TRANSPORTATION BEYOND TOMORROW 2031

NIAGARA FALLS

Sustainable Transportation Master Plan

Final Report

Date: October 2011

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Glossary

Active Transportation	Includes walking, cycling, and other self-propelled travel modes (e.g. rollerblading)
High Occupancy Vehicle (HOV) Lane	A lane reserved for vehicles with a driver and one or more passengers and/or hybrid vehicles.
Intelligent Transportation Systems (ITS)	ITS applications include traffic monitoring and information dissemination systems.
Level of Service (LOS)	A measure-of-effectiveness by which traffic engineers determine the quality of service on elements of transportation infrastructure.
Mode Share (also System Mode Share)	The division (usually measured by percent split) between active transportation, transit, and auto use
Sustainable Transportation Master Plan (STMP)	Developed to provide a vision for a multi-modal transportation system that ensures future growth in the City is sustainable, in the context of the Smart Growth Policies and to address operational, planning and policy issues for all modes in the context of tourism, economics, environment and the community
Sustainability	The capacity to endure.
Travel Demand Management (TDM)	Strategies that include measures that improve the operation of the current transportation system by managing travel demands, independent of other infrastructure improvements (e.g. construction of expanding roads).
System Mode Share	The division (usually measured by percent split) between auto and non-auto (i.e. active transportation, transit) use
Transportation Systems Management (TSM)	Measures that include minor road network improvements that are intended to maximize the efficiency and safety of existing and planned transportation infrastructure.
Transportation Tomorrow Survey (TTS)	Provides weekday travel data for the Niagara Region, Hamilton, the GTA, Peterborough, Peterborough County and Victoria County based on 5% sample of population.
Visitor Transportation System (VTS)	A bus system connecting infrastructure in the tourist area (previously called the People Mover System (PMS)) {anticipated implementation date of March, 2013}.
Wayfinding/Signing	Area signage to better manage traffic flow and congestion and better identify key destinations in a community. Signing enhances the existing transportation network and supports the use of active transportation and transit as well as vehicular travel. Wayfinding encompasses all of the ways in which people orient themselves in physical space and navigate, or “find their way”, from place to place.

Executive Summary

1. INTRODUCTION

The Sustainable Transportation Master Plan (STMP) has been prepared by the City of Niagara Falls (City), in partnership with the Regional Municipality of Niagara (Region), the Ministry of Transportation (MTO) and the Niagara Parks Commission (NPC). The project team for the Niagara Falls STMP was led by AECOM, in association with UEM, with support from Informa, Victor Ford and Associates Inc., Stantec, and Watson & Associates.

The STMP provides a comprehensive and forward-looking strategy of priority improvements and programs required for the City to meet its transportation challenges. The plan addresses operational, planning and policy issues for all modes in the context of tourism, economics, environment and the community. The plan provides a vision for future transportation that is consistent with community values and can be achieved in a sustainable manner.

The STMP provides not only an updated multi-modal transportation plan for the next 20-25 years, it is also the necessary policy and decision making framework to allow the City to move forward with its priorities in a progressive and sustainable way. The process of developing the STMP has followed the Class Environmental Assessment (EA) planning process, meeting the requirements of Phases 1 and 2 in the planning process.

2. EXISTING POLICY FRAMEWORK

The existing policy framework is discussed in **Section 2** of the STMP. A number of Provincial, Regional and City policy and strategy documents were reviewed to establish the framework under which the goals and objectives of the STMP were set. These documents included:

- *Growth Plan for the Greater Golden Horseshoe;*
- *Regional Niagara Sustainable Community Policies;*
- *Niagara to GTA Transportation Corridor;*
- *Niagara Falls Official Plan (OP);*
- *Historic Drummondville Land Use Plan;*
- *Niagara Falls Brownfield Community Improvement Plan;*
- *Niagara Falls Transportation Master Plans;*
- *Active Transportation and Transit Policies and Principles; and*
- *Niagara Region Transportation Strategy.*

The STMP also utilized Provincial and Regional population and employment growth forecasts to provide projections for the future City scenario.

3. PUBLIC AND AGENCY INVOLVEMENT

A detailed overview of the public and agency consultation process is provided in **Section 3** of the STMP. Public and agency involvement was an important component of the development of the STMP. An effective consultation program provides for meaningful dialogue and an exchange of ideas and it results in a broadening of the information base and leads to better decision making.

The public and agency consultation for the STMP included the following:

- Interviews with Council Members;
- Visioning Focus Group;
- Community Advisory Group;
- Public Opinion Survey;
- Public Information Centres;
- Technical Advisory Group;
- Newsletters; and
- Project website.

4. STUDY GOALS, PRINCIPLES AND OBJECTIVES

Details on the goals, principles and objectives of the study are provided in **Section 4** of the STMP. The following four study goals and underlying principles are the initial components of the framework, and are provided in **Table ES1** (in no particular order).

Table ES1: Study Goals and Underlying Principles

Optimize the Transportation System
Make the most of what exists; preserve and maximize the use of facilities and services — avoid or defer the need for new infrastructure that does not support the other goals.
Promote Transportation Choice
Provide and maintain a transportation system that offers competitive choices for moving all people and goods in an integrated and seamless manner while minimizing single occupancy vehicle trips.
Foster a Strong Economy
Provide a transportation system that supports the retention of existing businesses and attraction of sustainable economic activity.
Support Sustainable Development and Growth
Provide and maintain a transportation system, in both new and existing areas of the community, which supports sustainable growth and green initiatives.

The goals, principles and objectives reflect a broad vision for the City for an inclusive, thriving and sustainable community.

5. EXISTING TRANSPORTATION CONDITIONS

Section 5 of the STMP discusses the detailed assessment of the existing transportation conditions. Extensive research and analysis were undertaken in order to establish the existing transportation conditions within the City. This includes the following elements of the transportation system:

- Active Transportation (existing on-road, off-road and multi-use trail facilities);
- Public Transit (local and intra/inter regional bus services and passenger rail);
- Transportation Demand Management (TDM) (policies and programs to influence travel behaviour);
- Roads and Bridges (Provincial highways, Regional and City roads and international border crossings); and
- Heavy Rail.

6. FUTURE TRAVEL NEEDS AND OPPORTUNITIES

Section 6 of the STMP provides an assessment of future travel demand growth and road network capacity, which is required to determine the need for future infrastructure improvements to address current deficiencies and new deficiencies that may arise as the community continues to grow. The section also provides information regarding the role that an effective active transportation system and lifestyle, increased public transit modal split targets, and TDM programs and initiatives can play in meeting travel needs.

This section includes the findings of the travel demand modelling work. For the purpose of assessing the benefits of various transit mode share options, four modelling scenarios were selected for analysis of the p.m. peak hour for the 2031 horizon year. The four scenarios tested include:

- Model Base – assumes default 6% total non auto use:
- Do Nothing – assumes current 8% total non-auto use for the City;
- Transit Improvements – assumes 10% total non-auto use for the City due to increasing transit share to 3.2% (per IBI Transit Business Plan);
- Transit Improvements plus TDM - assumes 18% total non-auto use for the City due to increasing transit share to 3.2% (per IBI Transit Ridership Growth study) and implementation of TDM policies.

The assessment of future road network deficiencies and improvement needs has been based on the assumption that the City will be able to achieve the Transit plus TDM mode share targets established in the STMP, resulting in an overall non-auto share of 18% of peak hour trips.

By 2031, most QEW and Highway 420 crossings will reach or exceed their respective capacities during the p.m. peak, while the Highway 420 and QEW screenlines are expected to approach capacity. On a network-wide basis,

future deficiencies are expected to result in a 107% increase in delay for the average weekday p.m. peak hour compared to 2006. This represents an annual economic cost of approximately $50 million. In addition to Highway 420 and QEW, capacity deficiencies are also forecast for several other routes within the City.

A number of proposed alternatives for improvements in these areas were assessed against a set of key evaluation criteria covering the Transportation System, Social/Cultural Environment, Natural Environment, and Economic Environment.

7. SUSTAINABLE TRANSPORTATION MASTER PLAN RECOMMMENDATIONS

7.1 RECOMMENDATIONS TO ENHANCE THE EXISTING TRANSPORTATION NETWORK

Section 7 of the STMP reviews the full range of recommendations. The recommendations of the STMP are ultimately founded upon the desired future mode share targets established by the City. The preferred alternative is a comprehensive STMP for the City covering the following key elements of the transportation system:

- **Wayfinding and Signing** – strategic improvements to facilitate efficient and safe travel to/from the city and internally;
- **Active Transportation** – measures to increase accessibility to key destinations for pedestrians and cyclists;
- **Transit** – increasing the transit mode share over time;
- **TDM** – measures to reduce the need for single occupancy vehicle travel and support more sustainable travel behaviour patterns; and
- **Road Network** – targeted improvements to reduce congestion and accommodate future growth in the city.

7.1.1 Wayfinding and Signing

The wayfinding and signing strategy recommends a plan that provides clear direction and information to all City travellers, regardless of travel mode. This can support the use of transit and active transportation modes and can benefit a community through improved economic environment, reduced congestion for residents, and a positive impact to the overall visitor experience. The recommended strategies for wayfinding and signing are summarized in **Table ES2**.

Table ES2: Wayfinding and Signing Recommendations

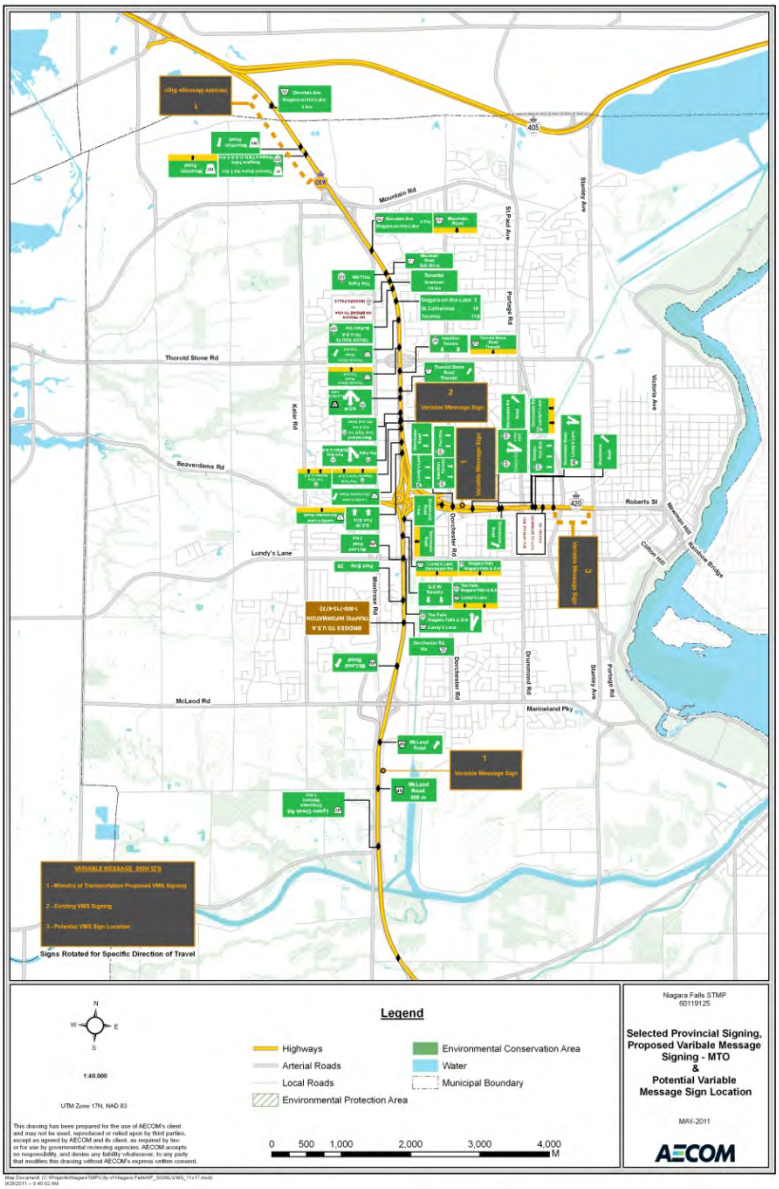
Strategies to Promote Active Transportation and Reduce Congestion	
Tourist Information Map	Map indicating Tourist Districts, parking, transit and active transportation information.
Tourist District Signage	Unique signage for the eight Tourist Districts identified in the City.
Parking Signage	Signage to direct motorists to parking structures/lots with available spaces.
On-Street Information Maps	"You Are Here" guidance to nearest attractions and transportation routes.
Transit Signage/Visitor Transportation System (VTS) Information	Signage for GO and VIA Rail facilities for both motorists and pedestrians/cyclists.
Signage for Active Transportation	Walking and Cycling route information, directional signing for bridge crossings and use of specific signing.
Signage for Public Gathering and Historical/Heritage Locations	Minimal signage but clear tourist map provided at key facilities.
Special Event Signage	Specific permanent signing for long-term (repeat) events and temporary signing for one-off events.
Strategies to Divert and Manage Congestion	
Variable Message Signs (VMS)	System of VMS strategically located on the QEW to manage congestion on Highway 420.
Advisory Signs for Canal Crossings	Strategically located signs to provide travellers with real time information on crossing closures and alternate routes.
Commercial Vehicles and International Bridge Crossing	Placement of signing at strategic intersections to route trucks to appropriate bridge crossings.
Border Wait Time Advisory System	Provision of MTO Border Wait Time Advisory System information at key decision points.
Emergency Detour Routes (EDR)	Signing of EDR routes along the QEW in the Region.

Other key recommendations fall within the following categories:

- **Sign Clarity through Design and Placement:** it is recommended that the City create a recognized system founded on aesthetics and commonality, ensuring it conforms to appropriate guidelines and resources.
- **Signing Inventory and Effectiveness Survey:** the database of signs should be updated regularly and feedback from travellers and residents should be sought.
- **Signing Plan for Recommended Network Updates:** new directional signs will be required to inform travellers about changes to routes. Recommended signs are shown in below **Figure ES1** and **Figure ES2**.

Figure ES1: Additional Proposed Signing

Figure ES2: Selected Provincial Signing, Proposed VMS Signing – MTO and Potential VMS Sign Location



7.1.2 Parking

The supply and management of parking linked to hotels and other accommodation is an issue which requires significant consultation with the range of stakeholders involved. Parking is a key issue in the City, one that ties to increased use of Active Transportation and Transit modes of travel. The City should continue to complete a separate study to determine parking requirements and policy recommendations.

7.2 RECOMMENDATIONS FOR THE FUTURE TRANSPORTATION NETWORK

7.2.1 Roadway Standards Review

It is recommended that the City undertake a Roadway Standards Review of its local network. The purpose of the review would be to establish opportunities for context sensitive solutions within roadway designs to accommodate all modes of transportation. This Review may be undertaken with the Region in order to adequately assess roadways under the Region's jurisdiction.

7.2.2 Active Transportation

The STMP recommends a network of off-road and on-road routes for the City. Off-road routes will generally be easier to implement outside of the street right-of-way, and are more likely to attract users and increase demand from both pedestrians and cyclists. Prioritized off-road projects have been organized into groups based upon ease of implementation and timescales for implementation. Prioritized off-road projects are shown in **Table ES3**:

Table ES3: Active Transportation Recommended Off-Road Routes and Implementation Schedule

Group A: Short Term Implementation (2012-2017)	
Route No.	**Route Name**
10a	NS&T Trail – West
10c	NS&T Trail – Centre
10d	NS&T Trail – East
10e	Erie Avenue Connection (On-Road)
13	Mitchell Line Trail
Group B: Short Term Implementation (2012-2017)	
Route No.	**Route Name**
8b	Hydro One Transmission Corridor 8 – East
9a	Hydro One Transmission Corridor 9 – West
9b	Hydro One Transmission Corridor 9 – East
11d	"Grand Boulevard" Trail
15a	Hydro One Transmission Corridor 15 – West
15c	Hydro One Transmission Corridor 15 – East
Group C: Medium Term Implementation (2018-2022)	
Route No.	**Route Name**
5	Millennium Trail – Phase 5
6	Millennium Trail – Phase 6
12	Hydro One Transmission Corridor 12
14b	Gary Hendershot Memorial Trail Extension

Group D: Medium Term Implementation (2018-2022)	
Route No.	**Route Name**
11b	Robert Street Crossing/Bridge/Gateway
11c	Victoria Avenue Promenade
11e	Seneca Street connection to River Road (Partly On-Road)
Longer Term Implementation (2022-2030)	
Route No.	**Route Name**
2	Millenium Trail Extension Phase 2
3	Millenium Trail Extension Phase 3
8a	Hydro One Transmission Corridor 8 West
10b	QEW Crossing south of Thorold Stone Road
12a	Highway 420 Crossing at Hydro One Transmission Corridor 12
15b	QEW & Hydro Canal Crossing north of Dunn Street

Longer term implementation projects (2022-2030) are considered to be the remaining Marquee Projects (Routes 10b, 12a and 15b). Further, while all the strategic routes provide valuable connections for recreation and tourism use, some do not present a sufficient transportation opportunity to justify prioritization. These also represent potential longer term future active transportation route implementation.

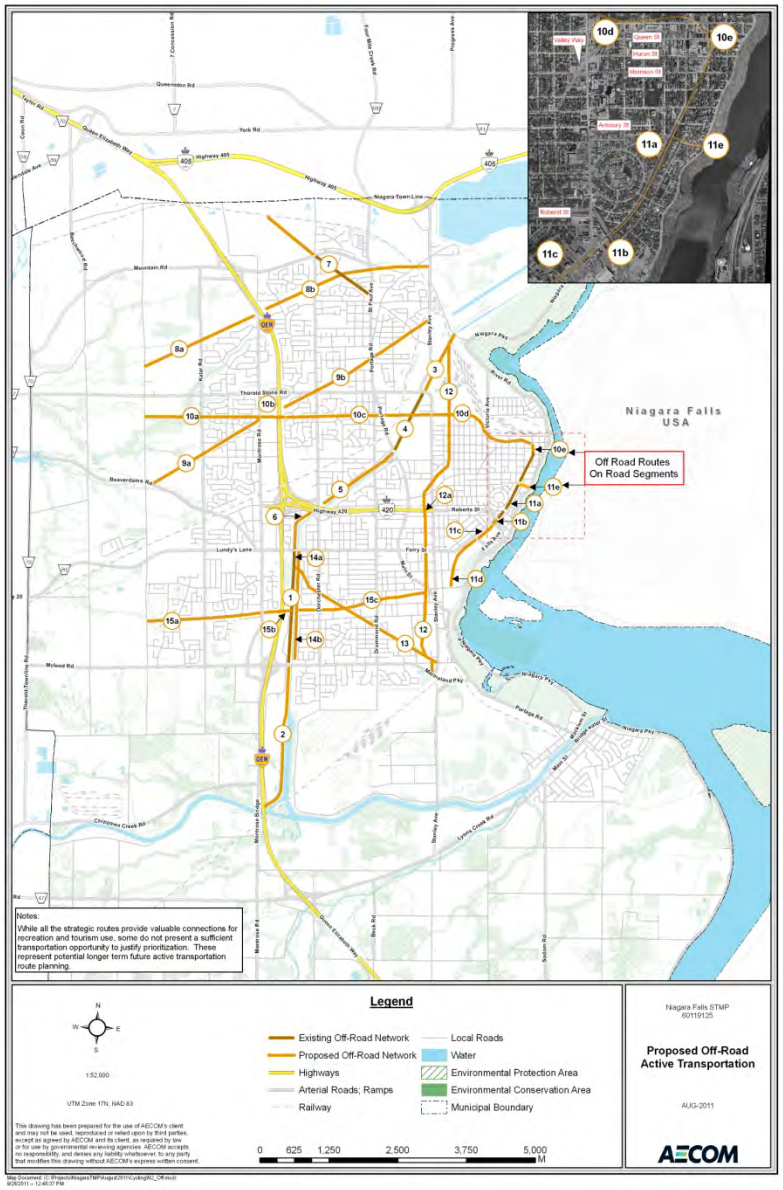
The proposed off-road active transportation network is shown in **Figure ES3**.

Budget cost estimates have been provided for the short-term implementation priorities in Group A and Group B. These are summarized in **Table ES4**.

Table ES4: Active Transportation Off-Road Route Budget Estimates

Group	Route	Budget Est. ($)
A	10a NS&T Trail – West	1,100,000
	10c NS&T Trail – Centre	2,450,000
	10d NS&T Trail – East	1,250,000
	10e Erie Avenue Connection (On-Road)	100,000
	13 Mitchell Line Trail	2,200,000
B	8b Hydro One Transmission Corridor 8 – East	2,200,000
	9a Hydro One Transmission Corridor 9 – West	1,750,000
	9b Hydro One Transmission Corridor 9 – East	2,325,000
	11d Grand Boulevard Trail	1,275,000
	15a Hydro One Transmission Corridor 15 – West	1,750,000
	15c Hydro One Transmission Corridor 15 – East	1,875,000
	Total	**18,275,000**

Figure ES3: Proposed Off-Road Active Transportation Network



On-road facilities are within the right-of-way and are usually thought of as bike lanes or marked routes. As some of the proposed routes are on Regional roads and/or intersect with Regional roads, the City will need to work closely with the Region to implement the recommendations.

Priority on-road projects have been organized into priority groups and are provided in **Table ES5**.

