode, but as a lifestyle.

5.6. Accessible Transportation

The vision of a modern, balanced, and sustainable transportation system proposed in this document must provide for safe, affordable, and efficient movement of all people, including persons with disabilities. In accordance with the Accessibility for Ontarians with Disabilities Act and the Ontario Human Rights Code, the City of Brampton must remove and prevent barriers for persons with disabilities, including the planning and implementation of the transportation system.

As part of this Brampton Transportation and Transit Master Plan Update, specific policies with respect to accessible transportation for inclusion in an amended Brampton Official Plan include the following:

- Continue to phase in accessible low floor buses on primary and secondary transit corridors until all Brampton Transit buses are accessible
- Ensure that transit vehicles used for future BRT/LRT corridors are accessible and have low floors if possible
- Continue to support Peel's Transhelp system with increased efforts to coordinate transportation services to ensure that the needs of Brampton residents and employees are met
- Work with the Province, Metrolinx, Region of Peel, surrounding municipalities, and human service agencies to facilitate interregional transportation for persons with disabilities
- Work with Province, Metrolinx, and Region of Peel to ensure that proper and sustainable funding are in place to ensure mobility of persons
- Coordination with Brampton Transit and private sector to ensure that the built form within the City is accessible to persons with disabilities, including but not limited to curb cuts, accessible entrances to buildings, parking standards and design, and access to the pathways network.

5.7. Transportation Systems and Demand Management

Travel Demand Management (TDM) programs are carried out in conjunction with the Town of Caledon under the Smart Commute banner. Launched in 2006, Smart Commute Brampton-Caledon was developed to tackle congestion and reduce air pollution by educating, advocating, and promoting sustainable transportation options to employers and employees in the Brampton-Caledon area. It is a partnership between private and public organizations, with support from the Brampton Board of Trade.

TSM strategies identified in the Official Plan, which may or may not already be implemented in Brampton, but are further endorsed in the 2009 TTMP, include:

- Implementation of Transit Signal Priority system to Primary Transit Corridors
- Provision of HOV lanes on 6-lane roadways
- Provision of queue jump lanes and bus bays on Züm and Primary Transit Corridors
- Provision of turning lanes where required and where feasible
- Segregation of slow moving traffic
- Minimizing pedestrian-vehicle conflicts while maintaining pedestrian-friendly streets and roads and minimizing size of intersections
- Exploring new Intelligent Transportation Systems (ITS) opportunities
  - Traffic signal control systems
  - Transit management systems
  - City-wide multi-modal traveller information systems

The EA process undertaken prior to implementation of these strategies should assess viability, operational parameters and interconnectivity with strategies planned or applied by other municipalities.

TDM strategies aim to improve efficiency of the transportation system by influencing travel demand and trip patterns. Strategies include:

- Car pool programs (Smart Commute Brampton-Caledon)
- Provision of employer incentives for TDM measures (i.e. telecommuting, flexible hours)
- Educational opportunities by working with schools

The City shall continue to support the Smart Commute Brampton-Caledon initiative and look to develop new programs and partnerships in cooperation with Peel Region and other agencies and private groups. The development of a TDM Master Plan would help to identify these opportunities and a strategy for implementing them in conjunction with Smart Commute.

Completion of TDM Master Plan is recommended for the City by 2016 or preferably sooner. The future document should address:

- Development of an effective City-wide TDM promotion plan
- Development of a “TDM culture” for Brampton, including the consistent application of TDM principles within the City’s administration processes. This should include:

- Reviewing and modifying transit, cycling, and pedestrian-related Official Plan policies to acknowledge their important role in Town-wide travel demand management
- Reviewing and modifying site design guidelines, traffic impact study requirements, and site plan approval process to encourage applicants to adopt TDM initiatives
- Development of TDM supportive parking policy such as paid parking, shared parking, and other parking management strategies

5.8. Goods Movement

The City is a hub for goods movement activity, with a major CN intermodal terminal near the intersection of Steeles Avenue and Airport Road. Its roads also serve the aggregate trucking industries prevalent in Caledon and Halton Region. Finally, the City is located just north of Pearson International Airport which generates significant truck traffic from goods shipped by air.

