

**City of Brampton
Planning and Development
Department**

**Transportation and Transit
Master Plan Sustainable
Update 2009 Appendix H -
West Brampton Development
Analyses
Brampton**

November 2009

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1. WEST BRAMPTON ROAD NETWORK

1.1 Projected Growth in West Brampton

The City of Brampton is projected to grow from its current (2006) total of 452,000 people and 155,000 jobs to 760,000 people and 320,000 jobs by the year 2031 based on the projected growth listed in **Chapter 4**. As the City's urban envelope has "filled-out" over the years, the concentration of this projected growth between now and 2031 will occur in west and north east Brampton – but specifically in the areas known as Northwest Brampton and Bram-West. **Table 1-1** summarizes the projected growth for West Brampton and its surrounding area.

Table 1-1: Projected Growth in West Brampton and Surrounding Area

Area	Population		Employment	
	2006	2031	2006	2031
Mayfield West	4,200	32,800	1,100	10,600
North West Brampton	1,200	60,400	100	3,100
Bram-West	6,400	39,600	5,500	27,000
401-407 Employment Area	400	50,500	2,600	52,200
Total Area	12,200	183,300	9,300	92,900
Growth		171,100		83,600

Within Brampton itself (North-West Brampton, Bram-West), 92,400 new residents and 24,500 new jobs are projected for 2031. When including the Mayfield West development area in Caledon to the north, and the Hwy 401-407 Employment Area in Mississauga to the south, these totals rise to 171,100 new residents and 83,600 new jobs.

The future transportation challenges for this area are evident, and a number of studies have been undertaken in the past to address them. The most recent study, the Halton-Peel Boundary Area Transportation Study (HP BATS) is still on-going and has not produced recommendations yet. Numerous other studies completed up to this point have identified a North-South Transportation Corridor (NSTC) as a necessary prerequisite for development in the west part of the City.

1.2 North-South Transportation Corridor (NSTC) Alternatives

The Halton-Peel Boundary Area Transportation Study is a joint study between the Region of Peel, Halton Region, City of Brampton, Town of Caledon, and the Town of Halton Hills. The study has been initiated to identify the long-term (2021 and 2031) transportation network

required to support provincial and inter-municipal planning goals, and to serve future transportation demands within the Study Area.

Specific goals and objectives of the Halton-Peel Boundary Area Transportation Study are to:

- Support current and future municipal planning objectives by providing transportation capacity to accommodate future travel demands generated by planned growth in west Brampton and Halton Hills.
- Develop a coordinated interconnected roadway network system along the Halton / Peel boundary.
- Identify opportunities for transportation mode choices, including public transit, carpooling / vanpooling, and High Occupancy Vehicle (HOV) lanes across the study area.
- Identify solutions to serve long-distance truck traffic travelling in the study area between Halton Region and Peel Region.
- Identify improvements that will serve inter-regional traffic including longer-distance, cross-boundary traffic from Halton Region (and areas west of Halton Region), travelling through west Brampton and southwest Caledon to destinations to the south and east in Peel Region, York Region, and Toronto.
- Review potential to improve connections with the existing Provincial 400-series highway network and possible future Provincial transportation facilities including the GTA West Corridor Planning and Environmental Assessment Study in support of the Province's growth objectives as set out in the Provincial Growth Plan for the Greater Golden Horseshoe.
- Explore opportunities to reduce dependency on the automobile through Travel Demand Management (TDM) / transit supportive measures.

However, since the HP BATS study has not arrived at its recommendations yet, the Brampton TTMP performed a number of study specific analyses to conceptualize the role, function, geographical limits, costs, and connectivity of NSTC if located only within the limits of the City of Brampton and Peel Region. The authors of this report and the project team would like to stress that the TTMP analysis does not preclude the evaluations and recommendations of the HP BATS. It is our understanding that it is within the HP BATS scope and mandate to make further recommendations on the NSTC, in addition, a corridor Environmental Assessment Study will be required to devise and recommend the corridor alignment.