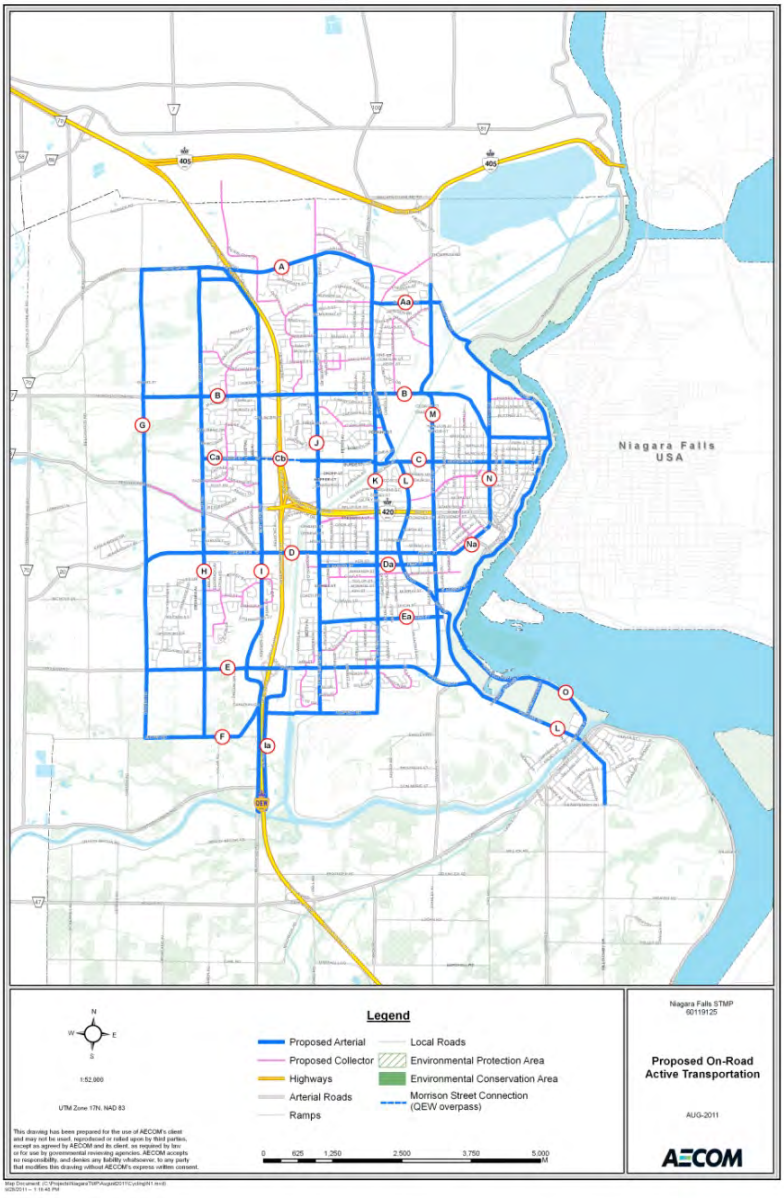
Table ES5: Active Transportation Recommended On-Road Routes and Implementation Schedule

Group 1A: Short Term Implementation (2012-2017)	
Route No.	**Route Name**
C	Morrison Street/Zimmerman Avenue
Ca	Woodbine Street
Da	Barker Street/Peer Street/Peer Lane
Ea	Dunn Street
Group 1B: Short Term Implementation (2012-2017)	
Route No.	**Route Name**
H	Kalar Road
I	Montrose Road (RR 89)
J	Dorchester Road
M	Stanley Avenue (RR 102)
Group 1C: Medium Term Implementation (2018-2022)	
Route No.	**Route Name**
B	Thorold Stone Road (RR 57)/Bridge Street
D	Lundy's Lane (RR 20)/Ferry Street
E	McLeod Road/Marineland Parkway (RR 49)
Group 1D: Medium Term Implementation (2018-2022)	
Route No.	**Route Name**
A	Mountain Road (RR 101)
Aa	Church's Lane
K	St. Paul Avenue (RR 49)/Drummond Road
L	Portage Road (RR 49)/Main Street (RR 49)/Marineland Parkway (RR 49)/Willoughby Drive
N	Victoria Avenue – North
Na	Victoria Avenue – South
Longer Term Implementation (2022-2030)	
Route No.	**Route Name**
Cb	Morrison Street Crossing

Budget cost estimates have not been provided for the on-road routes; on-road projects cannot be estimated without further detailed studies and facility-fit exercises.

The Recommended On-Road Routes are shown in **Figure ES4**.

Figure ES4: Proposed On-Road Active Transportation



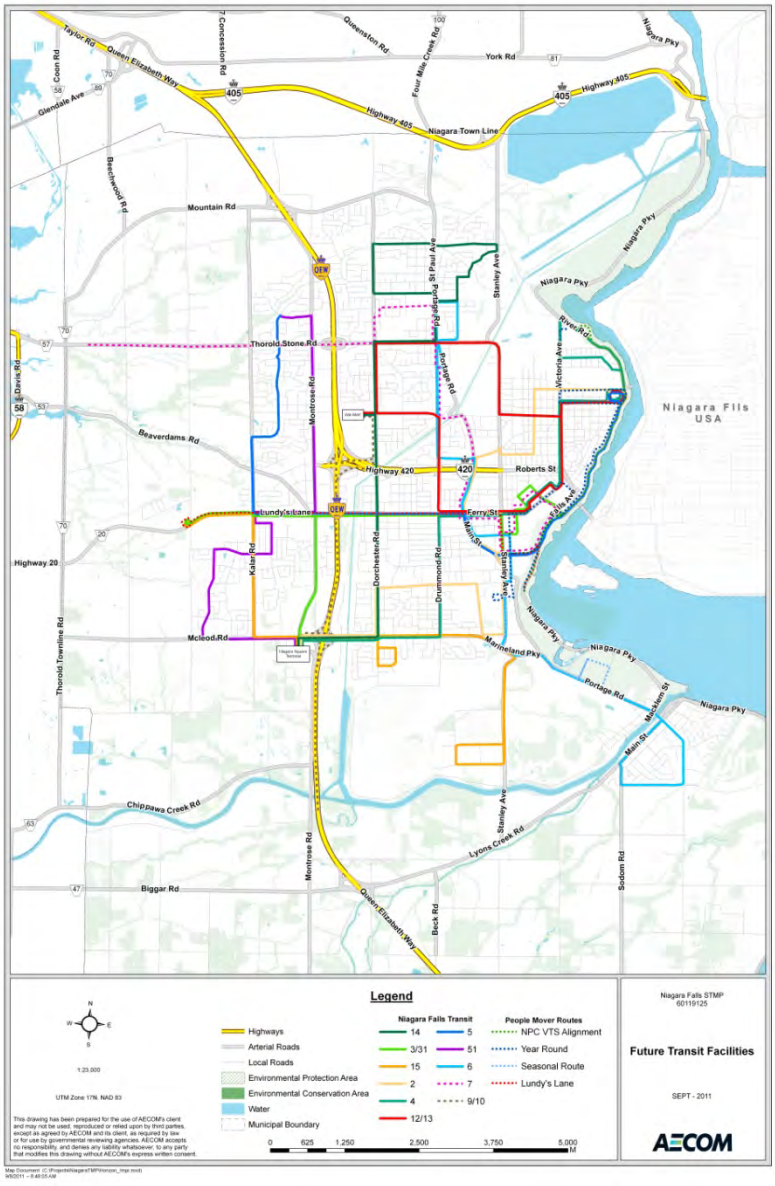
7.2.3 Transit

It is recommended that the transit mode share target of 3.2% by 2018, as identified in the Transit Strategic Business Plan and Ridership Growth Strategy, is adopted in the STMP. This has been incorporated into the modelling work undertaken and an increased mode share will contribute to reducing future road network requirements.

Since the adoption of the Transit Strategic Plan and Ridership Growth Strategy in March 2009, the city has evolved at a rapid pace with the construction of several major generators. To meet the needs of the community a Transit Routing Ad-hoc Advisory Committee has been formed to review the proposed routing structure and propose a revised routing plan where needed.

For reference, the planned future transit system is shown in **Figure ES5**.

Figure ES5: Planned Future Transit System



7.2.4 Transportation Demand Management (TDM)

Table ES6 outlines the recommendations regarding future TDM strategies. It is important to note that a successful TDM program needs a "champion" in the municipality and in the wider community.

An estimate for the creation of a City TDM co-ordinator (part-time position) is $30,000 to $40,000, while a budget of approximately $50,000 would be required for initial marketing and promotional activities.

Table ES6: TDM Strategy Recommendations

	TDM Initiative	Target Market
SHORT TERM PLANNING HORIZON		
Education, Promotion and Outreach		
1	Appoint/hire a dedicated TDM Co-ordinator for the City.	Program Management
2	Continue participation in the Region's TDM development work.	Program Management
3	Explore the creation and support of Niagara Falls Transportation Management Associations (TMAs).	Commuters
4	Provide strong TDM presence on City web site and develop a TDM brand.	Community-Wide
5	Develop a joint TDM marketing program for the City, NPC and private sector.	Program Management/ Community-Wide
6	Provide walking, cycling and transit information on the City's tourism web sites. It is understood that a Google map-based trip planner is currently under development by Niagara Falls Transit.	Tourists
7	Provide information on City web site about City's carbon dioxide (CO2) emissions and reduction measures.	Community-Wide
8	Promote carpooling initiatives and investigate partnership with a private carpool/ride-matching service.	Commuters
9	Develop TDM program for City staff.	Commuters
10	Promote compressed work weeks, teleworking, and flexible hours for City employers.	Commuters
11	Promote and expand the Active and Safe Routes to School (ASRTS) program.	Students
12	Promote secondary and post-secondary institutions and student groups' adoption of TDM programs.	Students
13	Promote awareness of GO Transit services from Toronto, including the Bike Train.	Tourists/Commuters
14	Provide education program to increase general awareness of benefits of walking and cycling.	Community-Wide
15	Complete a goods movement and delivery transportation management plan.	Shippers
16	Continue cycling events and initiate TDM events (e.g., car free day).	Community-Wide
17	Provide cycling safety clinics for all ages.	Community-Wide

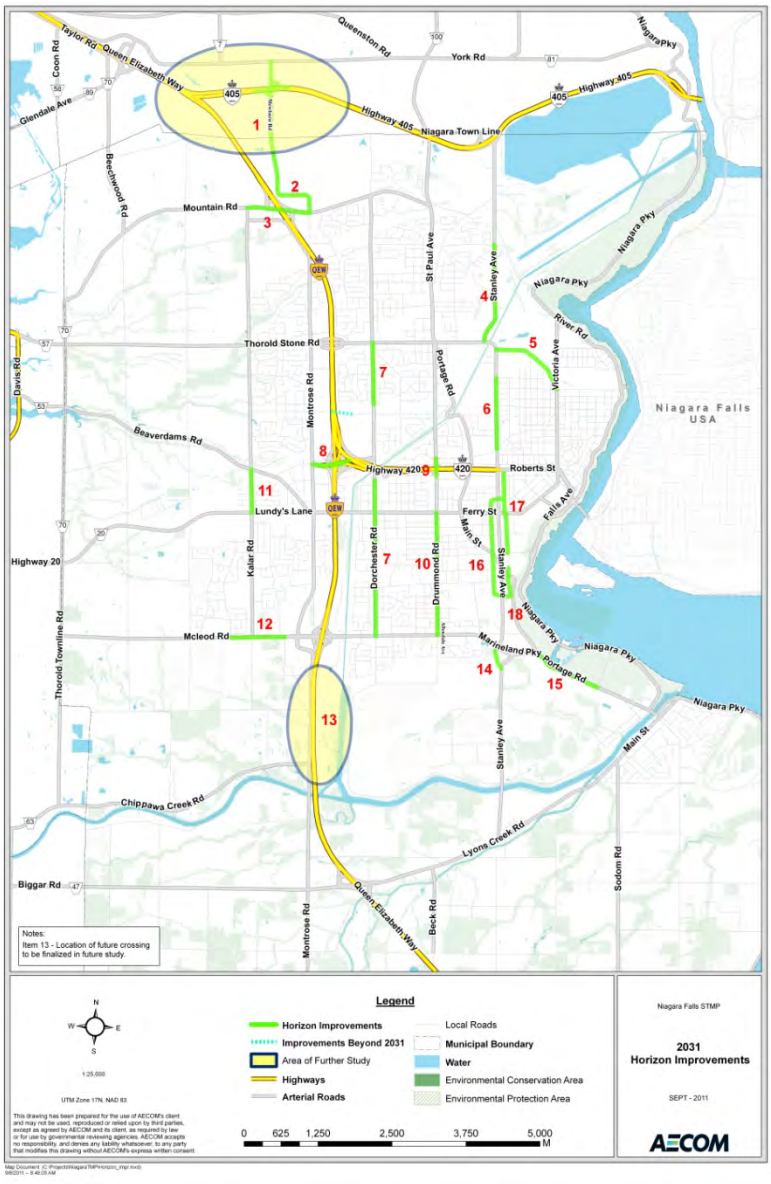
	TDM Initiative	Target Market
18	Initiate community walking events for all ages.	Community-Wide
19	Develop and implement Regional and Municipal TDM monitoring program.	Program Management
20	Develop web-based trip planners for cycling and walking.	Community-Wide
Travel Incentives		
21	Develop employer transit pass program.	Commuters
22	Promote employee transportation allowance (private sector).	Commuters
23	Review current public parking supply and pricing and develop a City-wide parking implementation plan.	Community-Wide
24	Promote City-wide emergency ride home programs for sustainable mode users.	Commuters
25	Examine the feasibility of a “smart card” program with the Region.	Community-Wide
26	Encourage dedicated, preferential parking spaces for carpools, car shares in both public and private lots.	Community-Wide
27	Expand winter bus stop maintenance program to include all bus stops.	Community-Wide
Land Use and Transportation Integration		
28	Provide bike parking at City facilities, major destinations, schools and tourist attractions.	Community-Wide
29	Require bike parking, change room and shower facilities at all major workplaces.	Commuters
30	Require pedestrian- and transit-friendly road networks.	Community-Wide
31	Expand scope of ‘Traffic Impact Studies’ to include consideration of all modes – for all developments, with a focus on accessibility rather than capacity.	Residential and Commercial Developments
32	Promote shared parking practices/facilities at commercial retail and mixed use developments.	Community-Wide
33	Establish maximum parking requirements, and parking exceptions, for residential, commercial, industrial and institutional developments.	Community-Wide
34	Fully wire all new homes for high-speed internet access, to facilitate telecommuting.	Households
35	Create a standardized list of TDM policies/initiatives to enable developers to reduce automobile trips.	Community-Wide
36	Partner with the private sector to provide transit shelters and station facilities throughout the City.	Community-Wide
37	Review development staging in new communities to ensure higher densities are contained in initial phasing.	Community-Wide
38	Use trees and other green elements to provide shelter, aesthetic benefits, shade and separation from motorized traffic.	Community-Wide
39	Pursue changes to LEED rating systems transportation and parking credits.	Community-Wide
40	Amend Development Charges Act to enable municipalities to levy charges for all transportation-related infrastructure.	Program Management

	TDM Initiative	Target Market
Transportation Supply		
41	Develop a core cycle network, including addressing gaps in the current network of on- and off-street bike routes.	Community-Wide/Cyclists
42	Develop a network of pedestrian pathways/sidewalks at places of residence, employment, key destinations and transit stops.	Community-Wide/ Pedestrians
43	Establish pathway maintenance standards that are focused on the needs of pedestrians, cyclists and those requiring accessibility.	Community-Wide
44	Conduct a survey of all sidewalks in the City, including inventory and condition.	Community-Wide/ Pedestrians
45	Develop a transit priority plan/priority lanes to improve transit service levels.	Community-Wide
46	Continue to install bike racks on buses.	Community-Wide
47	Assess feasibility of a privately-owned car share program.	Community-Wide
MEDIUM TERM PLANNING HORIZON		
Travel Incentives		
48	Expand flexible transit pass program to include post-secondary education students, weekly passes and weekend passes (particularly for tourists).	Community-Wide/Tourists
Land Use and Transportation Integration		
49	Un-bundle parking costs from residential units at time of purchase, for new multi-unit complexes.	Households
50	Provide zoning flexibility for home-based business/home offices.	Households
51	Integrate local shopping and essential services into suburban neighbourhood land use planning.	Community-Wide
52	Limit student parking at local high schools, colleges and universities – along with transit, walking and cycling improvements.	Students
53	Limit on-site residential parking for new, single-family homes.	Households
54	Ensure that transit services are provided to new residential and commercial developments at an early stage, with developer funding.	Community-Wide
Transportation Supply		
55	Schedule buses every 15 minutes (at minimum) on high volume transit corridors, during peak periods.	Community-Wide
56	Investigate implementation of a bicycle sharing program, working with the NPC.	Community-Wide/Tourists
LONG TERM PLANNING HORIZON		
Travel Incentives		
57	Transportation Pricing – area-based tolls.	Community-Wide

7.2.5 Road Network

Multiple alternative road network improvements were developed and evaluated in accordance with the requirements of the Class EA process. These were then evaluated against each other to generate a set of recommended alternatives. **Figure ES6** depicts the location of the recommended future road network improvements.

Figure ES6: 2031 Horizon Road Network Improvements



The recommended improvements, identified as #1 through #18 on **Figure ES6**, are listed in **Table ES7**, along with a basic timescale for implementation and estimated costs. Several recommendations shown in **Figure ES6** are not listed in **Table ES7**. Item #2, Mewburn Road Reconstruction from Mountain Road to York Road is currently under the City's jurisdiction and if a partial interchange at Mewburn Road and Highway 405 is constructed, then the City and the Region should enter into discussion regarding jurisdictional changes to Mewburn Road as referenced in the Transportation Services Sustainability Review report.

Item #3, Mountain Road Widening from Kalar Road to Olden Avenue, the section over the QEW is under the MTO's jurisdiction. Based on the Environmental Study Report (ESR) filed in 2007, Mountain Road from Taylor Road to Dorchester Road is identified in 2012 capital budget and the reconstruction to a 2 lane urban cross section with bike facilities and a roundabout at Mewburn Road is due to be carried out shortly.

Also, with respect to Item #12 McLeod Rd Widening – Kalar Rd to Hydro Canal, for improvements to McLeod Road under the jurisdiction of the Region (between Montrose Road and Stanley Ave), the Region is in the process of filing the Environmental Study Report in 2011 and upon acceptance will proceed with implementation.

Table ES7: Roadway Improvement Recommendations

ID#	Project	Limits	Total Est. Cost ($2009)	Rationale
Short Term				
5	**Thorold Stone Road Extension**	Stanley Ave to Gale Centre	3,351,750	EA complete, support for Downtown and new arena
12	**McLeod Road Widening**	Pin Oak Drive to Parkside Rd	5,265,000	Current development pressure. ESR to be completed Nov. 2011[1a]
11	**Kalar Road Widening**	Beaverdams Rd to Rideau St	8,460,400	EA complete
18	**Livingston St/Fallsview Connection to Portage Road**		3,550,000	Addresses erosion concerns – connectivity to Fallsview area
9	**Drummond Road/Hwy 420 Bridge Widening**	Valley Way to Frederica St	5,109,000	Drummond Rd currently at capacity
15	**Portage Road Widening**	Marineland Pkwy to Upper Rapids Blvd	7,605,000	Currently approaching capacity

[1a] *"Environmental Study Report – Regional Road 49 (McLeod Road)/Marineland Parkway from Pin Oak Drive to Portage Road and Regional Road 98 (Montrose Road) from McLeod Road to approximately 1 km North, City of Niagara Falls", (ESR) by Delcan, November 2011. This project was conducted concurrently to the STMP to address localized improvement needs to support proposed commercial development. For consistency the findings of the ESR report are noted herein.*

ID#	Project	Limits	Total Est. Cost ($2009)	Rationale
17	**Buchanan/Fallsview Widening**	Roberts to Livingston St	17,001,000	
16a	**Allendale Avenue Widening**	Forsyth St to south of Dunn St	7,320,000	Coordinate with MTO
			57,662,150	
Short Term Committed Projects (separate study)				
-	**McLeod Road Widening**	Parkside Rd to Dorchester Rd	12,000,000	ESR to be completed Nov. 2011[1b]
			12,000,000	
Medium Term				
5	**Thorold Stone Road Extension**	Gale Centre to Bridge	6,234,150	EA complete, support for Downtown and new arena
7a	**Dorchester Road Widening**	Thorold Stone Rd to Pinedale	6,515,100	To be phased with development
16b	**Allendale Ave New Connections to Stanley**	Dixon St to Stanley Ave & Ferry St to Forsyth	4,849,000	
6	**Stanley Ave Widening**	Hamilton St to Valley Way	7,371,340	Subject to the Region's IC EA study
8	**Hwy 420/Montrose Road Improvements**	Widening Ramps and Improve Intersection	3,900,000	
13a	**New Hydro Canal Crossing**	Dorchester to Oakwood	9,672,000	
7b	**Dorchester Road Widening**	Frederica St to McLeod Rd	19,194,000	
2	**Mewburn Rd Reconstruction**	Mountain Rd to York Rd	6,673,000	
			64,408,590	
Long Term				
3	**Mountain Road Widening**	Kalar Rd to Olden Ave	12,063,500	
4	**Stanley Ave Widening**	Church's Ln to Thorold Stone Rd	10,136,500	
14	**Stanley Ave/ Marineland Pkwy Intersection**	Jog Elimination or Intersection Improvement	6,721,000	
13b	**New QEW Crossing**	Oakwood to Montrose	9,780,000	To be phased with development
10	**Drummond Road Widening**	Lundy's Ln to McLeod Rd	15,948,000	Relief to Main Street
			54,649,000	

[1b] *ibid.*

7.2.6 Long-Term Initiatives

Highway 420 Extension

As part of the study, it was identified that the extension of Highway 420 should be further considered, particularly with respect to corridor protection.

Highway 420 is currently under the jurisdiction of MTO. Through the on-going NGTA Corridor Study, MTO has indicated that they do not foresee the need for a future Highway 420 extension. Responding to the NGTA draft report, the Region has agreed to the lifting of the Highway designation provided the local municipality agree to the same.

The modelling work points to the need for additional network capacity in the area of Beaverdams Road beyond 2031. Based on this need the City may protect the lands by requesting MTO to keep the existing Highway designations around the Beaverdams Road area or relinquish the designation in favour of the City.