The 2009 TTMP makes the following recommendations with respect to Goods Movement:
Further to the Official Plan objectives, the 2009 TTMP makes the following recommendations:

- Undertake rationalization of truck routes in Brampton to provide for seamless connectivity to the Regional and Provincial goods movement network
- Protect for a high-order goods movement corridor in west Brampton to support existing and future employment areas in Bram West and Northwest Brampton
- Protect for a high-order goods movement corridor linked to aggregate extraction areas in Halton Hills and to the future GTA West corridor and GTA freeway network
- Endorse the recommendations of the Peel-Highway 427 TMP to extend Highway 427 to Major Mackenzie Drive by 2021 and beyond Major Mackenzie by 2031, and the extension of Major Mackenzie Drive in Brampton to Mayfield Road, recognizing that this corridor will have a positive impact on the efficient movement of goods – further strengthened by current plans for an industrial area in the Northeast part of Brampton

5.9. Air Quality

The City of Brampton will move towards a sustainable future with improved air quality through walk, cycle and transit supportive land use planning. Higher density urban form, in step with the *Provincial Places to Grow Plan*, development of a stronger transit system as defined in this document and in the *AcceleRide* (now Züm) *Strategic Implementation Plan*, promotion of active transportation through its *Pathways Master Plan*, and promotion of carpooling through the *Smart Commute Brampton-Caledon* initiative will transform the City's transportation system into one that is cleaner, healthier and more efficient.

In addition to transit and road network improvements and strategies to reduce overall auto demand and congestion, there are a number of options for policies and programs that the City can implement to help improve air quality. These options include but are not limited to the following:

- Public Education and Consultation
- Command and Control Options
- Various Methods for Charging Users
- Subsidy Options
- Governance Options
- Municipal Act
- Local Offset Approaches
- Local Roads Infrastructure
- Fleet Mix
- Revising Zoning
- Reducing the Number of Vehicle Kilometres Travelled
- Technology Improvements
- Street Washing
- Installing "Pervious" Concrete Edges Along Roadways

In addition to the above items, the City shall continue to support its on-going sustainable transportation initiatives in walk, cycle, and transit supportive land-use planning, transit service

improvements, providing a continuous pathways and trails system, and finally promoting TDM initiatives like Smart-Commute Brampton-Caledon. In doing so, the vision set forth in the 2004 TTMP and adopted in the 2009 TTMP for improved air quality and a high quality of life can be achieved.

The City is also encouraged to develop its Air Quality Strategy, a master plan document that will provide an in-depth assessment of the existing and future air quality conditions, undertake stakeholders and community consultations and apply professional air quality data and modeling to establish goals, an action plan, timing and an implementation cost of the Short to Long Term Air Quality Strategy.

6. 2009 TTMP FINANCING REQUIREMENTS

The cost of the road program, inclusive of road widening, new construction, reconstruction, road related transit improvements, property acquisition, studies, and other investments will add up to approximately $1.68 billion. The cost of the road related transit program is expected to reach $116 million by 2018.

The overall estimated cost of capital improvements for road reconstruction and widenings is $723 million. To accommodate new growth, the City will have to construct new roads for the total cost of $255 million, reconstruct and erect interchanges, overpasses and rail grade separations at an estimated cost of $101 million, invest in transit, and upgrade traffic operations capabilities at intersections. The costs of constructing then widening the Bramwest Pkwy / NSTC from Heritage Road over to Hwy 407, north to Embleton Road at eight-lane cross-section, widening of NSTC from Embleton Road to Bovaird Drive from six to eight -lanes, as well as the extension of the facility from Sandalwood Parkway to Mayfield Road will account for an additional $70.3 million. The cost of land acquisition for BramWest Pkwy/NSTC, widening of the corridor to eight -lanes, and the extension to Mayfield Road is estimated to add up to $40.4 million.

Table 6-1: Summary of Road Investments by 2031

Program Item	**Estimated Cost ($M)**
Road Improvements	$1,043.4
New and upgraded structures	$101.4
Intersections and sidewalks	$148.7
Road related transit improvements	$116.0
Transportation studies	$3.2
Property costs	$214.9
Other costs	$51.8
Total by 2031:	**$1,679.4**

Growth related transit investments identified in 2004 and in the current TTMP are eligible for Development Charge funding as well. However, DC eligible transit services and service levels will not recover all the costs even though a significant amount of transit funding will be needed to accumulate and manage growth within the City. The $229 million of transit investment required by 2018 identified in the 2009 Development Charge Background Study Report includes vehicle procurement for conventional and Züm services and the cost of providing stations, stops and shelters, control centres, maintenance facilities, a surveillance system, building transit terminals, and lay-over loops. Expansion of Züm services beyond 2018 will require an additional $47 million in vehicle procurement and station / stops cost alone.

Especially given the level of transit services planned for in this report, significant increases to operational funding will be required. Funding is typically received for infrastructure and capital requirements, but very little is money allocated to running the system once the infrastructure is in place.