The alternatives tested during the course of the 2009 TTMP Update include:

- Brampton Super Arterial, 8 to 6 lanes; with terminus at Sandalwood and Mayfield; with and without the connection to Hwy 401 via Winston Churchill Blvd; with and without the connection to future GTA West corridor
- Brampton-only Freeway, 6 lanes

Transit modal split applied to this exercise were discussed in **Chapter 3**. Major road improvements in the original 2031 base road network used in NSTC analyses included the following:

- Extension of Highway 410 from Bovaird Dr. to Mayfield Rd. and then continuing west to Hurontario Street
- Widening of Highway 401 to 12 lanes east of Mississauga Rd and 10 lanes from there to Trafalgar Rd
- Widening of 407 ETR to 10 lanes to 407 ETR / 401 interchange and to 6 lanes south to Hwy 403
- Connection of Creditview Rd. north of Bovaird Drive to James Potter Road south of Bovaird Drive
- Widening of Chinguacousy to 6 lanes from the Mississauga-Brampton boundary to Bovaird Drive
- Widening of Steeles to 6 lanes through west Brampton to the Halton boundary
- Widening of Winston Churchill to 4 lanes south of 10th Sideroad
- Widening of Bovaird Drive to 6 lanes east of the North-South corridor
- Addition of Bramwest Parkway south of the Credit River with a new interchange at the 407 ETR

1.2.1 Brampton Super Arterial

The Brampton Super Arterial concept envisions high speed and high capacity corridor located within Brampton. The corridor will serve the “new growth” areas of Bram-West and North-West Brampton, which includes the Secondary Plan Areas of Huttonville, Huttonville North, Mount Pleasant, and Mount Pleasant West. The corridor will require the “super arterial standard” which entails a lane capacity of 1000 vehicles per hour (vph) and a speed limit of 80 kilometres per hour (km/h). Such “super arterial” will provide 8 lanes between 407 ETR and Bovaird Drive, and 6 lanes between Bovaird Drive and Sandalwood Parkway or Mayfield Road.

The southern terminus of the NSTC will be at Heritage Road just south of 407 ETR and the road will veer to the north with a freeway to arterial interchange at 407 ETR. The road will generally follow the proposed Bramwest Parkway alignment in between Winston Churchill Boulevard and Heritage Road. Just north of Embleton Road, the road will run north to connect with Williams Pkwy and Bovaird Drive. North of Bovaird Drive, it is anticipated that the NSTC will locate somewhere between Winston Churchill Blvd and Mississauga Rd. To expedite the evaluation process and decrease the number of sensitivity runs, the NSTC was placed between Heritage Rd and Mississauga Rd; however, this “intermittent” location was not intended to preclude or in any way influence HP BATS or the future Environmental Assessment process required for the corridor. All roads that cross the Brampton Super Arterial will have at grade intersections.

Previous studies done in 2006 by Northwest Brampton Landowners Group confirmed the need for the NSTC from 407 ETR to Sandalwood Parkway for 2021 to 2026 and stated that no further extension of the corridor were required beyond 2031. This recommendation was subsequently adopted by Peel Region and included in the Regional Capital Plan and Development Charge. Since 2006 the vision for growth in the GTA West has changed. New

and profound changes, spurred by the provincial “Places to Grow” legislation, will affect Halton and Peel and, from the perspective of travel demand forecasting, are visibly reverberating across Brampton and its road and transit networks. To be fair to previously completed efforts, we assessed the impact of NSTC terminating at either Mayfield Road, Sandalwood Parkway, or the GTA West corridor. The results of the evaluation are presented in the following sections.

Brampton Super Arterial will also have an effect on existing and proposed 407 ETR operations. The planned 407 Transitway will have to be shifted to the south to make room for the planned interchanges with 407 ETR and the NSTC facility. Traffic operations on 407 ETR between Highway 401 and Mississauga Road may be affected due to the extra demand placed along this stretch of highway. Another issue facing this alternative is the spacing of interchanges between Highway 401 and Mississauga Road due to the planned interchanges for Brampton Super Arterials. If interchanges are closely-spaced, they can create potentially dangerous conditions due to weaving patterns between lanes.

1.2.1.1 Evaluation Results

Screenline results from the model assignment for the NSTC terminating at Mayfield Road indicate a high degree of congestion and screenline volume to capacity ratios at or slightly over 1 for the northbound traffic. Credit River screenline is the most critical point within the network. It consistently maintains the v/c ratio of 0.98 to 1.0 regardless of the northern terminus being at Sandalwood Pkwy or Mayfield Rd. Besides the Credit River screenline however, the rest of the road network in Brampton appears to be operating at a reasonable level of service.

Extending the NSTC to Mayfield Rd has positive effects across the entire network providing some minor relief to east west roads across the City. The Mayfield Rd terminus provides more convenient access for the traffic destined to areas in the Mt. Pleasant community and southern Caledon adjacent to Mayfield Rd.

Screenline V/C ratios for testing the link between the NSTC and the proposed GTA West Corridor are listed in the table below.