MTO has identified a route planning EA study for a new multi-use corridor connecting QEW and Highway 406 under Phase 2 of the NGTA EA study. The Region has future plans for the realignment of Regional Road 20 (RR 20) around the Allanburg Bridge to connect to McLeod Road. Subject to the outcome of the NGTA route planning EA and the potential realignment of RR 20, the Region may consider an EA study for the future arterial corridor connecting Highway 420 and Thorold Stone Road beyond 2031. This corridor study will take into consideration the function of the Lundy's Lane as a Regional road. Should the City move ahead with protecting for a corridor within the City limits, the Region may consider protecting beyond the City limits to Thorold Stone Road.

Morrison Street Flyover

It is recommended that the City protect the Morrison Street corridor for future development of a flyover. This study showed that the flyover could reduce the need for widening Thorold Stone Road (beyond 2031 timeframe). The flyover could provide a new Active Transportation link over the QEW. It is considered that the potential relief offered by the flyover to the Thorold Stone Road widening should be re-evaluated at the time of any future EA considering the Morrison Street flyover.

Rail Crossings Review

It is recommended that the City continues to liaise with rail operators to discuss their future plans and ensure that the recommendations of the 2008 railway crossing EA study are still applicable. The estimated costs to implement the required number of crossings (likely to be two or three) may negate the other road improvements recommended in the STMP. Further investigation would be required into this issue and also a potential rail relocation study.

8. IMPLEMENTATION STRATEGIES

Section 8 provides an array of recommended strategies to implement the STMP, including infrastructure preservation/asset management, annual capital and operating budget, financing and funding opportunities and alternative delivery, plan monitoring and performance measures, transportation model and data management and process.

It is recommended that the City update its OP to reflect the recommendations contained in the STMP, including the goals and objectives included in Chapter 4. For ease of reference, the policy recommendations provided throughout the STMP are summarized below.

Policy Recommendations

Signing and Wayfinding

- Promote Transit and Active Transportation and Reduce Congestion
  - (a) Focus on improving signing and wayfinding for tourist traffic
  - (b) Signing and Wayfinding strategies should provide integration with the transit and active transportation networks, as well as parking
- Seek to Divert and Manage Congestion
  - (a) Make use of technological advances such as VMS and real-time information
  - (b) Focus on improving cross-border travel for all vehicles
- Evaluate Future Signing and Wayfinding Needs
  - (a) Conduct a signing inventory and effectiveness survey with regular updates
  - (b) Assess the signing requirements for future network improvements
  - (c) Consult with the Region regarding signing on roads within their jurisdiction

Parking

- Evaluate Future Parking Supply and Management Needs
  - (a) Conduct a comprehensive parking study with a specific focus on the requirements of the tourism and hotel sectors
  - (b) Consider parking as an integral component of future TDM and sustainable urban development initiatives

Active Transportation

- Provide an Integrated Active Transportation Network
  - (a) Establish a continuous and integrated system of on- and off-road active transportation facilities within the City
  - (b) Active transportation should provide for improved inter-municipal connectivity

(c) Pedestrian facilities should be present on all streets in the City and on both sides wherever possible

- Active Transportation as a Viable Alternative
  - (a) Active transportation should provide a range of route alternatives and access to significant local destination points
  - (b) Active transportation should be competitive against private car travel to encourage mode shift
- Design for an Accessible Active Transportation Network
  - (a) Active transportation facilities should be designed and constructed to be barrier-free.
  - (b) The City should regularly update an inventory of active transportation facilities
  - (c) Off-road facilities should be designed to serve commuting and recreational needs and to meet best practices for the development of such facilities
  - (d) Facilities which do not presently conform to the Region's standards should be considered to broaden the array of tools available to address future challenges
  - (e) Marked routes should be provided with signage through residential neighbourhoods, on major roadway connections and open space trails
- Raise Awareness of Active Transportation
  - (a) The City should work with surrounding municipalities and the Region to integrate cross-jurisdictional facilities and programs
  - (b) The City should work with local employers and major end user destinations to provide appropriate on-site amenities
  - (c) Active transportation should be promoted through educational campaigns to promote cycling as a safe and viable mode of transportation

Transit

- Increase Transit Mode Share
  - (a) The proposed 3.2% transit mode share for 2018 should be adopted
- Plan for Future Transit Needs
  - (a) The City's Ad-hoc Transit Advisory Committee should review the existing routing structure to develop a comprehensive and cost-effective transit action plan

Transportation Demand Management (TDM)

- Recognize the Links between Transportation and Land Use Planning
  - (a) Transit-oriented development, transit, and smart growth initiatives should co-exist to achieve successful results
  - (b) Initiate discussions with the Region and the Province to revise the Development Charges Act to recognize the importance of TDM

(c) Reassess Traffic Impact Study guidelines to accommodate TDM needs
(d) Consider TDM in the context of all development reviews by creating a standard checklist by which to review proposals

- Champion TDM in the Local Community
  (a) A City TDM co-ordinator should be appointed to plan and implement future programs
  (b) A focused marketing campaign should be developed to reach key groups (e.g. tourists)
  (c) Develop a separate infrastructure capital program within the annual budget for TDM

Roadways

- Address Future Network Deficiencies
  (a) Focus improvements on the Thorold Stone Road/Bridge Street area, QEW crossings, and Highway 420 crossings
  (b) Consider the need for a future extension of Highway 420
  (c) Continue to liaise with rail operators to ensure that future roadway recommendations (e.g. crossings and grade separations) align with their future needs
- Classification of Roadways
  (a) Consider a roadway classification review for major/minor arterial roads, major/minor collector roads and local roads. This would consider criteria such as:
    - traffic volume;
    - right of way width;
    - signalization;
    - access management; and
    - on-street parking
- Long-Term Corridor Protection
  (a) Preserve long-term corridor protection areas so that the corridors will be able to meet the long-term transportation demands of the City

Implementation

- Implement Preservation/Asset Management Strategies
  (a) Provide a high quality of infrastructure to meet future growth demands
  (b) Upgrade or replace infrastructure wherever necessary
- Funding Transportation Improvements
  (a) Work with all forms of local, provincial and federal government to plan, fund and implement infrastructure projects
  (b) Include budget line items to support the development of sustainable transportation
  (c) Explore potential updates to the existing Development Charges by-law to maximize funding opportunities

- Monitoring Progress
  - (a) Develop a monitoring plan with key performance indicators to be reviewed and updated on a regular basis
  - (b) Monitor and update the City transportation model on a regular basis
  - (c) Review and update the TMP every five years in accordance with the OP statutory requirements

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1. BACKGROUND

1.1 INTRODUCTION

The City of Niagara Falls (City) is located in southern Ontario, within the Regional Municipality of Niagara (Region), across the Niagara River from New York State (see **Figure 1**). The City is served by major highways and bridges that provide direct connections to the U.S.A. and the Greater Toronto and Hamilton Area (GTHA).

Attractions such as the Falls, casinos, and other sites of interest, make this city a prime tourist destination for millions of annual visitors from all over the world.

Figure 1: City of Niagara Falls – Location Map

The Sustainable Transportation Master Plan (STMP) has been prepared by the City, in partnership with the Region, the Ministry of Transportation (MTO) and the Niagara Parks Commission (NPC). The project team for the Niagara STMP was led by AECOM, in association with UEM, with support from Informa, Victor Ford and Associates Inc., Stantec, and Watson & Associates.

1.2 PURPOSE AND APPROACH

The role of transportation in building a great city cannot be over-stated. A well-functioning, efficient, and integrated multi-modal transportation network provides a fundamental basis for a vibrant economy, high quality of life, and sustainable future. Transportation investments made by the public sector influence the decisions made by the private sector and thus support creation of employment opportunities and the economy as a whole. Providing greater

transportation choices generates higher levels of mobility and supports improved opportunities for all members of a community to access jobs, goods, services, and recreation. Focusing more attention on alternative modes of transportation, such as public transit, bicycles, and walking, can promote less reliance on the automobile, support land use patterns that are less land intensive, encourage high quality urban design, and help manage transportation costs. A comprehensive approach to transportation planning can have a positive and cumulative effect on maintaining and enhancing important systems and features of the natural environment. It also helps to promote healthier lifestyles, both as a community and regarding personal health.

The Sustainable Transportation Master Plan for the City of Niagara Falls provides a vision for future transportation that is consistent with community values and a plan to achieve that vision in a sustainable manner.

The STMP for the City provides a comprehensive and forward-looking strategy of priority improvements and programs required for the City to meet its transportation challenges. The plan addresses operational, planning and policy issues for all modes of travel in the context of tourism, economics, environment and the community. The plan provides a vision for future transportation that is consistent with community values and that achieved in a sustainable manner.

The STMP provides not only an updated multi-modal transportation plan for the next 20-25 years, it also consists of the necessary policy and decision making framework to allow the City to move forward with its priorities in a progressive and sustainable way. The process of developing the STMP has followed the Class Environmental Assessment (EA) planning process, meeting the requirements of Phases 1 and 2 in the planning process.

The STMP updates and replaces the City's existing Transportation Master Plan (TMP). It is a key component of a package of plans and strategies to address new challenges and circumstances that the City faces now and in the future. Since the TMP was first prepared in 1998, and partially updated in 2003, there have been a number of changes in development, the economy, and the planning environment both in the City, and worldwide.

Developments in the tourist area, such as the new convention center, and the recent announcement of the Visitor Transportation System (VTS), continue to put new demands on the transportation systems. In addition, the construction of new hotels and other initiatives have been implemented to encourage increased tourism. The recent downturn in the economy and increased security at border crossings highlights the sensitivity of the local tourist economy to accessibility to both Canadian and American markets.

The Provinces' "Places to Grow"[2] legislation requires a comprehensive approach to planning that looks at transportation relative to more intensive development and a shift away from travel in single occupant autos toward transit and other modes.

Previous TMPs concentrated on the transportation systems serving the Primary Tourist Area. The new STMP considers transportation in a more holistic manner, providing a comprehensive vision for a multi-modal transportation system that serves the whole City in a sustainable way that is consistent with the Province's "Places to Grow" legislation and "Smart Growth" policies. The STMP also provides key input into updating the City's Official Plan (OP) and growth management strategy, the framework for developing more detailed improvements to the transportation systems and the overall implementation strategy, staging plans and actions necessary to implement the recommendations of the STMP.

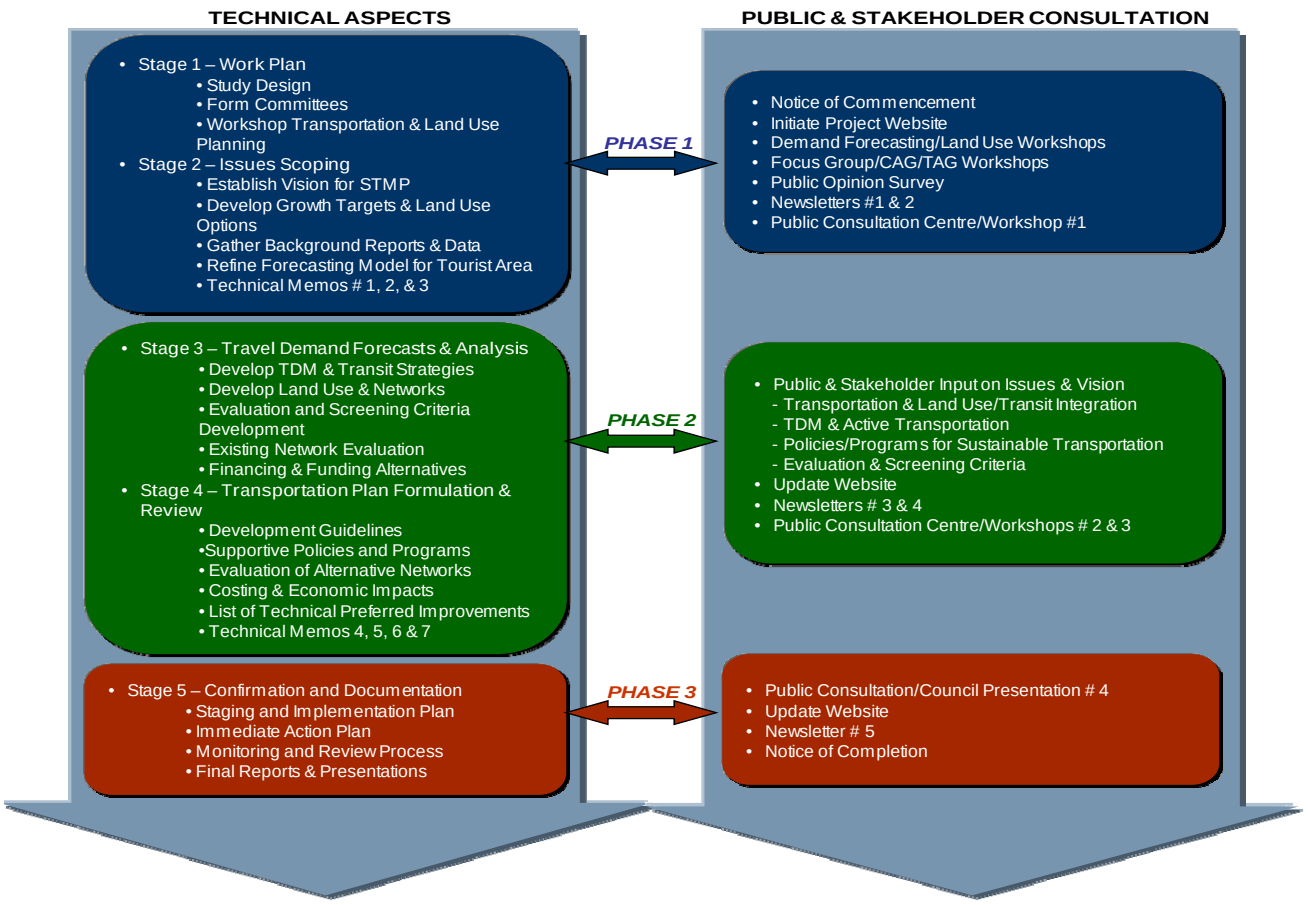
The preparation of the STMP has involved identifying issues, analyzing travel demands, evaluating transportation network deficiencies, identifying a full range of potential solutions, formulating a comprehensive plan and developing implementation strategies. The STMP study has been conducted in a manner that recognizes the development goals, objectives and constraints set by the City, the Region and the Province of Ontario (Province). The range of solutions recognizes the desire to promote transit and other non-auto modes of transportation.


Source: City of Niagara Falls

A three phased approach was used to develop the STMP, as illustrated in **Figure 2**. This approach allowed for the technical analysis to be integrated with a comprehensive and engaging public consultation process in order to identify issues that are of interest to the community and to develop solutions resulting in a balanced transportation system which complements the City's goals and objectives, as well as with the community's values.

[2] *"Places to Grow Act", Province of Ontario, 2006*

Figure 2: Project Approach



The STMP provides an update to the transportation vision that was developed during this study in consultation with the public and other stakeholders, while building a consensus for reasonable and achievable sustainable strategies.

The development of the STMP addressed the following key tasks:

- Summarize changes, achievements and outstanding issues arising since the previous TMP;
- Update the transportation vision for the community;
- Examine how certain societal trends have changed the public's focus on transportation;
- Develop a set of "guiding principles" that will be followed during the study;
- Take a "transit first" approach to updating the STMP that is consistent with the policies and visions embodied in the provincial Growth Plan and other federal, regional and local policy documents;
- Integrate with the City's ongoing Transit Strategy Plan and Ridership Growth Strategy;

- Address the case for implementation of the Visitor Transportation System (VTS)[3] in the Tourist Area;
- Continue to recognize that the City is a unique and vitally independent economic centre with unique transportation challenges;
- Reflect the City's rural and urban character;
- Identify supporting policies, principles and programs needed to implement the transportation vision;
- Evaluate potential infrastructure and mobility requirements from a "triple bottom line" perspective;
- Provide a risk assessment associated with the impacts of not achieving certain transportation related assumptions;
- Provide a basis for the Development Charges Update;
- Provide a transportation framework for the establishment of an economically sustainable and environmentally respectful growth strategy;
- Provide improvement priorities for corridor and transit infrastructure and transit service up to the year 2031; and
- Create more continuous and visible facilities that the public will use for recreational, utilitarian or commuting purposes.


Source: City of Niagara Falls


Source: City of Niagara

1.3 DOCUMENT ORGANIZATION

This report is the main STMP document. It is supported by a series of working papers (technical memos), each of which is appended as follows:

- Appendix A: Review of Background Reports
- Appendix B: Population and Employment Projections
- Appendix C: Public Involvement
- Appendix D: Goals, Principles and Objectives
- Appendix E: Active Transportation – Cycling & Walking
- Appendix F: Transportation Demand Management
- Appendix G: Travel Demand Modelling
- Appendix H: Evaluation of Road Improvements
- Appendix I: Morrison Street Flyover Position Paper
- Appendix J: Wayfinding/Signing Strategy

[3] *The Visitor Transportation System (VTS) was previously named the People Mover System (PMS). The VTS system has been approved since the start of this STMP study.*

2. EXISTING POLICY FRAMEWORK

2.1 GUIDING POLICIES AND SYSTEM GOALS AND OBJECTIVES

In reviewing and assessing the existing and future transportation service and infrastructure requirements of the City, establishing the policy framework is the first step in developing goals and objectives to guide the planning, implementation and management of the transportation system.

The following summarizes the overarching provincial, regional and local policy framework that is currently in place as well as the selected transportation system goals and objectives. More detailed information regarding the policy framework is included in **Appendix A**.

2.1.1 Growth Plan for the Greater Golden Horseshoe

The Greater Golden Horseshoe (GGH) region, which encompasses the Greater Toronto Area (GTA) and a large part of southern Ontario, including the Niagara Region, is considered one of the fastest-growing regions in North America. In order to manage this growth, the Ontario government enacted the Places to Grow Act in June 2005 (Act). The Growth Plan for the GGH, prepared under the Act, provides a framework for implementing the Province's vision for building stronger, prosperous communities by better managing growth until the year 2031, and serves to guide decisions on a wide range of issues including; economic development, transportation, land-use planning, urban form, housing, natural heritage and provincial infrastructure planning.

In order to achieve its objectives of directing growth to built-up areas and optimizing the use of existing infrastructure, the Growth Plan provides density targets for intensification areas and designates twenty-five Urban Growth Centers across the GGH (see **Figure 3**), which will be planned as focal areas for investment, population and employment growth. Directing growth to built-up areas promotes transit-supportive densities and a healthy mix of residential and employment land uses.

One of the key policy objectives of the Growth Plan is to provide a transportation network that links Urban Growth Centers through an integrated system of transportation modes. The Growth Plan recognizes that such a transportation system will offer competitive transportation choices that reduces reliance upon any single mode; promotes transit, cycling and walking; and provides connectivity among transportation modes for moving people (**Figure 4**) and goods (**Figure 5**).

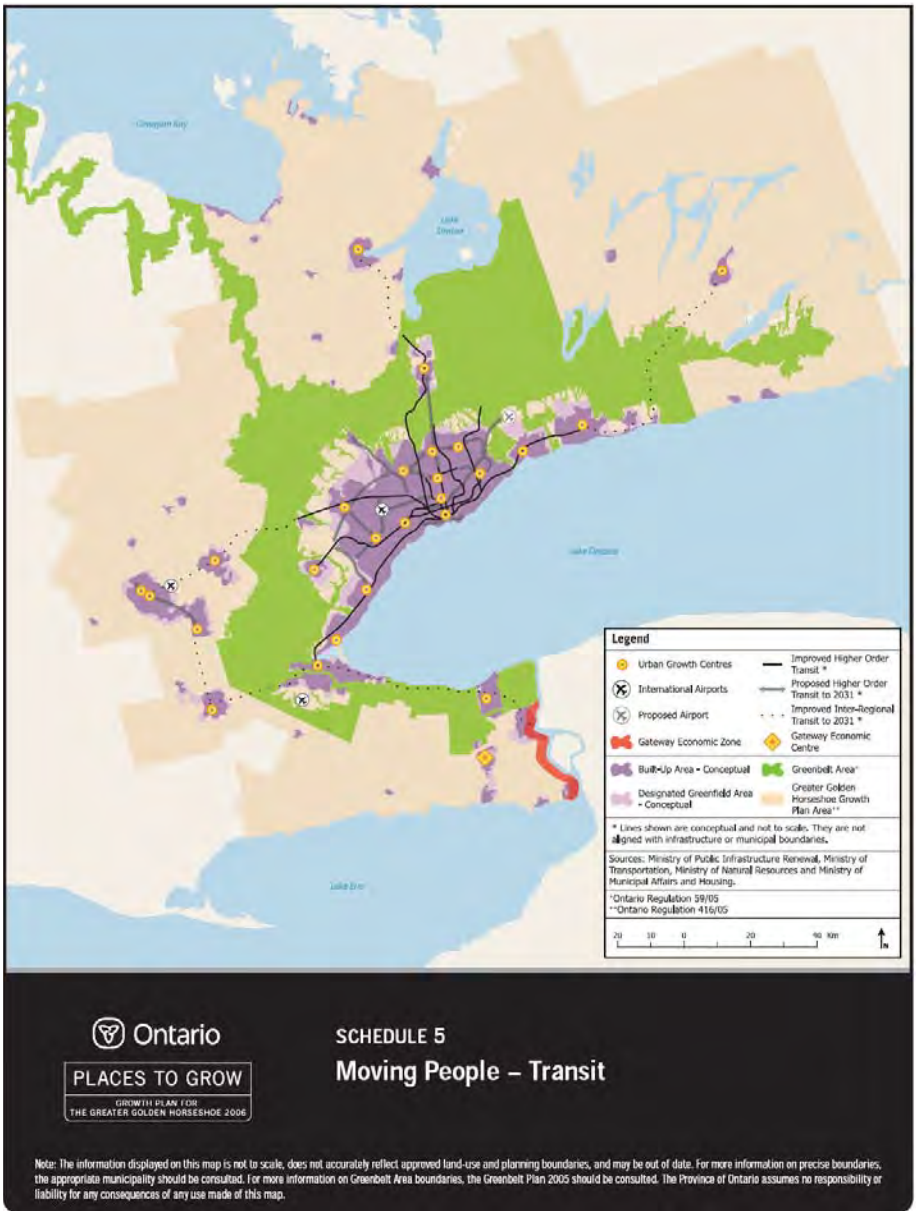
A key policy for moving people and moving goods is to ensure that corridors are identified and protected to meet current and projected needs for various travel modes. The Growth Plan identifies that overall transportation planning

must support opportunities for multi-modal use where feasible; prioritizing transit and goods movement needs over those of single occupant automobiles. While public transit will be the first priority for transportation infrastructure planning and major transportation investments, the plan underlies the need to consider separation of modes within corridors, where appropriate.