A consistent source of funding would alleviate this issue, but securing sustainable transit funding has been an ongoing issue for the City. Although recently higher interest in mass transportation spurred new transit funding opportunities provided via Federal and Provincial programs such funding sources are usually not intended to secure long term financing for transit operation, maintenance, or expansion.

7. POLICY DIRECTIONS AND OP RECOMMENDATIONS

The recommendations of the 2009 TTMP support the achievement of these broad objectives. Consistent with the current Official Plan (and for the consideration of the City), the 2009 TTMP recommends the following additions / changes to the OP policies.

Table 7-1: OP Policy Recommendations

OP Section	Recommendations
4.4.2 Road Network Schedule B and B1	City road hierarchy and ROW maps should be modified to include new arterial and collector roads identified in area transportation master plan studies and Secondary Plan studies and confirmed by the 2009 TTMP. Further modifications to road hierarchy, ROW, road alignment and location might be prompted by the individual EA process. The new roads hierarchy and ROW include: • Spine Road north-south and east-west collectors at 23-26 m. ROW • Countryside Village Rd collector at 23-26m ROW • Ken Whillans Dr extension proposed minor road • Denison Ave connection Mill to Park south of railway tracks proposed minor road • Denison Ave connection McMurchy to Mercer/Hagert minor road improvements • Addition of north-south connecting link between Hwy 50 to Mayfield Road arterial at 36m ROW

OP Section	Recommendations
	• Addition segment 40-100 ROW segment on east-west link between Hwy 50 and Coleraine/north-south link intersection • Recognition that designated ROW widths should be wider at intersections to accommodate turning lanes, and may need to be increased to account for topography, grading, and natural features. • Recognition that widening to 6 lanes in planned BRT corridors needs to consider the implementation of these additional lanes as HOV / Transit-exclusive from the outset. The OP policies should also consider recommendations in Metrolinx's The Big Move Regional Transportation Plan, including the following: • The Big Move Policy 2.12, that sidewalks be included on all new regional and local roads inside settlement areas • The Big Move Policy 7.8, that the transportation system be planned, designed, built and operated to create pedestrian-, cycling-, and transit-friendly communities • Wider ROW widths should also include features to create safe crossing environments for pedestrians
4.4.3 Transportation System and Demand Management	• The 2009 TTMP confirms the Official Plan objectives and associated policies related to OP Section 4.4.3 Transportation System and Demand Management • The OP should recognize cycling and walking as viable transportation modes and establish support policies and financial strategies to support proliferation of walking and cycling • Ensure safe movement of pedestrians, especially those with disabilities, throughout the City

OP Section	Recommendations
	• Ensure a complete and high-quality sidewalk network on all streets serviced by transit • Ensure separation of cycling lanes from general purpose traffic lanes or high occupancy lanes • Continue creating designated bike lanes on major streets that are used for utilitarian cycling • Work with other jurisdictions, local road safety or cycling groups to establish an educational campaign for cyclists and motorists on how to share the road safely • Secure bicycle facilities at existing and proposed transit hubs • Prepare a TSM and TDM Master Plan Reports by 2011
4.4.4 Public Transit	The 2009 TTMP confirms the Official Plan objectives and associated policies related to OP Section 4.4.4 Public Transit. The OP policies are in agreement with Metrolinx The Big Move plan.
Schedule C	Schedule C should be updated to reflect findings of the 2009 TTMP and include: • Extension of Steeles Ave BRT to Lisgar GO Station • Mississauga Rd BRT connection to the planned City of Mississauga BRT service on Erin Mills / Mississauga Rd. • Pending the final recommendation of the Airport Rd BRT Corridor assessment Schedule C should be amended to reflect the recommended corridor • Major Transit Nodes should be expanded to include node categories and node locations as proposed by the 2009 TTMP

OP Section	Recommendations
Section 4.4.5 Parking Management	The 2009 TTMP confirms the Official Plan objectives and associated policies related to OP Section 4.4.5 Parking Management.
Section 4.4.6 Pathway System	The 2009 TTMP confirms the Official Plan objectives and associated policies related to OP Section 4.4.6 Pathway System.
Section 4.4.7 Trucking and Goods Movement	The 2009 TTMP confirms the Official Plan objectives and associated policies related to OP Section 4.4.6 Trucking and Goods Movement. Further to the Official Plan objectives, the 2009 TTMP makes the following recommendations: • Undertake rationalization of truck routes in Brampton to provide for seamless connectivity to the Regional and Provincial goods movement network • Provide high-order goods movement corridor in west Brampton to support existing and future employment areas in Bram West and Northwest Brampton • Provide high-order goods movement corridor linked to aggregate extraction areas in Halton Hills and to the potential GTA West corridor
Section 4.4.10 Adverse Impacts	The 2009 TTMP confirms the Official Plan objectives and associated policies related to OP Section 4.4.10 Adverse Impacts. Further to OP policies and since transportation (including transit) sources emit significant quantities of substances that directly impact the community, it is therefore recommended that the OP identify the need to develop and implement a comprehensive City-wide Air Quality Strategy.