Table 1-2: NB Screenline, NSTC 407 ETR to GTA West Corridor

Screenline	Volume	Capacity	V/C
Caldedon / Brampton	3,340	7,700	0.43
North of Bovaird Drive	5,520	6,800	0.81
North of Queen Street / Embleton Road	8,520	9,670	0.88
North of Steeles Avenue	8,610	9,670	0.89
Brampton/Mississauga	5,810	9,540	0.61

NSTC option of connecting the corridor to Hwy 401 via Winston Churchill Blvd assumes that the corridor diverts to the west south of Embleton Ave and Maple Lodge Farms to link up with Winston Churchill Blvd just north of Steeles Avenue. The joined road then would continue to the south (8-lanes with 1000 / lane capacity) to connect to Highway 401 at the existing interchange. BramWest Parkway would provide connectivity with 407 ETR. This connection would allow for a direct high-capacity arterial connection to Highway 401 without requiring a diversion along Steeles Avenue. The alignment enables Highway 401 access without impacting employment land in Halton. It may impact Maple Lodge Farm lands, however, and it would require additional land and realignment of Winston Churchill Blvd south of 5th Sideroad / Embleton Rd.

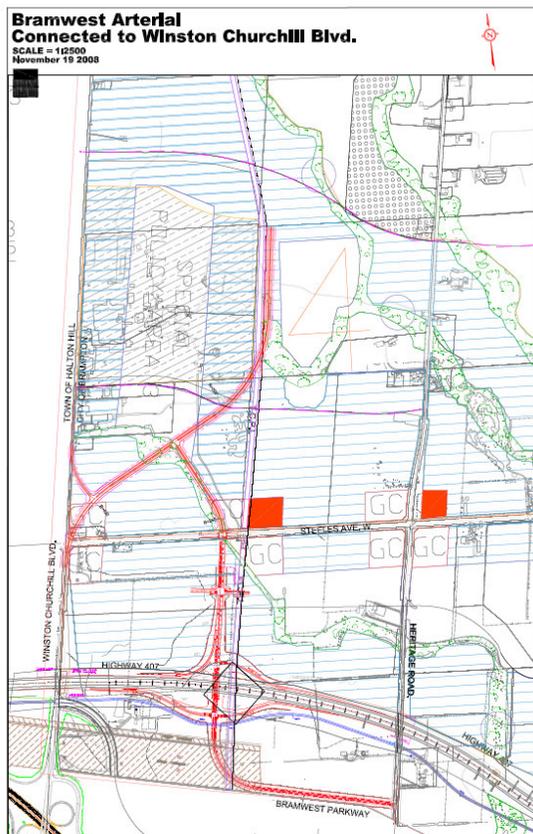


Exhibit 1-1: NSTC Connection to Hwy 401

While more NB traffic will be attracted to the screenline if the GTA West Corridor is built, the screenline will maintain a satisfactory level of service. The plot indicates, however, that congestion occurs on the NSTC and Heritage Road.

NSTC options were also evaluated for overall road network performance by examining arterial roads in the North West Brampton and Bram-West areas.

Table 1-3: Network Performance for NSTC Options

Performance measure	Mayfield	Sandalwood	WCB Link	GTA West
% Network congested (by lane km)	16%	18%	13%	17%
Total travel time (hours)	5,100	5,100	5,000	5,000
Vehicle-kilometres travelled	330,400	327,000	331,500	319,400
Annual GHG (tonnes/ weekday peak periods auto travel)	56,772	56,392	56,240	55,404
Annual hours of congestion	2,604,000	2,591,800	2,291,500	2,520,100

*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>).

Based on the previous discussion, it appears that the WCB Link option is preferred over the other NSTC arterial options. The case for including a WCB link is strengthened because it is the only alternative that provides a direct connection to both Highway 401 and 407 ETR.

1.2.2 Brampton-only Freeway

The Brampton-only Freeway is an 8-lane freeway option with service roads following the same alignment as the super arterial alternative from 407 ETR to Mayfield Road. Since this is a freeway option, all roads crossing this freeway must be grade separated and access will be limited to interchanges only. The freeway's lane capacity is coded as 1800 vphpl and the freeway's speed is coded at 100 km/h in the emme/2 model. A direct connection with Highway 401 is not possible due to inadequate interchange spacing between Winston Churchill Boulevard and Mississauga Road.

As with the Brampton Super Arterial option, traffic operations on 407 ETR between Highway 401 and Mississauga Road will be affected due to the installation of the new freeway-to-freeway interchange due to extra demand. The issue of interchange spacing, as discussed with the Brampton Super Arterial, remains an issue with this alternative. The 407 Transitway will also have to be shifted south to take into account for the interchange.