Figure 3: Urban Growth Centres

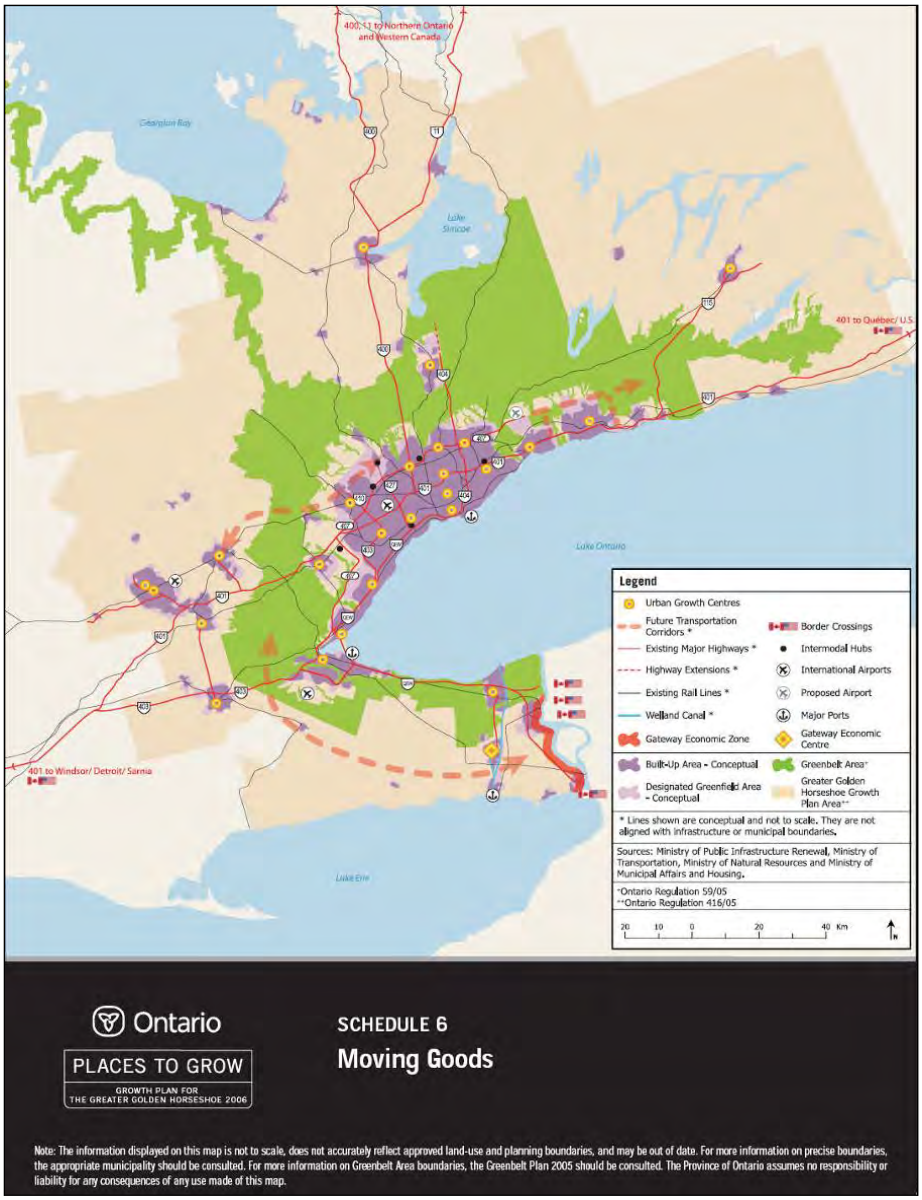
Source: Ministry of Public Infrastructure Renewal, Growth Plan for the Greater Golden Horseshoe, 2006

Figure 4: Moving People – Transit



Source: Ministry of Public Infrastructure Renewal, Growth Plan for the Greater Golden Horseshoe, 2006

Figure 5: Moving Goods

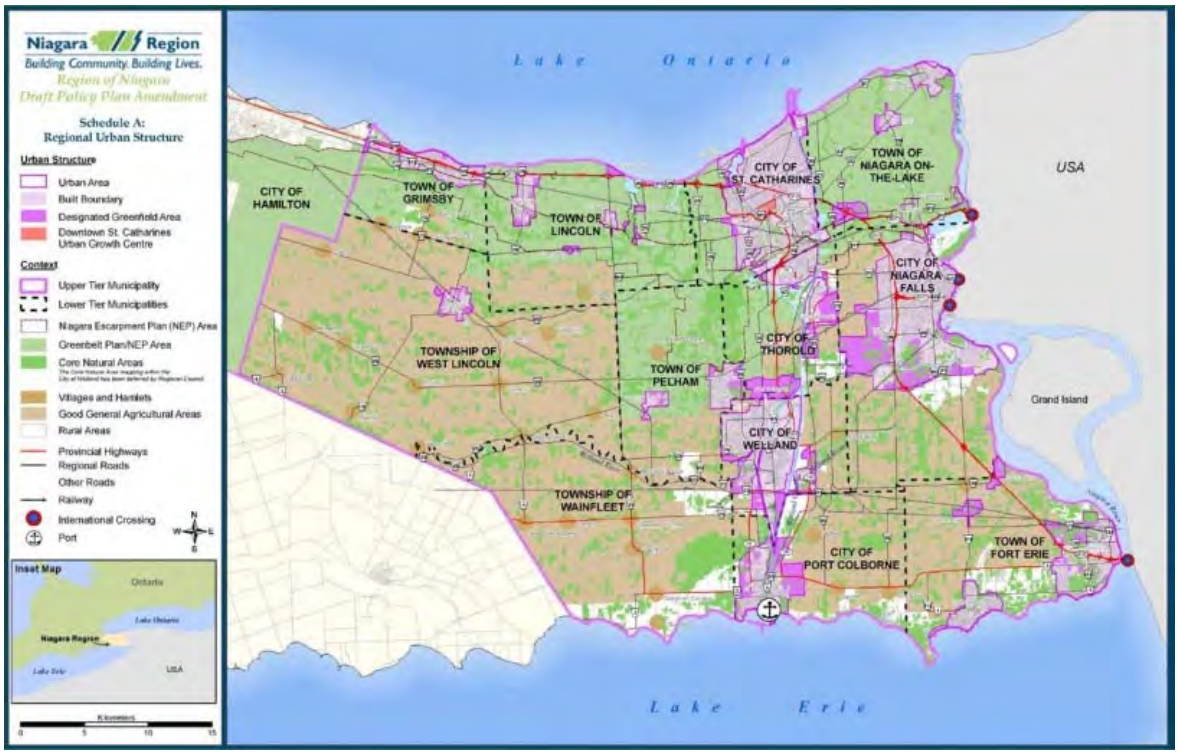


Source: Ministry of Public Infrastructure Renewal, Growth Plan for the Greater Golden Horseshoe, 2006

2.1.2 Regional Niagara Sustainable Community Policies

In May 2009, Regional Council adopted the "Regional Niagara Sustainable Community Policies: Places to Grow/2005 Provincial Policy Statement Conformity and Niagara 2031 Amendment". This is an amendment to the Niagara Region's Policy Plan for the purpose of aligning the Niagara Region's Policy Plan with the Province's Places to Grow initiative (2006) and the Provincial Policy Statement (2005). The Regional Niagara Sustainable Community Policies establishes a new urban vision to guide growth and development in the Region to the year 2031. It also replaces the urban policies, adds new policies regarding the Niagara Economic Gateway and infrastructure and replaces the Urban Area Boundary map with a Regional Urban Structure map (see **Figure 6**).

Figure 6: Regional Urban Structure



Source: Amendment 2-2009 to the OP for the Niagara Planning Area, May 28, 2009.

The following objectives form the basis for the policies contained in the Regional Niagara Sustainable Community Policies:

- Compact, vibrant, integrated and complete communities
- Plan and manage growth to support a strong, competitive and diverse economy
- Protect, conserve, enhance and wisely use valuable resources of land, air, energy and water for current and future generations

- Maximize use of existing and planned infrastructure to support growth in a compact and efficient manner
- Provide flexibility to manage growth in the Region that recognizes diversity of communities
- Promote collaboration and cooperation among governments, institutions, businesses, residents and not-for-profit organizations to achieve vision and objectives

Table 1 provides the growth targets for the year 2031, as set out in the Regional Niagara Sustainable Community Policies:

Table 1: 2031 Growth Targets

	Population	Households	Employment
Region	545,000	221,240	243,540
City	106,800	42,740	53,640

Source: Regional Niagara Sustainable Community Policies, 2009

The following are relevant transportation policies included in the Region's Policy Plan:

- Ensure that corridors are identified and protected to meet current and projected needs for various modes of travel including active transportation
- Support opportunities for multi-modal use where feasible, in particular prioritizing transit and goods movement needs over those of single occupant automobiles
- Consider increased opportunities for moving people and goods by rail, where appropriate
- Consider the separation of modes within corridors, where appropriate
- For goods movement corridors, provide for linkages to planned or existing intermodal opportunities where feasible
- Develop Transportation Demand Management (TDM) policies to be incorporated into the Region's Policy Plan
- Local municipalities are encouraged to develop TDM policies to be incorporated into local OPs
- Local municipalities are to create a network of safe, attractive active transportation linkages, and provide related amenities such as sheltered walking areas and landscaped areas to enhance active transportation experiences. On-road and off-road linkages for cycling are particularly encouraged. Where opportunities are available, consideration should be given to enhancing connectivity between communities and neighbourhoods
- Within urban areas, the requirement for road reconstruction and rehabilitation and sewer and water works should be viewed as an opportunity to improve the public realm within the section of roadway under consideration

- An EA for a transportation project should include consideration of opportunities to improve the living environment of existing residents adjacent to the street and within the adjacent neighbourhood (i.e., noise attenuation)
- Public transit will be the first priority for transportation infrastructure planning and major transportation improvements for moving people in the Region
- The Region will make recommendations on transit planning according to the following criteria:
    - Using transit infrastructure to shape growth and planning for high residential and employment densities that ensure the efficiency and viability of existing planned transit service level
    - Placing priority on increasing the capacity of existing transit systems to support intensification areas
    - Expanding transit service to areas that have achieved, or will be planned to achieve, transit supportive residential and employment densities together with a mix of residential, office, institutional and commercial development, where possible
    - Facilitating improved linkages from nearby neighbourhoods to the St. Catharines Urban Growth Centre and locally designated Residential Intensification Areas
    - Developing transit linkages among settlement areas within and outside of the Region
    - Increasing the modal share of transit in the Region
    - Supporting multi-modal transportation where feasible
- The Region and the local municipalities will ensure that pedestrian and bicycle networks are integrated into transportation planning to:
    - Provide safe, comfortable travel for pedestrians and bicyclists within and between existing communities and new development
    - Provide linkages between intensification areas, adjacent neighbourhoods, and transit stations, including dedicated lane spaces for bicyclists on the major street network where feasible
    - Encourage provision of appropriate and sufficient bicycle parking facilities at major transit nodes and public and private facilities

2.1.3 Niagara to GTA Transportation Corridor

This is an ongoing multi-year study that is assessing transportation requirements in a broad corridor connecting Niagara to the GTA. The purpose of the Niagara to GTA Transportation Corridor study is to confirm and characterize the need for additional transportation capacity between the GTA and the Niagara Frontier; identify the specific transportation problems

and opportunities within the area; develop, assess and evaluate a range of Area Transportation System Alternatives to address the identified transportation problems and opportunities within the Niagara to GTA Transportation Corridor Preliminary Study Area; and, recommend a Transportation Development Strategy (TDS) based on the Area Transportation System Alternatives carried forward from the evaluation.

There have been a number of reports that have been completed to date including: an overview of environmental conditions (2007); an overview of transportation and socio-economic conditions (2007); the Niagara to GTA Transportation Corridor study vision, purpose goals and objectives (August 2008); grouped Transportation Alternatives (March 2010); and a listing of individual transportation alternatives being considered (March 2010). The alternatives considered as part of the assessment include:

- TDM
- Transportation Systems Management (TSM)
- Transit
- Air
- Marine
- Rail
- Freight inter-modal
- Road and highways

Alternatives under consideration that would impact the Region include:

- Implement express rail service along GO Transit Lakeshore corridor
- Expand GO Transit to the City
- Expand Hamilton International Airport
- Widen QEW (for truck lanes)
- Convert QEW to core collector system with core lanes for international traffic
- Place Niagara to GTA corridor/freeway in Townline Tunnel
- Complete Central Peninsula Highway to Highway 403, 401, 6, and 407 connections
- Build a new corridor from the QEW in Fort Erie to either Highway 403, 401, 407 or Highway 6
- Upgrade or widen RR 20 with potential bypasses of settlements
- Combination of new and existing corridors to provide bypass of urban core of Hamilton
- Upgrade or widen Highway 406 creating a connection to a new corridor between 406 and QEW south of the City

The study process will continue in parallel and be coordinated with the Niagara Falls study.

2.1.4 City of Niagara Falls Official Plan (OP)

The City's OP is a document approved by the Minister of Municipal Affairs in October of 1993 and Amended to January 2010. The OP provides a comprehensive framework for development and redevelopment of lands and sets out a public works program which guides the City's growth and development in an orderly and efficient manner. The OP incorporates the broad concepts of the Region's Policy Plan and relevant provincial and federal legislation. The findings of various studies have been incorporated into the OP including the Recreation Master Plan, the Tourism Master Plan various tourism reports, the Commercial/Office Opportunities Study, the Greening Plan and other land use, economic and demographic inventories.

Section 3 contains policies on infrastructure including transportation. The following are considered pertinent to transportation studies:

- The purposed of the road network is to enable motorists to move with ease and reach destinations in the City, but also to serve as a pedestrian and bicycling realm and contribute to the urban street character
- A hierarchy of roads includes:
    - Provincial Highways
    - Niagara Parkway
    - International crossings
    - Arterial roads (Region and City)
    - Collector roads
    - Local roads
- Road rights-of-way are noted generally in policies 1.4.2.4 to 1.4.2.6 and are listed for specific arterial and collector roads in policy 14.19
- There are policies for property dedication for roads and daylight triangles which consider the needs of vehicular traffic as well as of pedestrians, cyclists and transit
- The OP contains policies that state:
    - The City will plan and operate transit so that the core area and centers of commerce are the primary focal points for provision of transit
    - It is desirable for public transit services be encouraged in proximity to higher density residential developments, areas of high employment concentration, major medical and social service centers, housing centers for people with special needs and social amenity areas and attractions
    - All development and redevelopment will provide adequate parking including parking for handicapped persons
    - On street parking is generally to be prohibited on sections of arterial and major collector roads where it interferes with safe and efficient operation of the road network

- Council may consider cash in lieu of parking, as required by by-law and use monies for the provision of additional parking spaces
- Major pedestrian destinations will be linked by pedestrian and bicycle paths and sidewalks along certain roadways
- Council shall seek to eliminate railway grade crossings on a priority basis with the financial assistance of appropriate authorities
- Where appropriate Council shall seek the elimination of railways within the City

There are policies in the land use section of the OP that have potential implications on the transportation choices available in the City:

- Policies 4.1.9 through 4.1.12 deal with the implementation of a VTS utilizing the recently abandoned CP rail corridor in the core and tourist areas. There are general guidelines for the design and location of the facility.
- Policies 4.1.13 through 4.1.17 deal with the implementation of a Grand Boulevard linking the tourist districts. The Boulevard concept would provide for the extension of Victoria Avenue southerly to Robinson Street and beyond to Buchanan, thereby connecting the existing activity node at Clifton Hill to the new Portage Road link between Marineland and Rapidsview and Fallsview. The extension of Ferry Street to the new Grand Boulevard will also create a stronger link with the Lundy's Lane District.
- Policies 4.3.2 to 4.3.4 identify a series of entrance gateways to the City's tourist districts
- Policies 4.3.5 to 4.3.10 deal with the circulation system and streetscapes in the tourist districts with directions to guide the use and design of those streets.

In addition to the OP, the City has conducted a number of other land use studies, two of which are described herein.

The **Historic Drummondville Land Use Plan (HDLU Plan)**, completed in September 2006, developed a community improvement plan for the Main Ferry area. The HDLU Plan identifies the following:

- Road improvements associated with gateways and focal points (at intersections of Main with Lundy's/Ferry) will be required to properly direct traffic, create a pedestrian friendly environment and create

landscaping elements (i.e., widened sidewalks, landscape bulbs, street trees, landscaped medians)
- Gateways to link Fallsview and Clifton Hill that will add traffic to and create historic prominence on Main Street
- Policy to identify Main Street as Retail Street (Summer Street to Culp Street and Robinson Street) with specific commercial uses (galleries, etc.)
- Review of Battlefield Master Plan with clear pedestrian connection between Main Street and Battlefield precinct (Drummond Hill)
- Road improvements are not needed to carry associated traffic, with the exception of landscaping road right of way to identify Historic Drummondville, and a redesign of connections at Main Street, Stanley Avenue, and Murray Street, to allow better connection between Fallsview Boulevard and Lundy's Lane

The **Niagara Falls Brownfield Community Improvement Plan (CIP)** was prepared in February 2006 to provide a framework of incentive programs and municipal actions that will promote the remediation and adaptive reuse and overall improvement of Brownfield properties throughout the City.

A Brownfield is defined as an abandoned, vacant, derelict, idled, or underutilized industrial or commercial property in the urban area with an active potential for redevelopment where the redevelopment is complicated by real or perceived environmental contamination, building deterioration, obsolescence, and/or inadequate infrastructure. There are a significant number of Brownfields in the older industrial areas of the City and throughout the urbanized area. The goals of the CIP are reduced sprawl, improved visual and environmental quality of development, improved tax base, retention and growth of employment, environmental health and public safety.

2.1.5 Niagara Falls Transportation Master Plans (TMPs)

2.1.5.1 Transportation Master Plan (1998)

This report recommended the following improvements:

- Thorold Stone Road and QEW interchange reconstruction
- Thorold Stone Road widening
- Stanley Avenue
    - Widen from two to four lanes from Valley Way to Highway 420
    - Reconstruct north of Thorold Stone Road and provide improvements to rail crossings between Thorold Stone Road and Highway 405
    - Widen from two to four lanes between McLeod Road and Portage Road
    - Widen from four to six/seven lanes between Highway 420 and North Street

  - Construct an interchange at Stanley Avenue and Highway 420
  - Widen to four lanes between McLeod Road and Lyons Creek Road, including the widening of the Welland River bridge
- Allendale Avenue – extend from North Street to Dunn Street
- Buchanan Avenue – from North Street to Dunn Street as arterial standard
- Victoria Avenue 420 interchange improvements
- Widening QEW 405 to 420
- Crossing of Hydro canal between Falls industrial area and Oakwood Drive
- Visitor signing plan for City and Regional roads
- Pedestrian connections in tourist area
- Bicycle and multi-use trail system
- Portage to four lanes Marineland Parkway to upper Rapidsview Boulevard
- Highway 20/Roberts Street – physical improvements and streetscaping, intersection (design to consider grade separation) improvements at Stanley ramp improvements to Victoria Avenue
- McLeod Road – improvements and turning lanes at key intersections
- Lyons Creek Road – upgrade to arterial road standard, intersection improvements at Stanley Ave
- Taylor Road upgraded to arterial to support District Airport
- Montrose Road to four lanes with auxiliary lanes for local traffic
- New four-lane arterial connection between Thorold Stone Road and Bridge Street

2.1.5.2 Update to the Niagara Falls Transportation Master Plan (2003)

This Update was prepared as a result of development proposals, particularly within the area referred to as “Pressures in the Tourist Area” (PTA). The following assessments of traffic requirements on the road system were recommended as part of the Update:

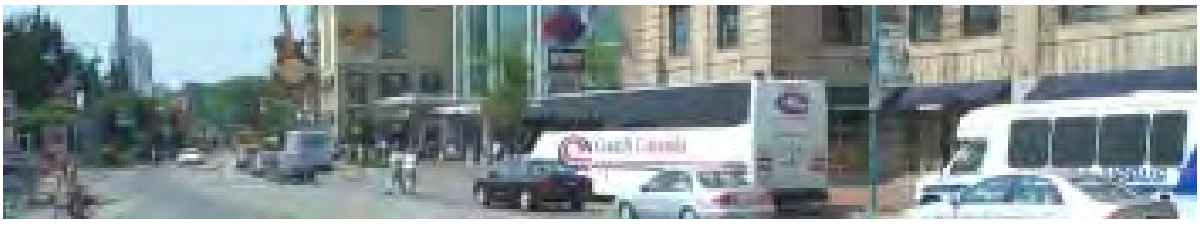
- Highway 20/Roberts Street – physical improvements and streetscaping, intersection (design to consider grade separation) improvements at Stanley Avenue with ramp improvements to Victoria Avenue
- McLeod Road – requires operational improvements at key intersections
- Lyons Creek Road is to be upgraded to arterial road standard
- Stanley Avenue to be widened from 420 to Bridge Street, reconstructed from Thorold Stone to 405, widened to four lanes from McLeod to Portage, and to six lanes from 420 to North Street, four lanes McLeod to Lyons Creek
- New four lane arterial connection between Thorold Stone and Bridge Street

- Road improvements in tourist area including:
  - Thorold Stone Road – from Bridge Street to Whirlpool Bridge
  - Murray Street
  - Allendale Avenue – Buchanan Avenue
  - Allendale Avenue
  - Main Street
  - Dixon Road
  - Dunn Street
  - Portage Road
  - Buchanan Avenue
  - Grand Boulevard
  - Portage Road
  - Queen Victoria Park

2.1.6 Active Transportation Policies and Principles

The policy framework for the planning and implementation of a bike path system in the City can be found in the "Regional Niagara Bikeways Master Plan" (2003), the "City of Niagara Falls Transportation Master Plan" (1998), and an the 2005 update to the "Trails and Cycling Master Plan" (2005 TCMP). The Regional Niagara Bikeways Master Plan provides direction for the overall network and design guidelines.