OP Section	Recommendations
Section 4.11 Financial	Implementation of the 2009 TTMP, in particular the transit strategy, requires sustainable funding from senior levels of government in order for the vision to be achieved as currently available funding tools are not sufficient. Other sustainable methods of funding should be proactively investigated and implemented to supplement senior government funding and the Development Charge program. The OP should reflect this in its policies under Section 4.11.

7.1. West Brampton

As the Halton-Peel Boundary Area Transportation Study (HP BATS) is still on-going, recommendations made in the Brampton 2009 TTMP are being co-ordinated with HP BATS, and are subject to any changes resulting from that study. As a result of this coordination, three options are considered for west Brampton:

- Brampton "Super Arterial" 8-lane option
- Brampton Freeway option
- Halton-Peel Freeway option

Analyses undertaken as part of the 2009 TTMP indicate the following recommendations for the West Brampton road network:

- Brampton Freeway option is not preferred due to a lack of connectivity to Highway 401 and right-of-way impacts on the Bram West Secondary Plan Area
- Protect for Brampton Super Arterial in Bram West area and protect for freeway right-of-way north of Embleton, across the Credit River to Mayfield
- Protect for connection in Brampton to potential Halton-Peel Freeway in Halton
- Protect for connection to future GTA West corridor and GTA freeway network
- Protect for goods movement corridor
- Continue co-ordination with HP BATS

7.2. Northeast Brampton

Recommendations from this 2009 TTMP are made in following with the recommendations from the Peel-Highway 427 Extension Area TMP, which include:

- Widenings of north-south and east-west roads to serve future development in Northeast Brampton
- Provision of a new north-south arterial road between Clarkway Drive and Coleraine Drive to serve future development in Northeast Brampton
- Protection for a major east-west corridor in Northeast Brampton to connect with a future extension of Highway 427
- Need for studies to assess the future extension

8. PLAN MONITORING

A sustainable Transportation Plan cannot be fully successful without effective monitoring of the Plan's progress. The growth of the City of Brampton is closely dependant on balanced investments in all modes of transportation including transit services at various levels, roads to serve passenger cars and goods movement, bicycle, and cycle path system services to serve active transportation.

The recommended monitoring plan will rely on observed data measured against set performance targets. The TTMP progress reporting schedule will include annual to 5-year reporting driven by data availability. **Table 8-1** below summarises the recommended indicators, measures data for available targets, and identifies a reporting schedule.

The performance indicator menu should be enhanced by measures to estimate the public's interest and participation in active transportation and TSM / TDM. City wide or focus group surveys can also be considered.

The recommended Air Quality Strategy will address the environmental performance measures as they relate to transportation.

Table 8-1: Recommended Plan Performance Indicators and Measures

Indicator	Measure	Data	Targets Year	Target	Reporting Schedule
Transit Utilization	Transit ridership per capita.	Annual transit ridership counts and total population estimates	2006 2009 2012 2015 2018 2021 2031	23 26 28 31 33 35 42	Three year schedule. Targets should be updated in through the subsequent TTMP studies.
Modal shift	Proportion of local transit and GO transit trips in pm peak hour traffic	TTS survey	2006 2016 2021 2031	8.3% 14.1% 16.1% 16.6%	Five year interval to coincide with the release of Transportation Tomorrow Survey data. Targets should be updated in through the subsequent TTMP studies.
Walking and cycling	Modal share of walking and cycling during the PM peak period. Modal share measured as % of all trips (motorised and non-motorised)	TTS survey	2006 2016 2021	3.8% 6.6% 8.0%	Five year interval to coincide with the release of Transportation Tomorrow Survey data. Targets should be updated in through the subsequent TTMP studies.

Indicator	Measure	Data	Targets Year	Target	Reporting Schedule
Road network congestion	Volume to capacity ratio on northbound and southbound screenlines, peak direction of travel during the pm peak hour	Cordon count program or City / Regional ATR counts if available	2006 2011 2016 2021 2031	0.75 0.75 0.76 0.82 0.81	Five year interval to coincide with the release of Cordon Count data. The frequency can be increased to three years depending on data availability