Using base scenario trip rates and mode share the results from the model assignment, the resulting volume-to-capacity ratios for this alternative are listed in **Table 1-4**.

Table 1-4: Northbound Traffic Volumes for Brampton-only Freeway

Screenline	Vol	Capacity	v/c
N. of Steeles Ave	4,058	5,400	0.75
Credit River	6,130	5,400	1.14
N. of Bovaird Dr	4,211	5,400	0.78
N. of Sandalwood Pkwy	3,516	5,400	0.65

Although the stretch over the Credit River appears to be congested, this is the only stretch of freeway where volume exceeds the roadway capacity. Compared to other alternatives, this alternative does not have the same impact on surrounding north / south arterials. The freeway has more capacity than the Super Arterial, and can consequently accommodate increased demands should development in Caledon and Halton occur.

Despite the obvious capacity related to providing a freeway over an arterial, the Brampton-only freeway is not preferred due to impacts on the Bram West Secondary Plan Area, and the lack of a direct connection to Highway 401.

1.2.3 NSTC Connectivity Improvements

Improvements for NSTC connectivity are based on the results for the need and timing of the recommended NSTC alternative. The following improvements are considered:

- Sandalwood Parkway extension from Chinguacousy to Winston Churchill Boulevard
- Wanless Road and Mississauga Road widenings
- Heritage Road widening

Sandalwood Parkway Extension

The current terminus for Sandalwood Parkway is currently at Chinguacousy Rd. The Sandalwood extension will extend the road to the boundary shared with Halton Region at Winston Churchill Boulevard. This improvement will serve the needs for future Northwest Brampton development. With the addition of the NSTC, it will be necessary to construct a high-order east-west link through Northwest Brampton to relieve congestion on other east-west arterials such as Mayfield Road and Bovaird Drive. The timing for the extension of Sandalwood Parkway is recommended in **Table 1-5**.

Table 1-5: Timing of Sandalwood Parkway Extension

Western Terminus (Extend to)	Year
Mississauga Road	2016
Heritage Road	2021
Winston Churchill Boulevard	2031

Wanless Road and Mississauga Road Widenings

This improvement includes the widening of Wanless Road to four lanes between Mississauga Road and Winston Churchill Boulevard from its current configuration of two, as well as the widening of Mississauga Road from two to four lanes north of Bovaird Drive to Mayfield Road. These improvements will provide extra capacity to relieve the congestion created by future traffic demand due to Northwest Brampton development and the NSTC. The Peel Region DC recommends the Wanless Road widening for 2016 and the Mississauga Road widening for 2013. However, the widening of this same section of Mississauga Road from

four to six lanes by 2023 is not recommended by this Brampton TTMP. The inclusion of the NSTC will provide sufficient capacity such that Mississauga Road can operate as a four lane road. Beyond 2031, however, Mississauga Road should be protected for six lanes.

Heritage Road Widening

The planned widening of Heritage Road from two lanes to four lanes will increase capacity for the west Brampton road network and will relieve congestion on adjacent north-south arterial streets, including the NSTC. This improvement is recommended to be implemented in stages; the first stage will be between Bovaird Drive and Wanless Road and has a recommended timing of 2021. The second stage of widening between Wanless Road and Mayfield Road is recommended for 2031.

1.2.4 NSTC Conclusions

Based on this analysis, Brampton should at this time plan and protect for a minimum as presented in **Table 1-6**.

Table 1-6: 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

The above infrastructure performs a regional and even interregional function but should be protected for at a minimum to accommodate growth planned in Brampton. However, further study (HP BATS) should continue to look at all options on both sides of boundary including freeway options, and on this basis Brampton should also continue to protect for the NSTC north of Embleton Road at a width sufficient to accommodate a freeway.

Potential future connections to a GTA West corridor, GTA freeway network and a goods movement corridor should be protected for.

1.3 **Bram West Development Staging**

1.3.1 **Background and Assumptions**

Four different scenarios were used to gauge how much Bram-West development could be supported without the construction of NSTC. This investigation was completed for 2031 population and employment. The land use forecasts were reduced to 0%, 50%, 75% development. The fourth scenario examined the conditions of 100% development occurring by 2031. For this sensitivity analyses, development quantum for the Secondary Plan Area 52 and 53 was reduced to 0%.