The Niagara Falls TMP and subsequent update to the 2005 Trails and Cycling Master Plan illustrate recommended bikeways within the City and identify on road cycling routes, recreational cycling routes, off-road recreational routes and regional designations of suitable on-road cycling routes. These studies recommended that wayfinding be limited to the regional network map. The recommended priorities for implementation are the commuter and recreational loops and connections to the U.S. network. The 2005 TCMP recommends trigger projects which include: completing walking trails on Millennium Trail, Mitchell Line, NS and T, Downtown Trail, Grand Boulevard and Palmer Avenue. Bikeways are recommended on Drummond Road, St. Paul, Kalar Road, McLeod Road, Mountain Road and Morrison Street.



2.1.7 Transit Initiatives

2.1.7.1 Visitor Transportation System (VTS)

The City's current Visitor Transportation System (VTS), was inaugurated in 1985 as the People Mover System (PMS) and is deemed to be operating beyond its practical capacity. The VTS, which runs mainly in Queen Victoria Park, is operated by the NPC (NPC). Over the last three decades, the issue of a people mover serving visitors to the community has been the subject of much study. The VTS is intended to:

- Provide a reliable connection between tourist areas and attractions as soon as practically possible;
- Replace the system of privately operated shuttles and the NPC operated people mover buses with new, accessible, state-of-the-art system that would provide visitors with a higher level of service; and
- Establish a system that could be expanded, possibly with different technology and serve new areas and attractions.

In September 2009 the City completed a report entitled, "Business Case for the Proposed Niagara Falls People Mover System"; the report was subsequently updated in June 2010. This report reviewed:

- The need for the VTS (history, surveys, forecasts, consultations, ridership and revenue forecasts, cost benefits, etc.
- Background and history of related projects and studies including:
    - 1981 – study recommends monorail system
    - 1985 – NPC implemented the present rubber tire propane powered system
    - May 1986 – PMS Study identifies need for system on separate right-of-way
    - Summer 1987 – coordination of PMS with Niagara Falls Transit operation
    - October 1988 – NPC study recommends enhanced PMS for QVP.
    - February 1996 – Niagara Falls PMS Feasibility Study confirmed need to upgrade the PMS
    - September 1998 – Niagara Falls TMP recommended a number of short and long term improvements to transportation system including upgraded PMS in the PTA
    - October 2000 – Niagara Falls PMS Individual Environmental Assessment and Economic Analyses provided details of preferred alignment
    - May 10, 2001 – Minister of Environment approved EA for Niagara Falls PMS

- 2002 - City conducted a Stated Preference Survey regarding transportation services for tourists
- The City, OLG and FMC purchased railway right of way from VIA station to Marineland for $40.5 million with City owning majority and OLG owning portion through Fallsview

Funding of up to $50 million was committed by the federal and provincial governments. The Study contains the latest forecasts of tourist visitations (i.e., 14 million persons per year up to the year 2025) which are considerably less than forecasts reported in previous studies.

The Business Case recommends a two phase approach to the VTS. Phase One consists of rubber tired vehicles operating on the roadway in mixed traffic (20 new buses to last up to 15 years) with improved stations and improvements to the inclined railway. Phase Two consists of a dedicated right of way; this will require addressing the following issues on roles and relationships as well as design:

- Sets out basic requirements and specifications for Phase One vehicles
- People Mover infrastructure will be owned by the City and operated by Niagara Falls Transit and The NPC.
- Implementation date of 2011 to coincide with opening of new Convention Center
- Total cost estimates are $55 million including vehicles, maintenance building, station upgrades, intersection improvements and fare collection system

In September 2009 the Federal and Provincial governments renewed their commitments to set aside $25 million each for the implementation of the project. The new VTS will enhance the existing transportation system already in place and provide greater access for visitors to tourist facilities with connections to the VIA station, where riders can access the new GO Transit service.

The VTS is a key component of the overall transit system and the growth management strategy to pursue land use and transportation policies that would promote public transit and re-urbanization. The VTS would be consistent with the planned inter-regional transit system as identified in Schedule 5 of the Growth Plan reducing the need for the high population of visitors to add to network congestion.

It is currently envisioned that the VTS would be operated by Niagara Falls Transit, and would link to the City transit system. System maps and signage will assist visitors with accessing the VTS, contributing to improved system usage.

2.1.7.2 Transit Strategic Business Plan and Ridership Growth Strategy (2009)

In 2007, organizational changes took place in the City, including the movement of transit services under the direct control of City Council as part of the Transportation Services Division, Community Services Department. IBI Group was retained to review the level and quality of the City's conventional and specialized transit services, scope of operations and infrastructure requirements with the goals of defining a future direction and the required resources to increase ridership and the transit mode split, improve productivity and cost-effectiveness, and reduce greenhouse gas emissions, the findings of which were documented in the report entitled, "Transit Strategic Business Plan and Ridership Growth Strategy" and dated March 2009 (IBI Study).

The key findings for two main categories of interest in the study include the following:

- Service:
  - Niagara Falls Transit provides a level of service, and therefore market penetration and modal split, below that of most of its peers
  - The conventional transit system is under-utilized and does not meet the needs or travel patterns of the community and is perceived by stakeholders as ineffective, inconvenient and marginalized
  - Service frequency is typically 60 minutes, compared to 30 minutes in other peer municipalities
  - Financially, the transit operation is as efficient as its peers, although average fares collected are lower
- Fleet and Facilities:
  - Average age of the conventional bus fleet is 10.5 years, consistent with industry standards
  - The transit garage and administration building are deficient in numerous ways; a new facility is required
  - The Downtown intercity bus terminal is generally in good condition and well-connected to intercity bus and rail services.

2.1.7.3 Niagara Region Council Transit Vision

The Region recently adopted its public transit vision as follows:

- *Public transit service will form an important and integral component of Niagara's transportation system – a key element in growth plans.*
- *Residents of Niagara will be provided affordable and reliable transit services to conveniently access places of work and major activities in the urban areas.*
- *Inter-municipal transit services will be provided that connect Niagara residents to the surrounding municipalities, regions and the GTA.*

- *The cost for providing such a system will be distributed in a fair and equitable manner.*

The Region is also currently in the process of updating its 2002 Transportation Strategy.

2.2 VISION FOR FUTURE GROWTH

The STMP is a forward looking document that uses projections and models to predict future traffic and transportation. This information is used to determine if roadways are sufficient in the future. It also determines the appropriate locations for transit and a range of alternative transportation modes such as bicycles and pedestrian trails. The basis of this work is the projection of population and employment statistics to represent a future City scenario. This section outlines how projections were determined and how they were spatially distributed to multiple traffic zones (see also **Appendix B**).

2.2.1 Growth Projections

The Province has developed population, household and employment projections for the area of the province that is subject to "Places to Grow". These projections are provided to upper tier municipalities and single tier municipalities within the GGH. The Region was provided with projections for the years 2011, 2021 and 2031. The timeframe of this master plan is to 2031.

The Province has requested that all regional governments review their projections and distribute the projections to lower tier municipalities such as the City. As a part of the Region's review of the Provincial projections it became clear that the projections were under-estimated. On this basis, the Region established its own projections. **Table 2** provides the Provincial Projections and the Regional projections.

Table 2: Niagara Region Population & Employment Forecasts

	Population				Employment			
	2001	2011	2021	2031	2001	2011	2021	2031
Provincial	427,000	442,000	474,000	511,000	186,000	201,000	209,000	218,000
Regional	427,000	465,200	510,000	545,400	186,000	207,420	229,410	243,540
Difference	--	23,200	36,100	34,400	--	6,420	20,410	25,540

Source: Province of Ontario, *Places to Grow*, 2006, Niagara Region, 2008.

The Region used the data in **Table 2** to develop population and employment forecasts for each lower tier municipality. Furthermore, it has adopted the following policy through Regional Plan Amendment 2-2009 (ROPA 2-2009) directing local municipalities to use their projections in studies:

"In the interim, the Niagara Region figures should be used as the basis for planning for growth and infrastructure in Niagara, including planning studies, transportation master plans and water and waste water servicing master plans and studies."

The Province has appealed ROPA 2-2009 and there are ongoing discussions between the Province and the Region.

Table 3 summarizes the population and employment forecasts for the City as included in ROPA 2-2009.

Table 3: City of Niagara Falls Population and Employment Forecasts

Population				Employment			
2006	2016	2026	2036	2006	2016	2026	2036
82,200	90,400	99,100	102,700	38,570	44,500	48,070	49,450

Source: City of Niagara Falls, 2009

The population and employment forecasts shown in **Table 2,** as established by the Region, were used as the basis of future projections. The total projected values for the City were disaggregated into forecasts for traffic zones.

City planning staff prepared detailed distributions of anticipated population and employment forecasts. The basic principles that were used in distributing population estimates were as follows:

- The total number to be distributed were based on the Region's population data;
- Vacant residentially designated land was identified as the future location for population growth to be housed;
- Lands currently vacant and with registered subdivision lots were populated first;
- Lands currently vacant and with draft approved lots were populated second; and
- Lands currently vacant and with no approvals, with the exception of zoning or OP designations were, populated third.

The forecasted population data were distributed to the appropriate traffic zones. The traffic zones were provided to the City by the Region. The anticipated increases in population were mapped based on the City's Geographic Information System (GIS) system.

The basic principles that were used in distributing employment estimates are as follows:

- The total amount of employment to be generated was based on the Region's projections;

- Vacant industrial and tourist commercial lands were utilized as the future location of new jobs (employment);
- Vacant sites with approvals were given first priority for allocation of new employment; and
- Vacant sites with only zoning and/or designation were given a second priority for allocations of new employment.

The forecasted employment data was distributed to the appropriate traffic zones (provided by the Region). The anticipated traffic zone increases in employment were mapped based on the City's G.I.S. system.

2.2.2 Sensitivity Analysis

There was discussion with the Region's planning staff concerning the use of the Region's projections as compared to the Province's projections. It was determined that the Region's projections should be used in assessment as the basis of traffic forecasts for the following reasons:

- The City is growing faster than the Provincial projections would anticipate;
- The City has sufficient vacant residential and employment lands to sustain growth through the planning period; and
- A sensitivity analysis could be performed as a part of the modeling to determine any impacts of using the higher estimates.

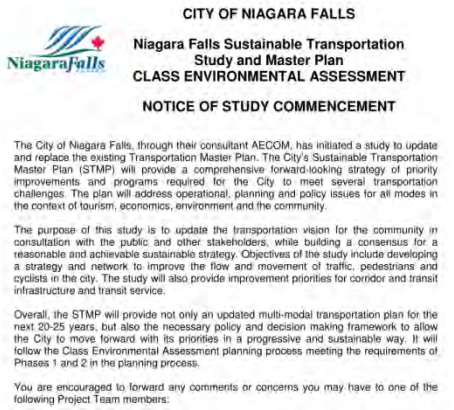
Therefore, it was resolved that the Region's projections would be the basis of the traffic forecasting. A sensitivity analysis would be undertaken to determine if there was any significant impact of utilizing the larger estimates and the impacts, if any, would be critically reviewed on a case by case basis.

3. PUBLIC AND AGENCY INVOLVEMENT

Public and agency involvement was an important component of the development of the STMP. An effective consultation program provides for meaningful dialogue and an exchange of ideas and it results in a broadening of the information base and leads to better decision making.

The public and agency consultation for the STMP included the following:

- Interviews with City Council Members
- Visioning Focus Group
- Community Advisory Group
- Public Opinion Survey
- Public Information Centres
- Technical Advisory Group
- Newsletters
- Project website



CITY OF NIAGARA FALLS

Niagara Falls Sustainable Transportation Study and Master Plan
CLASS ENVIRONMENTAL ASSESSMENT

NOTICE OF STUDY COMMENCEMENT

The City of Niagara Falls, through their consultant AECOM, has initiated a study to update and replace the existing Transportation Master Plan. The City's Sustainable Transportation Master Plan (STMP) will provide a comprehensive forward-looking strategy of priority improvements and programs required for the City to meet several transportation challenges. The plan will address operational, planning and policy issues for all modes in the context of tourism, economics, environment and the community.

The purpose of this study is to update the transportation vision for the community in consultation with the public and other stakeholders, while building a consensus for a reasonable and achievable sustainable strategy. Objectives of the study include developing a strategy and network to improve the flow and movement of traffic, pedestrians and cyclists in the city. The study will also provide improvement priorities for corridor and transit infrastructure and transit service.

Overall, the STMP will provide not only an updated multi-modal transportation plan for the next 20-25 years, but also the necessary policy and decision making framework to allow the City to move forward with its priorities in a progressive and sustainable way. It will follow the Class Environmental Assessment planning process meeting the requirements of Phases 1 and 2 in the planning process.

You are encouraged to forward any comments or concerns you may have to one of the following Project Team members:

The following provides a summary of public and agency involvement for the STMP. Complete documentation on the full Public and Agency Involvement Process and Findings can be found in **Appendix C**.

3.1 INTERVIEWS WITH COUNCIL MEMBERS

In November 2009, at the outset of the study process, members of the project team conducted interviews with the former Mayor (Mayor Ted Salci), eight members of City Council and one Regional Councillor. The purpose of the interviews was to solicit comments and suggestions from the elected representatives regarding transportation issues and directions for the STMP, as well as suggestions for engaging the public in the study process.

The most common issue mentioned during interviews with Councillors related to active transportation and the need to expand the trail system.

The elected officials provided comments on the following topics:

- Public transit
- Public consultation
- Active transportation
- Transportation network planning
- Roads
- Transportation funding
- Parking

The most commonly mentioned issue related to active transportation and the need to expand the trail system followed by issues related to the public consultation program and the importance of providing the users of the transit service, including the youth, seniors and people with disabilities, with an opportunity to engage in the study process. Connectivity and integration of transit services, building ridership and possibly using promotions to increase awareness and accessibility of transit were also frequently noted.

A central question for the project team was the manner of public engagement. The main suggestions included the following:

- Assemble a stakeholder group to obtain a balanced representation of community interests.
- Hold well publicized meetings in different locations around the City to engage the public in a dialogue about the issues.
- Getting the word out:
    - News reports
    - Local TV appearances
    - Press Releases
    - Notices/statements on mayors web page

3.2 VISIONING FOCUS GROUP

A two-hour visioning focus group session was conducted in the early phase of the study on January 26, 2010. The purpose of the visioning focus group was to establish the community's perception of the current transportation system, its level of service, cost and problems. Ideas were sought from the focus group about how the transportation system should look in the future, what the areas are for improvement, and what planning principles should be used to shape the system for the future. The focus group also helped to identify issues for consideration for the preparation of the STMP and helped to formulate the questions used for the public opinion survey.

Some of the main issues identified by the focus group included the following:

- Freight rail is blocking roadways
- Need better planning/design for bicycles
- Use hydro corridors for walking and cycling trails
- Transit frequency and routing should be improved and geared to all population groups
- Design with tourism in mind (i.e. illuminated street signs)

3.3 COMMUNITY ADVISORY GROUP

A community advisory group was established at the study outset to provide input and advice at key points during the development of the STMP. The group consisted of 20 individuals representing citizens at-large, cyclists, seniors, youth, businesses, tourism and school board interests.

A community advisory group meeting was held during the early phase of the study on February 10, 2010 to discuss strengths, weaknesses, opportunities and threats related to all aspects of transportation in the city. Many participants felt that there was great potential for implementation of previously contemplated projects such as the Millennium Trail Project and the Grand Boulevard. Various ways of travelling for business, necessity and leisure functions within the system were highlighted, along with current limitations. Participants felt that safe, efficient and inviting space needs to be created for all modes of transportation.

The following provides some highlights from the discussion:

- **Strengths** –
  - The City has well maintained and well kept infrastructure.
  - There are numerous transit systems already in place.
  - The VTS has a lot of potential, both for tourism and for local people.
  - The grid system operates quite well and the city is covered by numerous transit routes.
  - Bike lanes on improved roads are a positive addition.
  - 10-11 million person visits each year.
- **Weaknesses** –
  - No parking availability for larger vehicles making deliveries.
  - Natural barriers throughout the City (CN rail line, QEW, 400 series highways).
  - Perception of riding a bus is negative. Make transit a desirable/unique experience.
  - Attitude needs to change towards cyclists and children.
  - Sidewalk development is lacking.
  - There is poor information and communication for people that are unfamiliar with the system.
- **Opportunities** –
  - Grand Boulevard that contains separate lanes for cyclists, pedestrians, and transit.
  - Transportation opportunities on the Hydro corridors.

  - Millennium Trail.
  - Downtown parking garage.
  - Dedicated transit lanes should be considered.
  - Widen sidewalks or adding bike trails to create a comfort level for the cyclists.
- **Threats** –
  - Lack of money.
  - Political – election cycle (funding is attached to cycle).
  - Not in my backyard mentality (NIMBY).
  - Apathy – slow response, loss of initiative which equals negative impacts.
- **Priorities** –
  - Grand Boulevard – implement the plan.
  - Millennium Trail – finish what was started.
  - The VTS planning should not stop. In the future, this can be incorporated into the Grand Boulevard.
  - Unify the bus systems. The Parks (tourist) system should be integrated with the City system so that there would be a more attractive system to attract public and tourist alike.
  - Need to make safe spaces for cyclists to ride, pedestrians and other forms of transportation.

3.4 PUBLIC OPINION SURVEY

A public opinion survey was conducted early in the study process in order to obtain the general public's opinion on a wide variety of issues relating to transportation and growth. The results of the survey were helpful in establishing the goals, principles, and objectives for the study.

"Roads/Traffic" was the leading local issue expressed in a survey of Niagara Falls residents.

Overall, the survey found that:

- "Roads/Traffic" is the leading local issue.
- Use of public transit and active transportation is low.
- Cycling is a popular recreational activity but not a commuter choice.
- Driving is second nature for short and long trips.
- Opinions on roadway conditions are mixed (some positive/some negative comments).

Key survey results include the following:

- **Major Local Issues** – Roads/transit (39%) and economy/jobs (22%) are the two major issues that residents suggest their local government should pay most attention to now. Taxes and tourism were also identified as leading items.
- **Ways to Improve Local Transportation** –
  - Improve public transit, including both local systems and regional linkages.
  - Add stoplights and a railway overpass.
  - Invest in road maintenance.
  - Ensure easy service access for persons with disabilities and seniors.
  - Plan with a view to reduce pollution and greenhouse gases.
  - Create compact live/work/shop/recreation communities.
  - Prioritize transit and invest in public education to expand walking and active transportation.
  - Give walking a higher priority than cars.
- **Vehicle Access** – 91% of residents either own or have access to at least one motor vehicle – the average household has 2 vehicles.
- **Travel Patterns** –
  - 65% regularly commute to work.
  - 88% of work-related commuters and 63% students travel by car. 16% of the City's high school students walk to school, 7% take local transit, and 7% go by school bus.
  - 64% of employed residents work locally – the balances of residents generally commute to points within the Region and 9% travel outside of the Region to work.
  - Short trips from home for shopping, visiting friends/family, recreation and appointments are generally made by car.
- **Local Travel Conditions/Congestion** –
  - 51% indicate that road traffic has deteriorated in the past three years, 34% say it is "somewhat worse" and 15% indicate that it is "a lot worse". This view is particularly strong with the elderly, long-term residents and people who are locally employed.
  - Three-quarters of residents report that it takes more time to get around the City in the summer period; commuters were particularly affected by summer traffic loads and road congestion.
- **Public Transit** –
  - 12% of adult residents travelled by Niagara Falls Transit in the past month, 5% via GO Transit, 3% via Coach Canada or VIA Rail, and 1-2% via the VTS, Falls Shuttle, Niagara Falls Chair-A-Van, Greyhound Bus, or taxi.
  - 13% of residents indicate that they are "very likely" or "somewhat likely" to take Niagara Falls Transit in the next month.

- **Active Transportation** –
  - Six out of ten adult residents of the City have recently used the recreational trail, 60% of which suggest improvements such as expanding the trail and adding amenities
  - Walking suits one-third of adult residents who urged more attention to be paid to sidewalks and for future development to be geared to facilitate walking between home, work, and shopping.
  - 62% of households own at least one bicycle and two-thirds of bike owners have cycled in the past month.
- **Transportation Needs of Tourists –**
  - 64% of residents believe that the transportation needs of tourists receive sufficient attention, while 20% feel their needs were being neglected.
  - Suggested improvements include better public transit connections that link major visitor destinations and hotels. Parking related factors included more enforcement, capacity and reasonable rates.

3.5 PROJECT WEBSITE

A project website was developed and maintained for the duration of the study to provide information to the public about the STMP (www.tbt2031.com). The website included a call for public involvement, an overview of the study, linkages to related websites, information about the public information centers, and project team member contact information.

The following draft working papers were available at the project website:

- Review of Background Reports
- Goals, Principles and Objectives
- Population and Employment Projections
- Public Survey
- Public Involvement Report
- TDM

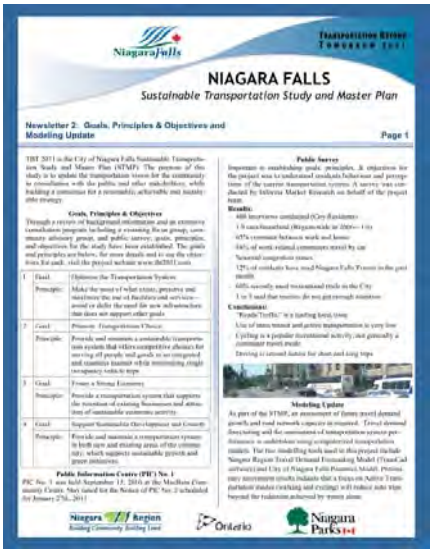
The following working papers are to be posted:

- Travel Demand Modelling
- Evaluation of Proposed Road Network Alternatives
- Signing/Wayfinding
- Active Transportation

A Parking working paper is to be completed as part of a separate study.

3.6 NEWSLETTERS

Four newsletters were developed to communicate information about the STMP study. Each newsletter was posted to the STMP study website. The newsletters provided the following information:


NIAGARA FALLS
Sustainable Transportation Study and Master Plan

- Newsletter #1:
  - Announcement of study commencement
  - Approach overview
  - Study purpose and objectives
- Newsletter #2
  - Goals, principles, and objectives
  - Public survey results
  - Update on travel demand modelling
- Newsletter #3
  - TDM strategies, including transit and active transportation
  - Modal split confirmation, mode split targets and policies
  - Evaluation criteria, indicators and measures
- Newsletter #4 – to be posted.

3.7 PUBLIC MEETINGS

Three public meetings were held at key points during the course of the study.

3.7.1 Public Meeting #1

A Public Meeting was held on September 15, 2010, at the MacBain Community Centre to provide stakeholders and members of the public with an opportunity to review the study scope, goals, principles, and objectives, hear the results of the public opinion survey and input from the community advisory group, and discuss issues related to the study.

The meeting was attended by 13 members of the community. The meeting included a presentation by the project team regarding the results of the public opinion survey, the study goals and objectives, and the community advisory group.

Input from the meeting attendees included the following:

- Need to consider the needs of visitors.
- Recognize that we are all pedestrians first.
- Bicycle tourism is not as prominent as it could be.

3.7.2 Public Meeting #2

The second Public Meeting was held on January 27, 2011, at the MacBain Community Centre. Seventeen members of the community attended the meeting. The purpose of the meeting was to provide an update on the study and to present the results of the travel demand modelling, TDM strategies, and key recommendations for transportation system improvements.

Some of the key points that were raised during discussion at the meeting included the following:

- Transit improvements are needed including better frequency, longer schedule, and additional routes/destinations.
- Focus more on local residents, not just tourists.
- Consider special traffic signals for cyclists and pedestrians.
- Complete Millennium Trail and make it safer to use.
- Need better clearing of snow at bus stops.
- Consider raised railroad crossings.
- A TDM coordinator should help to ensure that TDM recommendations are carried out.
- Bike lanes need to be continuous, safe and separated from cars and pedestrians.
- Bike lanes should extend into new developments at the time of development.

3.7.3 Public Meeting #3

The third Public Meeting was held on September 21, 2011, at the Gale Centre Arena, Memorial Room. Twenty-five members of the community attended the meeting. The purpose of the meeting was to provide an update on the study and STMP recommendations; discuss the signing/wayfinding strategy; describe how parking will be addressed; present the proposed active transportation network; overview transit initiatives; provide final TDM recommendations and priorities; describe the proposed road improvements; and solicit public input on the Morrison St. flyover, other proposed flyovers, and the issue of rail crossings in the City.

Some of the key points that were raised during discussion at the meeting included the following:

- Need to reduce congestion on the QEW and highway 420.
- Need to improve the way that tourists are directed to tourist destinations.
- Bike stands and the accessibility of bike routes in the City.
- Need for increased public education regarding the laws/rules for cycling.
- Roundabouts and other specific design features.
- Need and timing for the Morrison Street flyover, the impact on local residents, and the impacts along Thorold Stone Road and other adjacent arterials.
- Public would like to see Rail crossings in Morrison/Dorchester area, however, the benefits do not justify the cost.

3.8 TECHNICAL ADVISORY COMMITTEE (AGENCY INVOLVEMENT)

A Technical Advisory Committee (TAC) meeting was held on September 29th, 2010. This was attended by members of the Project Team and representatives from various agencies. The purpose of the meeting was to present the following items to the TAC:

- Summary of the review of background documents
- Key findings from the Public Survey
- The study goals, principles and objectives
- Summary of the Community Advisory Group (CAG) meeting and Public Information Centre (PIC) #1
- Discussion of the next steps – technical assessments of TDM, parking, forecasting and mode share analysis

The presentation was followed by a Question and Answer session with the TAC to discuss any outstanding issues or concerns.

3.9 PROJECT TEAM WORKSHOPS AND MEETINGS

Several project team workshops and topic-specific meetings were held to help advance the study and deal in depth with specific issues. Depending on the topic to be discussed, these workshops and meetings were attended by members of the consulting team and staff from the City, the Region and MTO.

Workshops were held to discuss the travel demand modelling process, development of land use foundations and principles, confirmation of growth objectives process, overall study issues and vision.

Additional meetings were held to discuss the parking and signing/wayfinding components, rail and the proposed Morrison Street Flyover as well as to update the project team on the overall project program. The outcomes of these workshops contributed to the overall development of the STMP. Meetings or workshops were held as follows:

- April 27, 2009 (Project Team Meeting)
- August 6, 2009 (Travel Demand Workshop)
- August 25, 2009 (Project Team Meeting)
- October 2, 2009 (Project Team Meeting)
- November 27, 2009 (Parking Workshop)
- June 7, 2010 (Project Team Meeting)
- June 21, 2010 (Project Team Meeting)
- August 31, 2010 (Project Team Meeting)
- October 26, 2010 (Project Team Meeting)
- November 26, 2010 (Project Team Meeting)
- December 13, 2010 (Modelling Workshop)
- December 21, 2010 (Project Team Meeting)
- January 13, 2011 (Project Team Meeting)
- January 21, 2011 (Signing Strategy Meeting)
- July 18, 2011 (Council Meeting on Morrison Street Flyover)
- September 8, 2011 (Project Team Meeting)
- October 24, 2011 (Council Meeting)

4. STUDY GOALS, PRINCIPLES AND OBJECTIVES

Through the review of policy framework as outlined in Section 2, and the community and agency involvement as outlined in Section 3 (including input received from elected officials, the visioning focus group, community advisory group, and public opinion survey), goals, principles, and objectives were established for the development of the STMP (see also **Appendix D**)

The STMP Goals are:

- *Optimize the Transportation System*
- *Promote Transportation Choice*
- *Foster a Strong Economy*
- *Support Sustainable Development and Growth*

In consideration of provincial, regional and local overarching policies and strategies, a high level policy framework was developed for the STMP.

The following four STMP study goals and underlying principles are the initial components of the framework:

- ***Goal – Optimize the Transportation System***
  Make the most of what exists; preserve and maximize the use of facilities and services — avoid or defer the need for new infrastructure that does not support the other goals.
- ***Goal – Promote Transportation Choice***
  Provide and maintain a transportation system that offers competitive choices for moving all people and goods in an integrated and seamless manner while minimizing single occupancy vehicle trips.
- ***Goal – Foster a Strong Economy***
  Provide a transportation system that supports the retention of existing businesses and attraction of sustainable economic activity.
- ***Goal – Support Sustainable Development and Growth***
  Provide and maintain a transportation system, in both new and existing areas of the community, which supports sustainable growth and green initiatives.

The STMP study goals are not listed in order of priority. **Table 4** lists the guiding principles of the RNSCP and the City's OP and shows how those principles are consistent with the four STMP study goals and underlying principles. **Table 5** consists of the four STMP study goals with corresponding principles and a series of supporting objectives and it serves as a guide for the completion of the STMP and the subsequent development of the transportation system.

The goals, principles and objectives reflect a broad vision for the City for an inclusive, thriving and sustainable community. The goals and principles recognize the transportation needs of current and future generations and the differing requirements of residents throughout the community and the large visitor population. The guiding principles form the foundation for the transportation objectives.

Table 4: Proposed STMP Study Goals & Objectives – Guiding Principles in the RNSCP and City OP

Regional Niagara Sustainable Community Policies/City O.P.	STMP Goals			
	Optimize the Transportation System	Promote Transportation Choice	Foster a Strong Economy	Support Sustainable Development and Growth
1. Compact, vibrant, integrated and complete communities	√			√
2. Plan and manage growth to support a strong, competitive and diverse economy			√	√
3. Protect, conserve, enhance and wisely use valuable resources of land, air, energy and water for current and future generations				√
4. Maximize use of existing and planned infrastructure to support growth in a compact and efficient manner	√			√
5. Provide flexibility to manage growth in Niagara that recognizes diversity of communities				√
6. The City will plan and operate transit so that the core area and centers of commerce are the primary focal points for provision of transit	√	√		√
7. It is desirable for public transit services be encouraged in proximity to higher density residential developments, areas of high employment concentration, major medical and social service centers, housing centers for people with special needs and social amenity areas and attractions	√	√		√
8. Council may consider cash in lieu of parking, as required by by-law and use monies for the provision of additional parking spaces	√			
9. Major pedestrian destinations will be linked by pedestrian and bicycle paths and sidewalks along certain roadways		√		√

Source: RNSCP and the City's OP

Table 5: Transportation System Goals, Principles & Objectives

GOAL Optimize the Transportation System	GOAL Promote Transportation Choice	GOAL Foster a Strong Economy	GOAL Support Sustainable Development and Growth
Principle: Make the most of what exists; preserve and maximize the use of facilities and services — avoid or defer the need for new infrastructure that does not support the other goals.	**Principle:** Provide and maintain a transportation system that offers competitive choices for moving all people and goods in an integrated and seamless manner while minimizing single occupancy vehicle trips.	**Principle:** Provide a transportation system that supports the retention of existing businesses and attraction of sustainable economic activity.	**Principle:** Provide and maintain a transportation system, in both new and existing areas of the community, which supports sustainable growth and green initiatives.
Objectives: 1. Improve the way that the components of the transportation network, including signage and traffic signals, roundabouts, pedestrian/cycling facilities, transit priority systems, intelligent transportation systems (ITS), and intersection improvements, etc., work together to reduce delays and best use available capacity. 2. Enhance the existing transit system to efficiently move local residents throughout the network, and effectively move visitors throughout the visitor area. 3. Use TDM measures to improve the efficiency of the transportation system. 4. Fill the gaps —add connections and linkages within the existing transportation system to minimize the need for more infrastructure. 5. Invest in integrated public transportation services to manage high	**Objectives:** 1. Think ahead — embrace a comprehensive, long-term transportation planning approach that considers all modes and sets a priority for each mode related to the others. 2. Ensure that public transit services are planned and operated to be accessible, convenient, reliable and comparable with other modes, including the automobile. 3. Develop safe, convenient and well-integrated bicycle and pedestrian networks and facilities that link key activity nodes within the Region. 4. Continue to support new and innovative approaches to improve upon the existing transit system, and bicycling and pedestrian networks.	**Objectives:** 1. Support the planning, design, delivery, and ongoing maintenance of a fully integrated transportation system composed of roads, walkways, bikeways, transit, and railways. 2. Implement a transit system that effectively moves visitors and related service providers throughout the visitor area to capitalize on tourism revenue and lengthen the average visitor stay within the community. 3. Work with the provincial government and other agencies to upgrade and expand their transportation network and corridors including the provision of improved road, rail (freight), and bus/rail transit linkages/connections to the City. 4. Develop a transportation system that provides exemplary service to existing areas, promoting densification.	**Objectives:** 1. Develop initiatives and strategies that reduce the need to travel for both residents and visitors. 2. Ensure that the health and social benefits of an active lifestyle direct transportation planning and design decisions. Generally, priority will be given in the following order: • Walking • Cycling • Public transit • Smart commute strategies • Single occupant vehicles; however, local context will influence transportation design choices (i.e. Context Sensitive Design and Complete Corridors). 3. Consider urban design, zoning and parking management strategies that support walking, cycling and transit, and minimize land consumed to support automobile travel (e.g. parking lots).

GOAL Optimize the Transportation System	GOAL Promote Transportation Choice	GOAL Foster a Strong Economy	GOAL Support Sustainable Development and Growth
levels of travel demand: • for local residents • for visitors to the community • within the City and between regional economic centres. 6. Optimize roads to accommodate all modes of travel and expand roadways only when necessary.		5. Foster partnerships between the all levels of government, the private sector, educators and other stakeholders to improve the transportation system. 6. Develop a transportation system that allows for the efficient movement of goods and people and is adaptable to accommodate changing needs.	4. Support changes to the transportation system that will result in a reduction in vehicle emissions, minimize energy consumption, and limit environmental impacts. 5. Ensure that new development and redevelopment support greater levels of walking, cycling and transit, and that transit service is provided at an early stage in new developments. 6. Be a leader in the implementation of greenhouse gas emission and carbon reduction measures to meet the challenge of current and emerging climate change issues. 7. Foster the development of communities that support active transportation such as walking and cycling. 8. Ensure that transportation and land use decisions are consistent with the policies and direction included in the Regional Growth Management Strategy, the City's OP, and the Growth Plan.

5. EXISTING TRANSPORTATION CONDITIONS

The following describes the existing transportation conditions within the City and includes active transportation, public transit services, TDM, roads and bridges and rail freight. The existing conditions are discussed in the order laid out as per the goal to Support Sustainable Development and Growth, including walking, cycling, and transit.

5.1 ACTIVE TRANSPORTATION

A sustainable transportation system requires the integration of alternative modes such as walking, cycling, public transit and carpooling to provide a balanced transportation system that offers the City's residents more choices. Active transportation is any form of human-powered transportation and can include any trip made for the purposes of getting to a particular destination - to work, to school, to the store or to visit friends. Active transportation can include walking, cycling, in-line skating, skateboarding and travel by wheelchair.

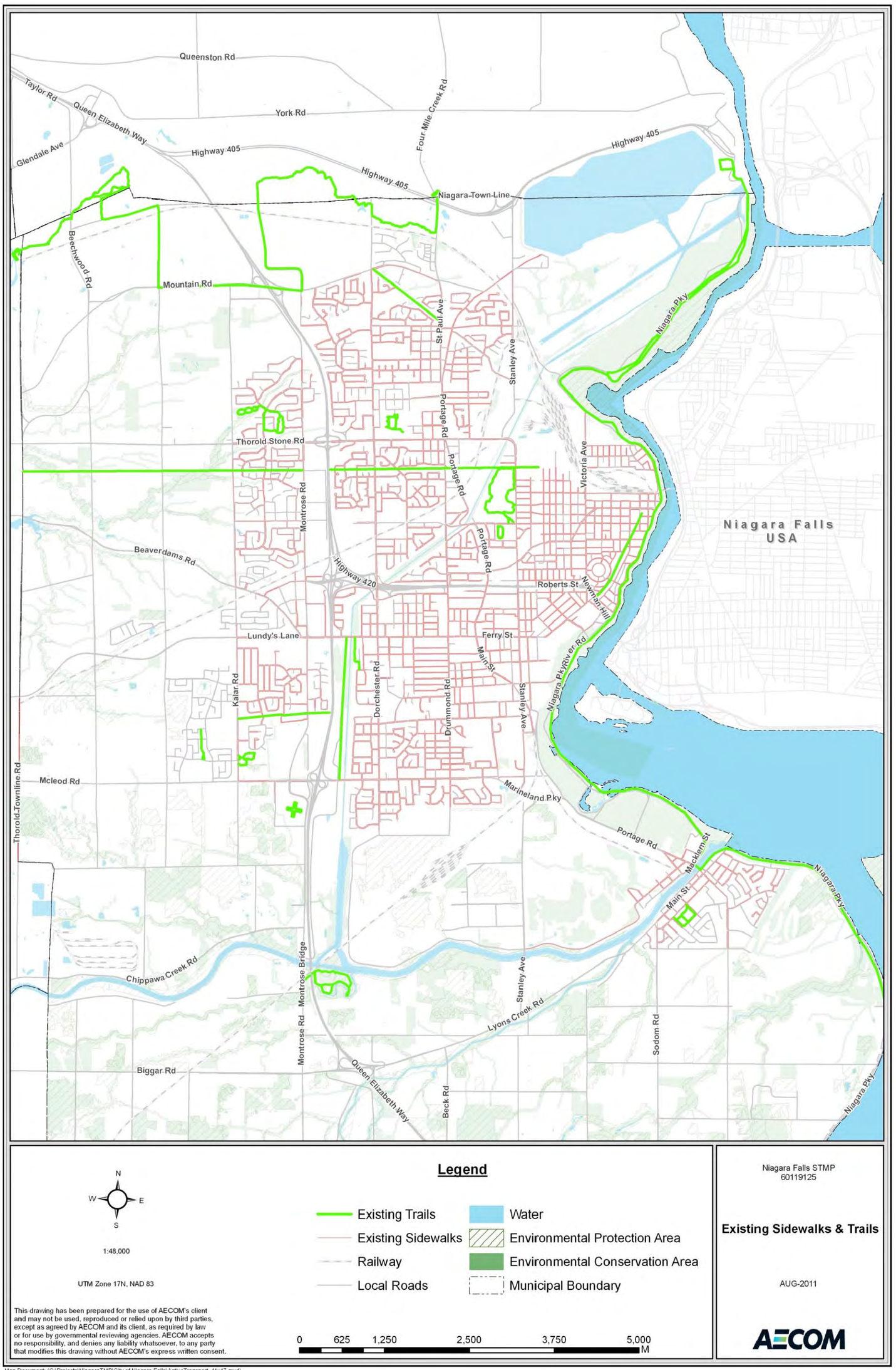
Walking facilities in the form of sidewalks are present and form a dense network throughout most of the built-up areas of the City. Existing cycling facilities, on the other hand, are generally few and often isolated, and could be improved to provide a network that can serve residents' needs at a local or city-wide scale. For this reason, this component of the STMP is geared towards cycling, and to a lesser extent, walking.

There are several recreational multi-use trails in the City including the Millennium Trail and the Olympic Torch Run Legacy Trail, which link the Downtown area of the City with the Clifton Hill area. These provide off-road routes for pedestrians, cyclists and other users, and supplement an informal network of trails and municipal and Regional roads. There are few on-road facilities for cyclists and there is the opportunity to improve the connections between existing routes and key locations. **Table 6 and Figure 7** provide an overview of the existing active transportation network and the existing sidewalks within the City (see also **Appendix E**).

Table 6: Existing Trails and Multi-Use Paths

Trail Name	Road Description
Millennium Trail	• 2 km paved trail on west side of canal owned by Ontario Power Generation. • Connects Lundy's Lane to McLeod Road.
Gary Hendershot Memorial Trail	• Paved off-road trail that connects Lundy's Lane with Clare Crescent. • Runs parallel to the Millennium Trail for 0.5 km on the east side of the Ontario Power Generation canal.
Haulage Road Trail	• 2 km paved trail in the northern area of the city • Accessed via two entrances; St. Paul Avenue and Mountain Road. • Trail lies just south of the Bruce Trail.
Garner Trail	• 0.5 km trail that runs parallel to Parkside Road, just west of Kalar Road. • Connects Upper Canada Drive to McGarry Drive. • Provides convenient access to McLeod Road from a residential area.
NPC Trail	• Longest trail in the City, consists of a length of 12 km. • Paved off-road multi-use pathway. • Runs along eastern edge of the City. • Provides access to commercial and tourist areas. • Located approximately 200 m from VIA Rail train station. • Provides access to the Bruce Trail.
The Upper Canada Heritage Trail	• Unpaved trail – most suitable for mountain bikes. • 14 km in length. • Within northern portion of city. • Terminates at Four Mile Creek Road.

Figure 7: Existing Sidewalks and Trails



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5.2 PUBLIC TRANSIT

Transit services within the City are provided by several different operators, with different users in mind. Local transit services are provided within the City by Niagara Falls Transit and the NPC. Niagara Falls Transit operates the local bus system and the Falls Shuttle, while the VTS, geared towards visitors, is operated by the NPC. Regular inter-city bus services between Niagara Falls and the GTA and other locations are provided by GO Transit, Coach Canada, Greyhound, and Megabus. Chartered or tour-operated services are also provided by a variety of private carriers. Accessible transit is provided by Niagara Falls Transit "Chair-A-Van", a public service providing transportation for those with special needs. The following subsections provide an overview of existing transit services. **Figure 8** illustrates the existing transit services and facilities.

The number of passengers using the regular routes (excluding the Falls Shuttle and inter-municipal services) has increased from 744,000 in 1997 to 865,000 in 2007. This is attributable to population growth in the City and improvements made to the system, such as the addition of regular weekend services. On a typical weekday, these regular routes carry 2,800 passenger trips.

5.2.1.1 Bus

Local Bus

Niagara Falls Transit currently operates ten bus routes on key corridors throughout the City and to key destinations such as the hospital and retail centres. All services are provided on an hourly daytime frequency Monday to Saturday with four of the routes also being offered as hourly services during the evening and on Sundays.

Source: Niagara Falls Transit

Niagara Falls Transit also operates four services that primarily accommodate students attending Brock University in St. Catharines and Niagara College (Glendale and Welland campuses). These services generally operate on weekdays during the September to April post-secondary school year.

In addition, Niagara Falls Transit provides the "Falls Shuttle" during the peak tourist season (generally April to October). The shuttle is intended to provide connections to the Clifton Hill area for those visitors staying in accommodations along Lundy's Lane (accessible via the Red line) and those arriving by train or bus to the Downtown stations (accessible via the Green line). A service between the City and Fort Erie is also provided.