With no Bram-West development, volume-to-capacity ratios on Heritage Road and Mississauga Road are between 0.82 and 0.92 between Steeles Avenue and Embleton Road. Volume-to-capacity ratios exceed 1.00 along stretches of both roads near Queen Street / Embleton Road. Based on the model forecasts and results, it is predicted that Heritage Road and Mississauga Road will be very congested between Steeles Avenue and Bovaird Drive. With 75% of planned development, the road network is very congested. Mississauga Road is well over capacity, as are stretches of Heritage Road. Financial Drive is beginning to approach capacity and is becoming congested at this development level. These results are expected as these roads are suffering high congestion due to their central location in the planned BramWest development

At 100% of development planned, the road network becomes severely congested. Mississauga Road, “New Road A,” and Heritage Road are all approaching or exceeding capacity between Steeles Avenue and Queen Street/Embleton Road. High levels of congestion occur on Heritage Road north of Embleton Road to Bovaird Drive which is expected because of its central location in the planned Bram-West development. Therefore the 2031 road network without the Bram-West development, without the development in the Secondary Plan areas 52 and 53 and without the NSTC operates at acceptable levels of service.

Screenline summaries for the Bram West area at 0%, 50%, 75% and 100% development are illustrated in **Table 1-7**.

Table 1-7: Bram West Sensitivity Tests, 2031

Screenline	West Totals (Winston Churchill to west of Hwy 410)			
NORTHBOUND / WESTBOUND	Volume	Capacity	V/C Ratio	Transit Vol
Bram West at 0% Development				
North of Queen Street / Embleton Road	15,900	16,200	0.98	140
North of Steeles Avenue	15,400	19,600	0.79	400
Brampton / Halton	2,400	4,900	0.49	0

Bram West at 50% Development				
North of Queen Street / Embleton Road	16,200	16,200	1.00	140
North of Steeles Avenue	16,300	19,600	0.83	390
Brampton / Halton	2,900	6,800	0.43	30
Bram West at 75% Development				
North of Queen Street / Embleton Road	16,600	16,200	1.02	140
North of Steeles Avenue	15,500	19,600	0.79	390
Brampton / Halton	3,100	6,800	0.46	30
Bram West at 100% Development				
North of Queen Street / Embleton Road	16,300	16,200	1.01	140
North of Steeles Avenue	17,100	19,600	0.87	400
Brampton / Halton	2,900	6,800	0.43	30

1.4 Secondary Plan 52 and 53 (North West Brampton) Land Use Sensitivity Tests

Three different land use scenarios in North-West Brampton (SP 52 and 53) have been examined as sensitivity tests to investigate how the road network in the North West Brampton will operate with different levels of projected population and employment. Development levels in Bram-West and Mt pleasant communities were not adjusted and remained at levels.

The three different land use scenarios included the base case scenario with the population and employment numbers as provided by the City of Brampton in June 2008, (scenario with 100% population and a scenario with 100% employment).

1.4.1 Analyses

Scenario 1 tests the case for 100% residential development in North-West Brampton. With 100% residential development, traffic slightly increases going into North-West Brampton and the surrounding area when compared to the base scenario, which is expected for PM peak conditions. Under this development scenario, the road network in North-West Brampton is not congested and will be able to support 100% residential development.

This scenario tests the case for 100% employment development in North-West Brampton. This entails that the development density in North-West Brampton will be completely employed. If development in North-West Brampton is planned to be 100% employment based, an increase in traffic leaving North-West Brampton and the surrounding area is expected for the PM peak condition. Under this development scenario, the road network in

North-West Brampton is not congested and will be able to support 100% employment development.

Table 1-8: Screenline Summary for Base Case Scenario in Northwest Brampton

Base case				
NORTHBOUND	Volume	Capacity	V/C Ratio	Transit Vol
Caledon / Brampton	5,500	18,000	0.31	30
North of Bovaird Drive / Castlemore Road	15,900	20,600	0.77	250
WESTBOUND				
Brampton / Halton	3,200	6,800	0.47	40
East of Highway 10	9,900	11,800	0.84	350
EASTBOUND				
Brampton / Halton	2,400	6,800	0.35	170
East of Highway 10	8,100	11,800	0.69	480
100% Residential				
NORTHBOUND				
Caledon / Brampton	5,300	18,000	0.29	30
North of Bovaird Drive / Castlemore Road	16,300	20,600	0.79	250
SOUTHBOUND				
Caledon / Brampton	4,500	18,000	0.25	1820
North of Bovaird Drive / Castlemore Road	8,300	20,600	0.40	2800
WESTBOUND				
Brampton / Halton	3,100	6,800	0.46	40
East of Highway 10	10,000	11,800	0.85	350
EASTBOUND				
Brampton / Halton	2,700	6,800	0.40	170
East of Highway 10	7,800	11,800	0.66	480
100% Employment				
NORTHBOUND				
Caledon / Brampton	5,900	18,000	0.33	30
North of Bovaird Drive / Castlemore Road	15,000	20,600	0.73	250
SOUTHBOUND				
Caledon / Brampton	3,900	18,000	0.22	1,820
North of Bovaird Drive / Castlemore Road	8,900	20,600	0.43	2,800
WESTBOUND				
Brampton / Halton	3,500	6,800	0.51	40