Accessible transit for those unable to use conventional buses is provided by Niagara Falls Transit "Chair-A-Van". This is a fully accessible service which operates on an appointment basis. The continued improvement of community and accessible transport is a key commitment of the 2005 Accessible Transit Plan.

Niagara Parks Commission (NPC) Visitor Transportation System (Formerly People Mover System)

The VTS, operated by the NPC, includes a fleet of eleven two-unit buses, comprising a motor unit towing a separate trailer. The VTS is in service during the peak tourist season and follows a 30 km loop along the Niagara Parkway between the Park & Ride facility south of the Falls and Queenston Heights Park to the north.

Inter-City Bus Services

GO Transit, Coach Canada, Greyhound, and Megabus are the four main providers of inter-city services. GO Transit provides a bus service between the Niagara Falls VIA Station and Toronto Union Station (transferring to rail at Burlington GO Station), while Megabus operates a service to the Toronto Coach Terminal, as well as points in the U.S. Coach Canada and Greyhound provide services to a wide range of destinations within Canada and the U.S.A.

The Region will proceed with Phase 2 of its Inter-Municipal Transit Work Plan. Regional Council has committed up to $3.1 million earmarked in the 2010 budget for operational expenses for a pilot project of the triangle routes for a period of one year.

Other Bus Services

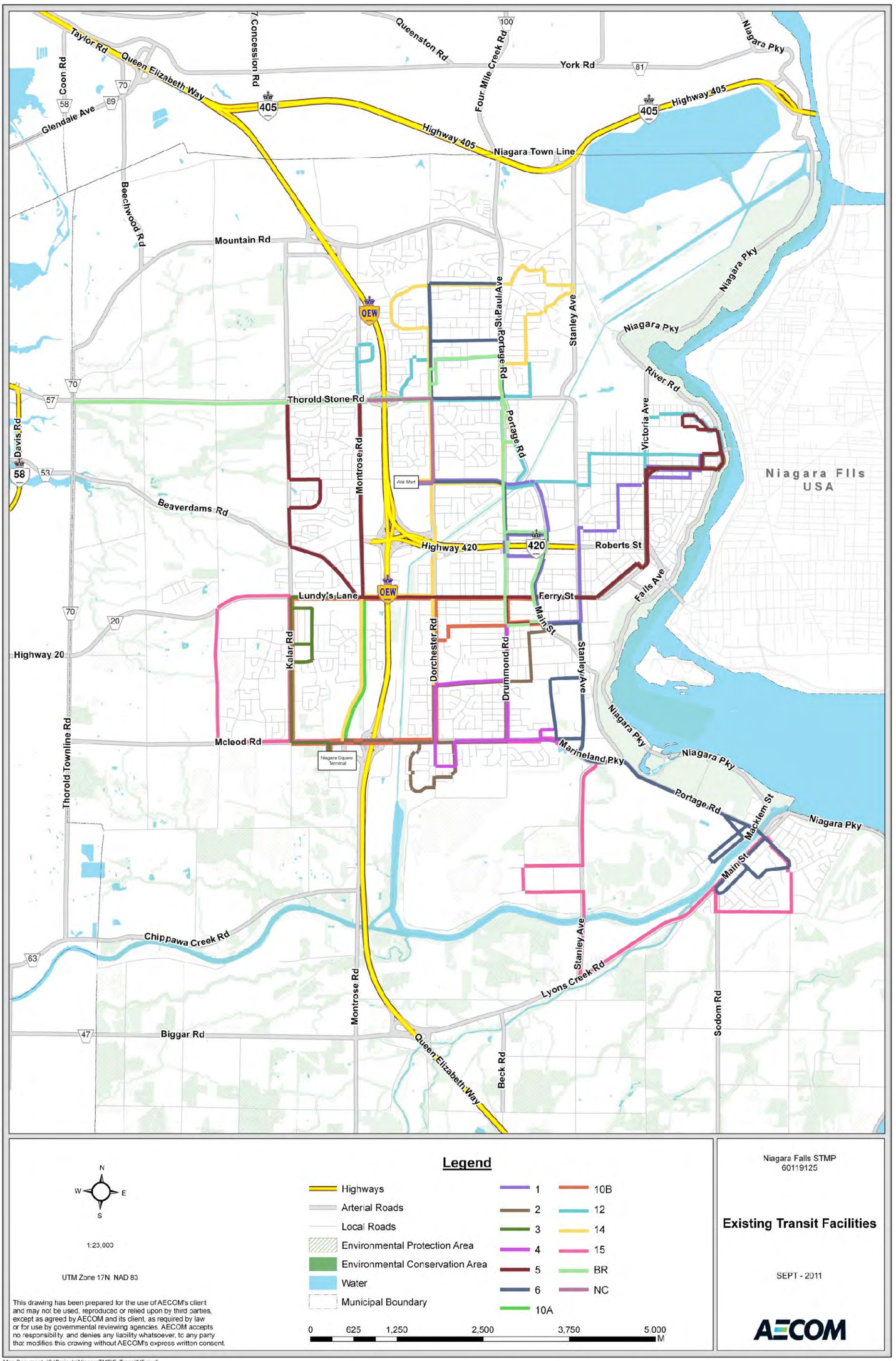
There are many tour buses which provide regular service to the City during the peak tourist season. Shuttle bus services are also offered specifically to provide transit to the casinos in the City and hotels.

5.2.1.2 Passenger Rail

The passenger rail station is located on Bridge Street just west of River Road. In addition to the GO Bus/Rail service, VIA Rail offers two departures daily from both the City and Toronto, providing direct connectivity between the two cities in just under two hours.

Amtrak also provides a daily longer-distance "Maple Leaf" passenger rail service between Toronto and New York, with a travel time of just under two hours.

Figure 8: Existing Transit Services and Facilities



5.3 TDM IN THE CITY OF NIAGARA FALLS

An important part of the STMP is sustainable transportation, including strategies to support sustainable growth, reduce dependence on the private automobile and create an active, liveable community. This section outlines the TDM element of the STMP and identifies and recommends enhancements and expansion of current municipal and regional TDM initiatives to create an integrated, sustainable and accessible transportation system. Additional details regarding TDM measures are included in **Appendix F**.



Essentially, TDM is a range of policies, programs and mobility services and products that influence whether, why, when, where and how people travel. It works to optimize the movement of people, rather than that of motor vehicles, and it typically refers to passenger movements, such as commuter, school and non-work related travel. Most TDM programs include objectives such as reducing single occupant vehicle (drive alone) trips. Where TDM is applied successfully, the community can benefit in several ways, including; improved quality of life; reduced traffic congestion, air and noise emissions; and improved public health and safety. It can also enable communities to meet transportation needs without the significant additional road infrastructure requirements.

A variety of TDM initiatives have been developed and put into place by the City and the Region, led by departments including transportation, parks and recreation, and public health. These initiatives include, but are not limited to, the following:


Source: City of Niagara Falls

- Walking and cycling trails system;
- Trails information and City walking and cycling initiatives on City web site (http://www.niagarafalls.ca);
- Trails and Bikeway Master Plan and Master Plan Update;
- Cycle Safety Clinic;

- Trail restoration activities;
- Trails database and mapping, including on-line information;
- Guide to Walking Routes in Niagara Falls Ontario;
- Provision of public transit routes;
- Winter bus stop maintenance;
- Signage and wayfinding project;
- Provision of bike racks on buses;
- Participation in Active and Safe Routes to School (ASRTS); and
- Niagara International Transportation Technology Coalition (NITTEC).

5.4 ROADS AND BRIDGES

The City is served by a road network comprised of provincial highways and freeways, the Region and City arterial roads, and the City system of collector and local roads. In addition, the City is uniquely located at a key border crossing between Canada and the U.S.A., which has a significant impact on the roadway network. **Figure 9** depicts the existing roadway network.

The City has an established hierarchy of roads in its OP. The classification system is used as the basis for key decisions regarding design standards for construction, transit and truck routes, road widening and access.

Provincial Highways

Provincial highways, which are under the jurisdiction of the MTO, are designed to permit the free flow of large volumes of traffic through the city and to interconnect with the arterial road system. These highways typically include four to six lanes with access permitted only at selected separated interchanges. Provincial highways within the City include Highway 420, the Queen Elizabeth Way (QEW) and Highway 405.

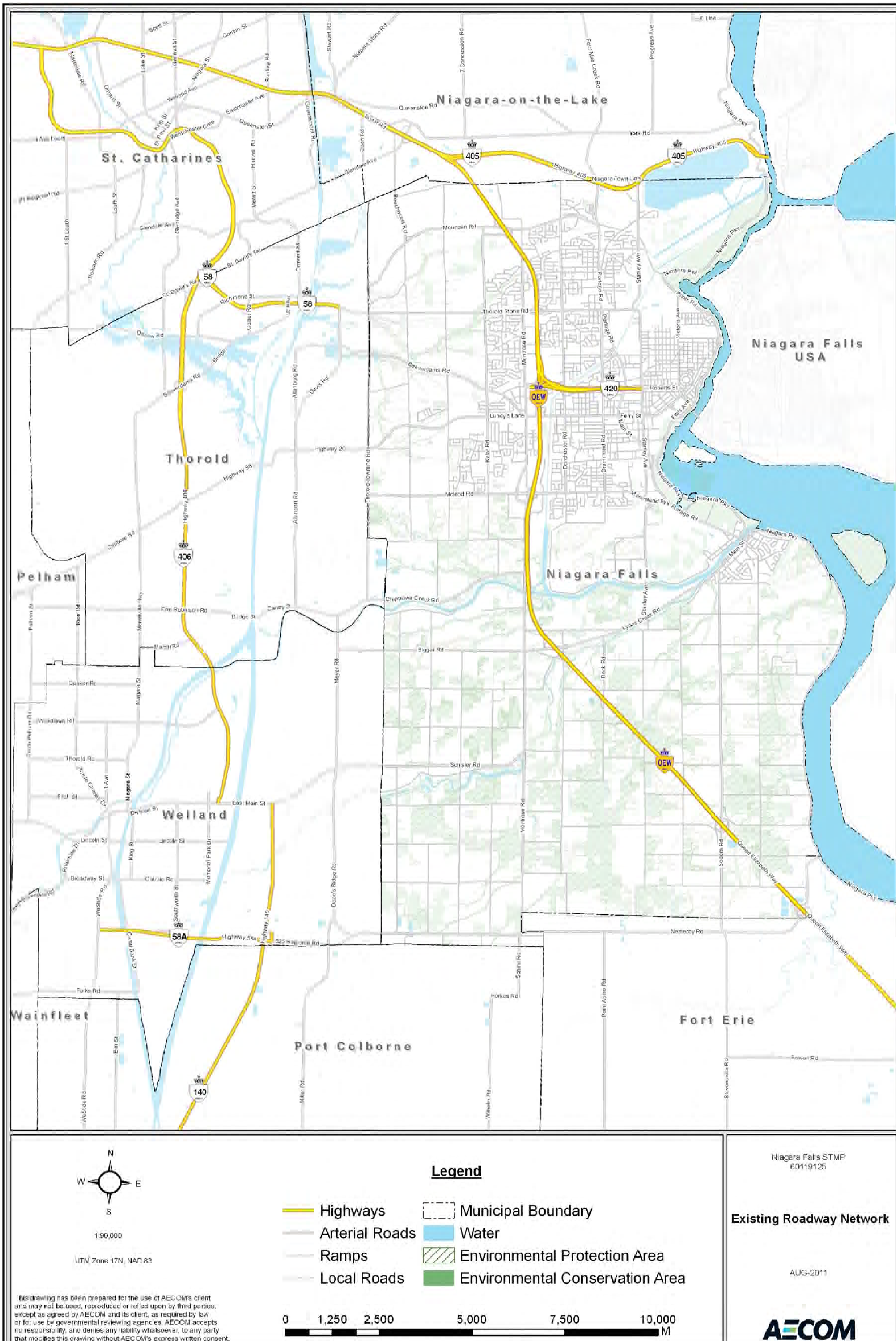
Niagara Parkway

The Niagara Parkway is considered to be a scenic road classified as a controlled access highway. It functions primarily as an arterial roadway for the benefit of tourist traffic along the Niagara River and is regulated by the NPC.

International Crossings

The Rainbow Bridge and Whirlpool Bridge represent critical links in the transportation networks of Ontario and New York State. Both bridges are under the jurisdiction of the Niagara Falls Bridge Commission.

Figure 9: Existing Roadway Network



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Niagara Region Arterial Roads

Niagara Region Arterial Roads include all roadways under the jurisdiction of the Region that are designed to accommodate the movement of large volumes of traffic and function as secondary highways and primary arterial roads. Examples of Regional Arterial Roads include Stanley Avenue (RR 102), Thorold Stone Road (RR 57) and Lundy's Lane (RR 51).

City Arterial Roads

City Arterial Roads generally accommodate two to four lanes of traffic. Direct access to adjoining properties and on-street parking are restricted to enhance the free flow of traffic. The road allowance may accommodate transit routes and/or bicycle facilities. Examples of City Arterial Roads include Morrison Street and Dorchester Road.

Collector Roads

Collector Roads include all roadways under the City's jurisdiction that are designed to accommodate moderate to high volumes of medium-distance traffic between the Arterial Roads and Local Roads. Collector Roads are generally two lanes and access to abutting properties is regulated to ensure a normal flow of traffic without impacting upon pedestrian safety. Examples of Collector Roads include Valley Way and Main Street.

Local Roads

Local Roads are intended to provide access to abutting properties and carry low volumes of traffic short distances. Such roads are generally designed to accommodate on-street parking, sidewalks and limited landscaping in the boulevards.

5.5 HEAVY RAIL

In 1985 the Canada Southern Railway line was sold to Canadian National (CN) and Canadian Pacific (CP). This followed a long period of decline as a result of previous operators diverting rail freight to the south of Lake Erie instead. Since that time, the branches to destinations in southern Ontario have been removed, while the section of the mainline through the City was removed in 2001. The City, in association with the Province and Casino Niagara, purchased this 10.6 km section. All CP trains are now re-routed along the CN Railway line, crossing the Niagara River at the Buffalo-Fort Erie Bridge. A Local Rail line is also located within the Region, but this is generally outside the City limits.

6. FUTURE TRAVEL NEEDS & OPPORTUNITIES

As part of the STMP, an assessment of future travel demand growth and road network capacity is required to assess the need for future infrastructure improvements to address current deficiencies and new deficiencies that may arise as the community continues to grow. A summary of the future travel needs and opportunities is provided below.

6.1 ACTIVE TRANSPORTATION

This section provides information regarding the role of an effective active transportation system and lifestyle in meeting travel needs (see also **Appendix E**).

The STMP proposes a more continuous, comprehensive and integrated multi-modal system of on-road cycling facilities, off-road multi-use trails, and various pedestrian improvements. The proposed system should be inter-connected and provide a range of route alternatives and access to significant local destination points, while accommodating specific needs of the residents of the City. As well, these improvements should be well-connected to surrounding municipalities including the City of St. Catharines, and the Towns of Thorold, Fort Erie, Lincoln, Welland, and Port Colborne.

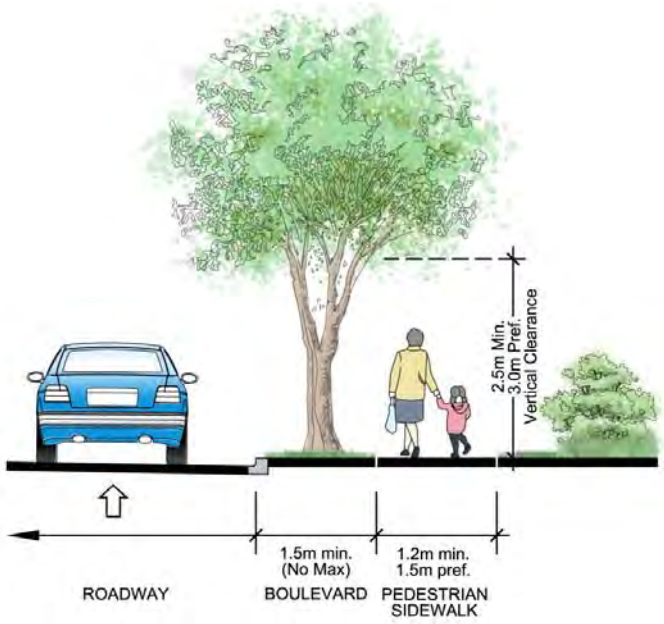
Figure 10 displays the existing on and off-road active transportation network in the City, excluding sidewalks. An assessment of the on- and off-road routes was conducted to determine “missing links”. This figure highlights key areas where the on- and off-road systems are currently incomplete. The assessment considered where priorities should be focused to first complete a basic network from which to build a comprehensive system.

6.1.1 Pedestrian & Cycling Facility Types

6.1.1.1 Pedestrian Facility Types

Pedestrian facilities, sidewalks especially, are the most basic and fundamental active transportation facility. They should be present on all streets in the city and on both sides, wherever possible. Facilities designed for pedestrians should always be constructed to be barrier-free. The City should regularly update an inventory of pedestrian facilities, including facilities like crossings and enhanced crosswalks, while potentially also providing information on condition as well as location. **Figure 11** provides an example cross-section of typical sidewalk and boulevard dimensions adjacent to a residential road.

Figure 11: Example of a Sidewalk on a Residential Road



6.1.1.2 Off Road Facility Types

Facilities outside of road rights-of-way are preferred by individuals who want to be off of the road to enjoy nature or open spaces, and are often preferred by less experienced or recreational cyclists, as compared to facilities within roadway rights-of-way, especially those sharing a travelling surface with motor vehicles.

Off-road active transportation facilities will do double-duty as transportation and recreational facilities. An example of this facility type is shown in **Figure 12**. To meet transportation goals, they should always be designed to serve transportation requirements and to meet best practices for development of such facilities. As this will often exceed typical recreational standards, the resulting facility will not likely be considered lacking.

Figure 10: Active Transportation

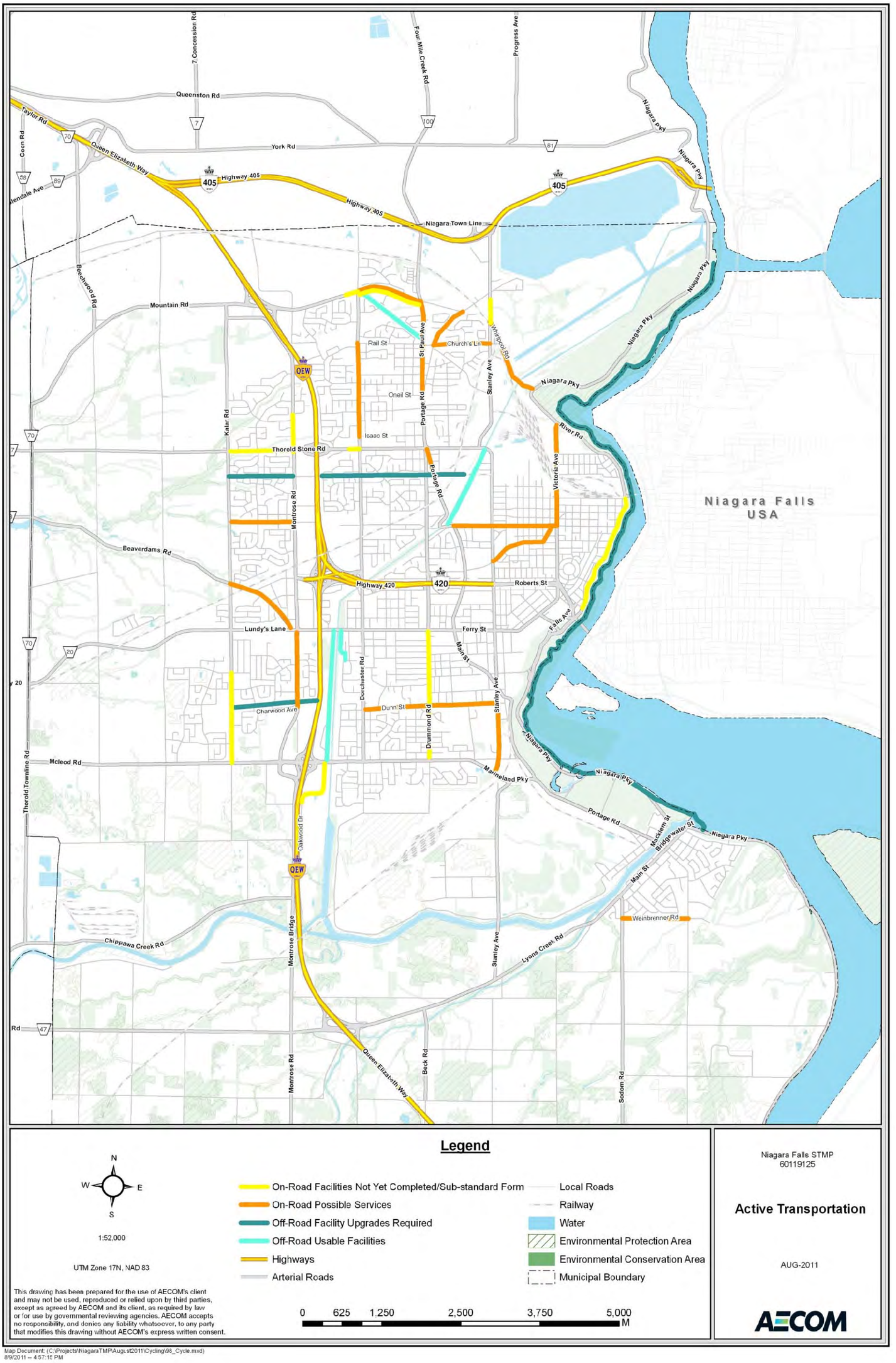


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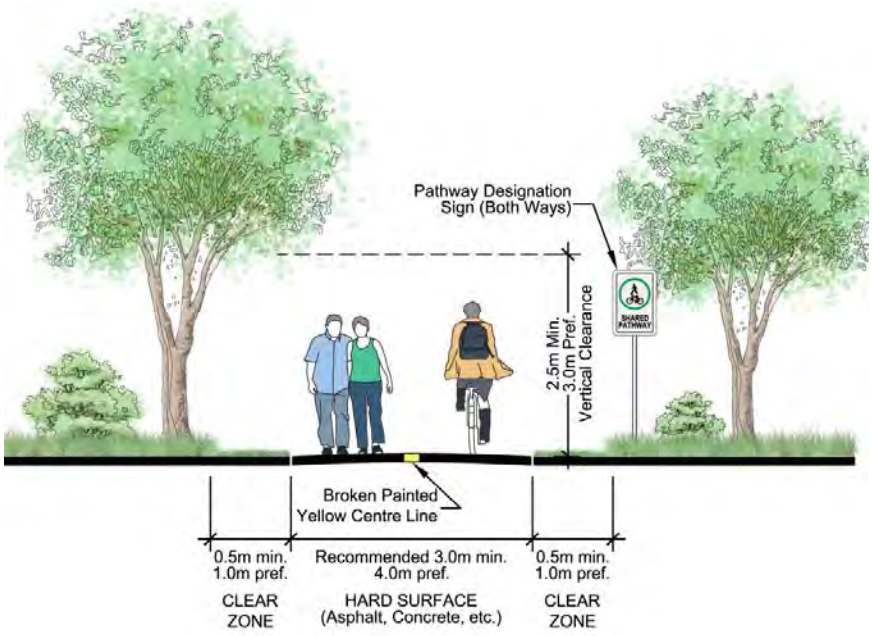
Figure 12: Example of an Off-Road Standard Multi-Use Pathway