East of Highway 10	9,400	11,800	0.80	350
EASTBOUND				
Brampton / Halton	2,400	6,800	0.35	170
East of Highway 10	8,300	11,800	0.70	480

1.5 North-West Brampton Development Staging

To determine how much development Northwest Brampton can support without the North-South Corridor crossing the Credit River, a series of land use sensitivity tests were run for the horizon year 2031.

1.5.1 Assumptions

The road network used for these analyses is similar to that of the recommended base scenario. However, the NSTC ends at Embleton Road between Winston Churchill Boulevard and Heritage Road in this case. A “standard” land use was developed for Northwest Brampton (NWB) and this land use scenario is known as the 100% case. Six land use scenarios were tested and are summarized in **Table 1-9**.

Table 1-9: Tested Land Use Scenarios, North-West Brampton excluding Mt. Pleasant

2031 Scenario	Population	Employment
100%	38249	17641
25%	9562	4410
20%	7650	3528
15%	5737	2646
10%	3825	1764
5%	1912	882
0%	0	0

1.5.2 Analysis

In the base case scenario, where 100% of planned development in Northwest Brampton is occurring and the NSTC is constructed between 407 ETR and Mayfield Road, the Steeles Avenue and Queen Street screenlines are providing acceptable level of service in the peak direction. However, the Queen Street screenline is approaching capacity and the road network is congested north of this screenline. The Credit River screenline is over capacity in the peak direction. This Credit River screenline and the North of Queen Street / Embleton Road screenline are critical screenlines as this series of land use sensitivity tests are based on the assumptions that the NSTC terminates south of the Credit River at Embleton Road.

The land use test for 25% of planned development in Northwest Brampton shows the Bovaird Drive screenline volume-to-capacity high, however there is still enough capacity to support volumes generated by 25% development. The Queen Street screenline has a total volume greater than total capacity and therefore this section of the road network is heavily congested. The Credit River screenline, which was over capacity in the base case scenario, has its volume-to-capacity increase by almost 20% in the peak direction. With 25% of planned development occurring in North-West Brampton, the road network exceeds the available capacity.

Compared to the results from the 25% development case analysis, the results for the 20% development case are the slightly better. There is a small decrease in the volume-to-capacity ratio for the Queen Street screenline, however the network is generally congested.

Since the road network is still congested at 20% development, a 15% development case sensitivity test was run. As with the results from the 20% development scenario, the results from the 15% development case analysis are similar to 20% - 25% results. Therefore, a 5% development case was tested.

With 5% of planned development occurring in Northwest Brampton, the volume-to-capacity ratios at the studied screenlines do decrease, although the network is still heavily congested at the Queen Street and Credit River screenlines. A final test was run, with none of the development planned occurring in Northwest Brampton.

Again with no development occurring in Northwest Brampton, the road network remains heavily congested without the NSTC. Although there are decreases in the volume-to-capacity ratios at the selected screenlines, they are not enough to relieve the severe congestion in the network.

Table 1-10 summarizes screenline volume-to-capacity ratios for the base case conditions (100%) and the six staging scenarios for development in Secondary Plan Areas 52 and 53.

Table 1-10: North West Brampton Sensitivity Tests, 2031

	West Totals (Winston Churchill to west of Hwy 410)			
NORTHBOUND	Volume	Capacity	V/C Ratio	Transit Vol
Development as Planned (100%)				
North of Bovaird Drive	15,907	20,600	0.77	8,270
North of Queen Street / Embleton Road	19,374	20,170	0.96	13,426
Credit River (WB & NB)*	10,855	10,440	1.04	2,868
25% Development in SPA 52 and 53				
North of Bovaird Drive	14,381	17,600	0.82	8,237

North of Queen Street / Embleton Road	16,215	16,170	1.00	12,475
Credit River (WB & NB)*	7,741	6,640	1.17	2,184
20% Development in SPA 52 and 53				
North of Bovaird Drive	14,322	17,600	0.81	7,998
North of Queen Street / Embleton Road	16,056	16,170	0.99	12,439
Credit River (WB & NB)*	7,708	6,640	1.16	2,130
15% Development in SPA 52 and 53				
North of Bovaird Drive	14,344	17,600	0.81	7,965
North of Queen Street / Embleton Road	16,124	16,170	1.00	12,142
Credit River (WB & NB)*	7,678	6,640	1.16	2,170
5% Development in SPA 52 and 53				
North of Bovaird Drive	14,231	17,600	0.81	7,965
North of Queen Street / Embleton Road	15,995	16,170	0.99	12,142
Credit River (WB & NB)*	7,615	6,640	1.15	2,170
No Development in SPA 52 and 53				
North of Bovaird Drive	14,173	17,600	0.81	7,965
North of Queen Street / Embleton Road	15,919	16,170	0.98	12,142
Credit River (WB & NB)*	7,555	6,640	1.14	2,170

Accounting for reasonable distribution of traffic given that other roads and screenlines would be operating below capacity, a development scenario at 20% of NW Brampton would likely trigger the need for the NSTC; this is with the assumption that by 2031 every other secondary plan area in the west part of Brampton is fully developed.

1.6 North-South Corridor Users

The north-south corridor will be constructed in order to handle the future demand created by “New Growth” areas in Brampton as well as future growth in other areas in Brampton, Caledon, and Halton Region. A select link analysis was performed to illustrate the users that the north-south corridor serves. It is important to define the users of the north-south corridor in order to properly allocate funding for the road and to identify potential road network improvements.

The select link analysis is completed for two of the four alternatives discussed in section **Table 1-11: Brampton Super Arterial and Brampton Super Arterial with connection to Winston Churchill Boulevard**. The first northbound link at Bovaird Drive and the link at the

Credit River crossing were selected for analysis of both scenarios. A third link, the first northbound link from Steeles Avenue, was analyzed for the Brampton Super Arterial alternative. This link is not analyzed for the second option as it was assumed that it would produce similar results to the results of the connection with Winston Churchill north of Steeles Avenue.

More than three quarters of the users of the Super Arterial north of Steeles are destined for traffic zones within the City of Brampton. “New Growth” areas represent 40% of the trip destinations for trips north of Steeles, followed by 2008 “built-up” areas within the City of Brampton at 36%. Milton and Halton Hills represent the destinations for half of the trips destined to areas outside of Brampton, or 12% of total trips.

86% of the users of the super arterial travelling northbound at the Credit River crossing are destined to traffic zones within the City of Brampton. “New Growth” areas represent 45% of the trip destinations for trips travelling north at Credit River, followed by 2008 “built-up” areas within the City of Brampton at 41%. At 7%, Caledon has the highest percentage of trips destined to areas outside of Brampton.

64% of the users of the super arterial travelling northbound at Bovaird crossing are destined for traffic zones within the City of Brampton. “New Growth” areas represent 36% of the trip destinations for trips travelling north at Credit River, followed by 2008 “built-up” areas within the City of Brampton at 28%. At 17%, Caledon has the highest percentage of trips destined for areas outside of Brampton.

Table 1-11: Travel on NSTC; NSTC 407 ETR to Mayfield Rd; 2031 PM Peak Hour

Trips destined to:	Forecast	Proportion of Total
NSTC north of Steeles Ave (NB)		
New Growth Areas	1401	40%
Other areas of Brampton	1238	36%
Caledon	200	6%
Halton Hills & Milton	418	12%
Other	206	6%
Total:	3463	100%
NSTC at the Credit River (NB)		
New Growth Areas:	1841	45%
Other areas of Brampton	1685	41%
Caledon	275	6%
Halton Hills & Milton	68	2%
Other	239	6%
Total:	4108	100%
NSTC north of Bovaird Rd (NB)		

New Growth Areas:	823	36%
Other areas of Brampton	650	28%
Caledon	387	17%
Halton Hills & Milton	121	5%
Other	321	14%
Total:	2302	100%

The results produced by this analysis were effectively the same as the alternative above without the connection at Winston Churchill Boulevard. 86% of the users of the super arterial travelling northbound at the Credit River crossing are destined to traffic zones within the City of Brampton. “New Growth” areas represent 45% of the trip destinations for trips travelling north at the Credit River, followed by 2008 “built-up” areas within the City of Brampton at 41%. At 7%, Caledon has the highest percentage of trips destined for areas outside of Brampton.

This select link analysis for the scenario with the Winston Churchill connection produces a much higher proportion of trips destined to new growth areas. 52% of trips using the Super Arterial are destined for new growth zones, a 16% increase over the scenario without access from Highway 401. All other destinations have their proportion of trips decreased when compared to the previously mentioned alternative.

Table 1-12: Travel on NSTC; NSTC Winston Churchill Blvd to Mayfield Rd; 2031 PM Peak Hour

Trips destined to:	Forecast	Proportion of Total
NSTC at the Credit River (NB)		
New Growth Areas:	1751	45%
Other areas of Brampton	1614	41%
Caledon	258	7%
Halton Hills & Milton	78	2%
Other	227	6%
Total	3928	100%
NSTC north of Bovaird Dr (NB)		
New Growth Areas:	1329	52%
Other areas of Brampton	562	22%
Caledon	330	13%
Halton Hills & Milton	80	3%
Other	250	10%
Total:	2551	100%

The results produced from the select link analysis with the GTA West corridor were very similar to the previously discussed alternatives. 81% of the users travelling northbound on the NSTC at the Credit River are destined to zones within the City of Brampton. “New Growth” areas represent 40% of the trip destinations, followed by “built-up” areas in Brampton at 41%. The lower proportion of trips destined to “New Growth” areas can be attributed to the fact that 9% of users of the NSTC northbound at the Credit River are destined to traffic zones outside of Peel Region, a 3% increase compared to the other two alternatives. Specifically these trips are destined for areas north of Caledon and areas to the northwest of Brampton such as Guelph.

North of Bovaird Drive, the analysis produces different results for users of the NSTC. Compared to the alternative without the Winston Churchill connection and the alternative with the Winston Churchill alternative, there is a decrease in trips destined to the City of Brampton of 4% and 14% respectively. This shift of users is due to the GTA West corridor which allows for greater access to traffic zones northwest of Brampton compared to the alternative of Highway 7 (Bovaird Drive). Compared to the alternative with the Winston Churchill connection, trips destined to traffic zones northwest of Brampton and north of Caledon double to 511. There is a 6% increase of these trips compared to the alternative without the connection. The proportion of trips destined to Halton Hills and Milton increases to 8%, again due to the presence of the GTA West corridor which provides higher order access to communities such as Georgetown and Acton.

Table 1-13: Travel on NSTC; NSTC Winston Churchill Blvd to Mayfield Rd with GTA West Corridor; 2031 PM Peak Hour

Trips destined to:	Forecast	Proportion of Total
NSTC at the Credit River (NB)		
New Growth Areas:	1666	40%
Other areas of Brampton	1728	41%
Caledon	275	7%
Halton Hills & Milton	138	3%
Other	360	9%
Total	4167	100%
NSTC north of Bovaird Dr (NB)		
New Growth Areas:	1067	41%
Other areas of Brampton	500	19%
Caledon	313	12%
Halton Hills & Milton	215	8%
Other	511	20%
Total:	2606	100%

Table 1-14: Users - 2031 Trip Origins

Trips Originating From:	Alternative 1: NSTC		Alternative 2: NSTC with Connection to Winston Churchill Blvd.		Alternative 3: NSTC with Connection to GTA West Corridor	
BramWest	2902	22%	2938	22%	3186	23%
Northwest Brampton & Mount Pleasant	1498	11%	1440	11%	1565	11%
Rest of Brampton	2597	20%	2600	20%	2838	20%
Mississauga	1995	15%	1935	15%	2067	15%
Caledon	257	2%	255	2%	216	2%
Halton	2889	22%	2887	22%	2946	21%
Other	1086	8%	1020	8%	1238	9%
Total	13224	100%	13075	100%	14056	100%

Table 1-15: Users - 2031 Trip Destinations

Trips Destined To:	Alternative 1: NSTC		Alternative 2: NSTC with Connection to Winston Churchill Blvd.		Alternative 3: NSTC with Connection to GTA West Corridor	
BramWest	2233	17%	2334	18%	2229	16%
Northwest Brampton & Mount Pleasant	1205	9%	1221	9%	1302	9%
Rest of Brampton	3809	29%	3823	29%	4050	29%
Mississauga	1477	11%	1440	11%	1532	11%
Caledon	476	4%	455	3%	478	3%
Halton	2198	17%	2084	16%	2339	17%
Other	1826	14%	1718	13%	2126	15%
Total	13224	100%	13075	100%	14056	100%