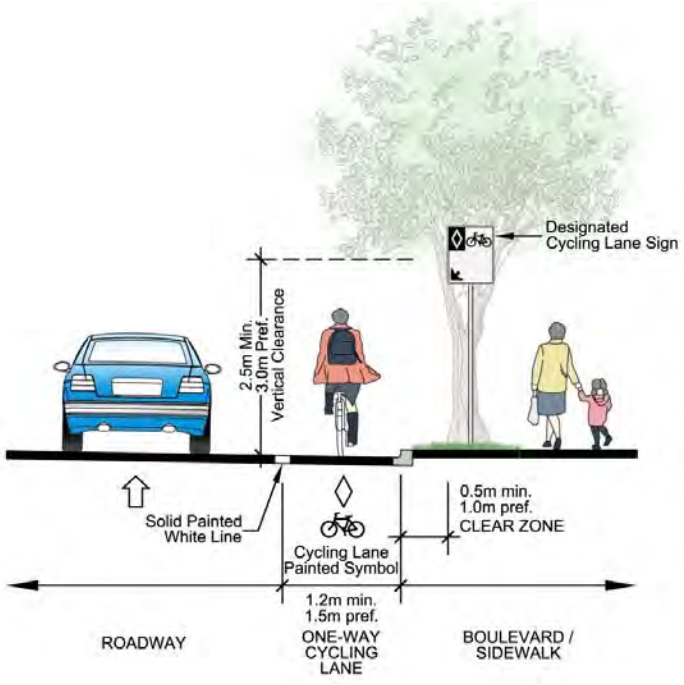
6.1.1.3 On-Road Facility Types

On-road cycling facilities are the preferred facility type for most commuting cyclists. They utilize efficient and orderly street networks to get around the City, and they avoid conflicts with slower pedestrians and recreational cyclists found on off-road pathways. An example of this facility type is shown in **Figure 13**.

On-road cycling facilities are generally considered to include only those facilities that share a travelling surface with motor vehicles. This report also includes facilities outside of the roadway, but within the right-of-way, and differentiates these from off-road facilities that would exist outside of road rights-of-way.

Each of the facilities in this section contains a note in its description regarding conformance with the standard facility types used and promoted by the Region. In some cases, this report recommends using facilities that do not conform to regional standards. This reflects, in some cases, improvements in facility design best practices. In other cases these recommendations are intended to broaden the array of tools that the City has available to address challenging situations that are likely to arise.

Figure 13: Example of an On-Road Designated Bicycle Lane



6.1.2 Facility Development for Active Transportation

Following years of development and refinement, the accepted North American facility guidelines for both on-road and off-road facility development have generally been established. Municipal departments responsible for new parks and roadways are less likely to deviate from these established guidelines, however, deviations continue to occur. Much of the problem is attributed to out-dated facilities practices that are simply repeated once a precedent has been set. There are a number of specific facility guidelines that should be highlighted. These are considered separately in the *Active Transportation – Cycling and Walking Paper* (**Appendix E**).

6.1.3 Assessment of Priorities

The top ranked Active Transportation priorities were primarily selected for their ease of implementation. The intention is to provide the City with a base network of useful connected facilities in the short-term. Successive projects then move the City towards a more complex network of active transportation facilities, with more complex facilities. The assessment first considered off-road facilities, which can be used by both pedestrians and cyclists, and are dedicated facilities located outside of street rights-of-way. Based on public feedback, these facilities have potential to attract users, increasing demand for more active transportation facilities and perpetuating movement towards walking and cycling as more sustainable travel modes. Specific recommendations for the priority ranking of proposed Active Transportation facilities are discussed in **Section 7.2.2**.

6.2 TRANSIT

Existing and future transit needs are the subject of the 2009 report commissioned by the City, entitled "Transit Strategic Business Plan and Ridership Growth Strategy" (report). The report addresses the following key issues:

- Present services and markets
- Transit policy framework
- Strategic plans for transit services
- Financial plan
- Out-of-town bus servicing
- Transit supportive policies
- "Greenhouse Gas" and climate change implications.

The report recommends a number of key actions for implementation, which broadly include:

- A range of local transit service improvements
- Inter-municipal transit service improvements
- Initiate discussion with the Region to obtain funding for inter-municipal services
- Continue dialogue with higher education facilities to ensure that services meet the demands of both the public and students
- Transfer governance for the Chair-a-Van service to the City's transportation division and establish Accessible Transit Advisory Committee
- Undertake a study to identify transit priority measures at key traffic congestion points
- Consider amalgamation of the Transportation Services Division into one facility.

In March 2009, Council approved the Transit Strategic Business Plan and Ridership Growth Strategy. Since Council's endorsement, the City has continued to evolve at a rapid pace and a major new community centre, retail centres and transportation partners have emerged, which are dramatically altering the transportation demand patterns of transit users. In order to address this service challenge, the City established an Ad-hoc Transit Advisory Committee to review the existing routing structure and the Business Plan recommendations and develop a comprehensive and cost effective routing/scheduling action plan to meet current and future needs.

On September 12, 2011, the InterMunicipal Transit System was launched, while in May 2012 it is anticipated that the VTS will commence. An agreement has been made between the City and the NPC to operate the VTS for a 10-year period, with each party managing, operating and maintaining the Blue & Red Lines and Green Line, respectively.

The report also recommends adopting the transit ridership and modal split targets into the updated Niagara Falls TMP. As a result of this recommendation, a transit modal split increase from 1.9% to 3.2% by 2018 has been incorporated into the network assessment travel demand modelling work undertaken as part of this STMP.

Section 6.4 discusses how this recommendation was incorporated into the travel demand modelling for use in assessing future transportation needs.

6.3 TRANSPORTATION DEMAND MANAGEMENT (TDM)

6.3.1 Lessons Learned from TDM Experience Elsewhere

Based on a review of TDM programs and initiatives in different types of cities and metropolitan areas, important lessons have been learned for the City:

- Land use and transportation are fundamentally linked. In order to successfully promote sustainable transportation, transit oriented development (TOD), transit improvements and smart growth initiatives should co-exist to achieve significant results.
- Some people will still need/feel the need to drive, particularly where alternative travel modes are not practical or available. Effective TDM programs should focus on providing choices to those who could use non-car modes frequently or occasionally.
- Commute trip reduction and ride sharing programs are important parts of successful TDM programs (e.g., promoting better travel options to discourage increasing rates of single occupancy vehicle (SOV) use, and providing incentives for SOV reductions).
- Collaboration with different public and private sector partners and stakeholders is an important factor in the success of TDM, including City departments (Parks, Recreation and Culture, and Planning and Development), the Region, area municipalities and groups such as Transportation Management Associations (TMAs), car-sharing and ride-matching services, etc.
- Economic incentives and associated disincentives can be powerful motivators and effective in promoting change and gaining interest in TDM efforts (e.g., parking management reforms, transit pass subsidies, etc.).
- Maintenance of active transportation facilities is needed to ensure that they are used; damaged and unmaintained routes are of little use to the travelling public, including during the winter months.
- Target-specific marketing strategies are highly beneficial. Individualized marketing approaches can effectively reach out to residents, employers and employees in ways that are meaningful to each individual. Such techniques can be resource-intensive, but can lead to significant shifts in transportation behaviour.
- The public needs easy access to information about transportation choices before any behavioural changes can be made. Successful

TDM and active transportation initiatives often include strong presence on municipal websites and promotions throughout municipalities, with consistent branding and frequent information updates to keep the public engaged.

6.3.2 Moving Forward on TDM

In order to progress TDM in the City, overarching recommendations are provided as well as an outline of initiatives by implementation horizon and target market. These recommended measures are discussed in **Section 7.2.4** (see also **Appendix F**)**.** Recommended measures are generally grouped into four categories: Education, Promotion and Outreach; Travel Incentives; Land Use and Transportation Integration; and Transportation Supply.

6.4 ROAD NETWORK

6.4.1 Travel Demand Forecasting

Travel demand forecasting and the assessment of transportation system performance activities are typically undertaken using computerized transportation models. There are a number of modelling tools available for use in the STMP study area. After consideration of the various options, based on a review of the new Regional Travel Demand model and within put from the City and the Region, it was determined that this model be used for the STMP network assessment. The model has been updated and calibrated to the 2006 Transportation Tomorrow Survey (TTS) data and it incorporates recent Cross Border Travel Survey[4] data. The model uses a refined zone system and road network in the City and, compared with the previous model, better reflects the existing conditions allowing for a more representative local analysis of deficiencies and future improvement opportunities.

It was determined that use of the regional model would allow the STMP study team to develop forecasts of future growth in travel demand that reflect updated land use forecasts being developed by the City as part of their implementation of the Places to Grow/Growth Plan policies, and strategic choices on the role that transit use and active transportation modes will play in reducing future auto demand.

The macro model was primarily used for:

- Forecasting future travel demands
- Assessing system wide transportation implications of growth
- Testing the benefits of different strategies/policy approaches
- Assessing the benefits of TDM policies

[4] *Cross Border Travel Survey, by Paradigm Transportation Systems Ltd, 2007.*

- Assessing the benefits of improvements to Local Transit, the VTS and other strategies to address tourist traffic demands, and the benefits of Inter-Regional Transit Improvements (i.e. GO Rail)
- Testing different Land Use Scenarios (i.e., Niagara Region vs. Places to Grow forecasts)
- Assessing the system wide benefits of alternative transportation improvement alternatives

Based on an assessment of the current structure and design of the regional model it was agreed that a series of modifications to the regional model would be required to achieve the above STMP study objectives. These updates and modifications included the following:

- The development of summer tourist travel demands that are not currently included in the regional model;
- The development of a City-specific approach to estimating transit and non-auto use for a base year and for the future
- A review of the model validation within the City and the refinement of the model network to ensure accurate portrayal of base year travel patterns and demands

The Region was consulted throughout the model validation process. A copy of the refined model will be provided to the Region for their use at completion of the STMP study.

Additional detail regarding the travel demand modelling process and results can be found in **Appendix G**.

6.4.1.1 Preliminary Forecast Results

For the purpose of assessing the benefits of various transit modes share options, four modelling scenarios were selected for analysis of the p.m. peak hour for the 2031 horizon year. The modelling work utilized a building block approach, where Transit and TDM were separated to have a closer look at the benefits of each strategy. A combined Transit plus TDM strategy looks at the cumulative effect of both measures.

The four scenarios tested include:

- Model Base – assumes default 6% total non auto use
- Do Nothing – assumes current 8% total non-auto use for the City
- Transit Improvements – assumes 10% total non-auto use for the City due to increasing transit share to 3.2% (per IBI Transit Business Plan)
- Transit Improvements plus TDM - assumes 18% total non-auto use for the City due to increasing transit share to 3.2% (per IBI Transit Ridership Growth study) and implementation of TDM policies

6.4.1.1.1 Future Travel Demands

Once the model validation was complete, the future travel demands for the City were analyzed using the macro model. Weekday auto trips during 2031 are projected to increase by 39% to a total 37,375 p.m. peak hour auto trips to and from the City; which includes 7.043 tourist trips (19%). **Table 7** summarizes the total 2031 travel demands to and from the City for the typical p.m. peak hour.

Table 7: 2031 P.M. Peak Hour Auto Trips

From/To	Niagara Falls	External	Total
Niagara Falls	19,009	9,635	28,644
External	8,731	-	8,731
Total	**27,740**	**9,635**	**37,375**

Forecasts of 2031 p.m. peak hour truck demands to and from the City are anticipated to increase by 18% compared to 2006 data, as summarized in **Table 8.** The total number of p.m. peak hour truck trips to and from the City totals 14,503 vehicle trips, representing 28% of overall demand. This includes the truck trips using the QEW and Highway 405 through the City.

Table 8: 2031 P.M. Peak Canada/U.S. Truck Trips

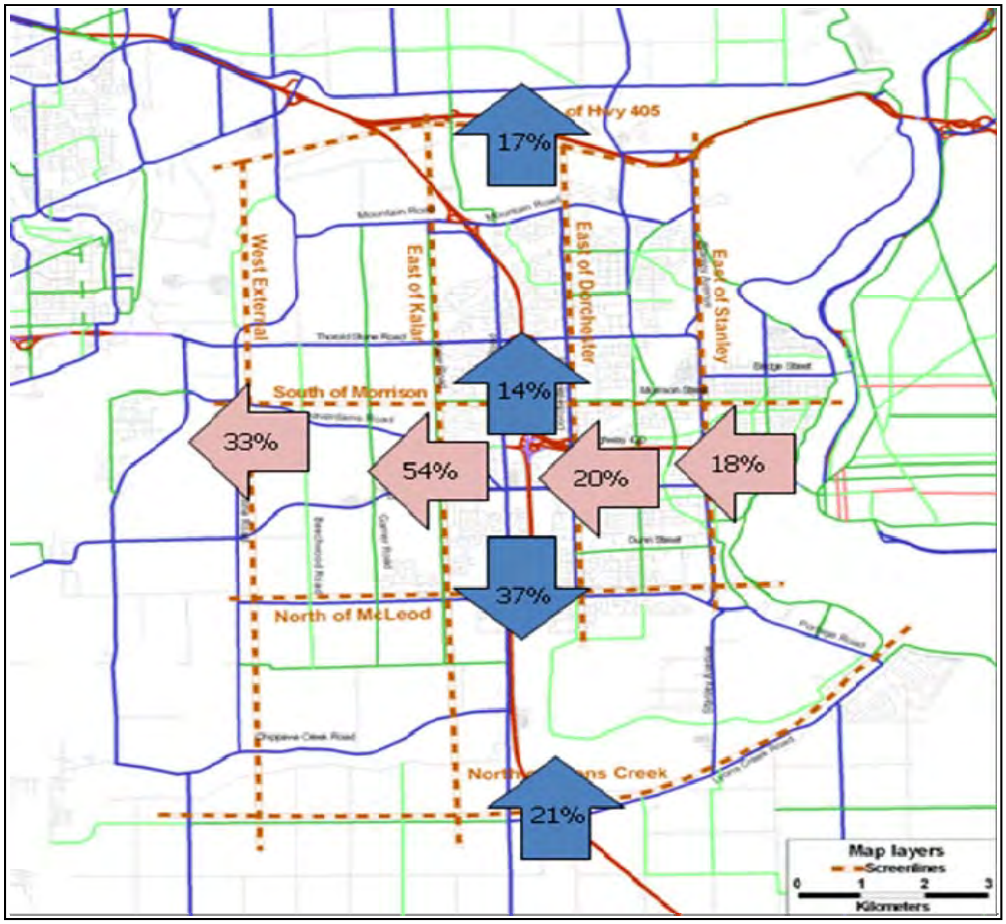
From/To	Niagara Falls	External	Total
Niagara Falls	11,528	1,325	12,853
External	1,650		1,650
Total	**13,178**		**14,503**

6.4.1.1.2 2031 Weekday Forecast – Do Nothing – Future Base Mode Share

The resulting preliminary 2031 forecast shows a significant increase in screenline auto travel demand compared to 2006. This increase is shown by the percentage increase values within the arrows in **Figure 14**.

The highest growth in demand is oriented to the south and west portions of the City, in line with expected areas where new development is planned to occur. Lower growth is expected to the north of the City and in the Downtown core areas.

Figure 14: 2031-2006 Growth in Demand at Screenlines



6.4.1.1.3 Future Mode Share Assumptions

The assumptions on future mode share targets to be used for the STMP are based on the IBI Transit Business Plan.[5] This plan indicates that the transit mode share was forecast to increase from 1.9% in 2007 to 3.2% by 2018. As discussed previously, the 3.2% transit mode share was maintained through the horizon year 2031.

As shown in **Table 9**, the base scenario within the model currently has a 6% non-auto mode share and forecasts a total of 13,984 internal[6] auto trips during the p.m. peak hour. Based on 2006 TTS data, the City has an 8% non-auto mode share. With an increase in non-auto mode shares to 8% within the model, without further transit improvement, internal auto trips would be reduced by 280 vehicles (2% reduction). With the transit

[5] *"Transit Strategic Business Plan and Ridership Growth Strategy", Phase 4 and Phase 5, IBI Group, March 2009*

[6] *Excludes trips made by tourists*

improvements identified in the Transit Business Plan, the non-auto mode share is forecast to increase to 10% with a corresponding auto trip reduction of 530 vehicles (3.8% reduction) during the p.m. peak. The last scenario combines both transit and TDM improvements to increase the non-auto mode share to 18%, representing an auto trip reduction of 1,462 vehicles (10.5% reduction) during the p.m. peak.

Table 9: Impact on P.M. Peak Hour Demand

Scenario	Non Auto Mode Share	Total Internal Auto Trips P.M. Peak Hour	Auto Trip Reduction From Base	% Reduction
Model Base	6%	13,984	--	--
Do Nothing	8%	13,704	-280	-2%
Transit Improvements	10%	13,453	-531	-3.8%
Transit + TDM	18%	12,242	-1,462	-10.5%

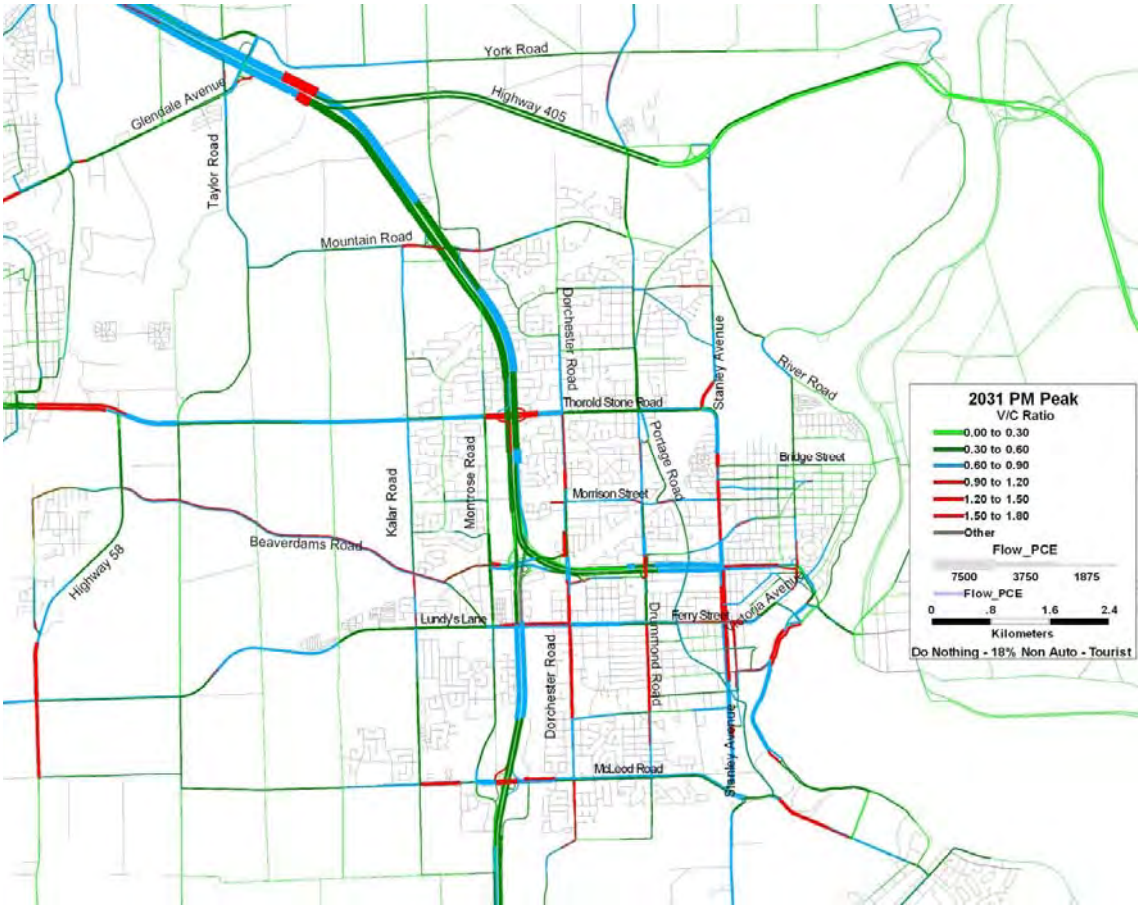
Although there is an aggressive non-auto mode share target for 2031, the total magnitude of the auto-trip reductions is still relatively modest (~1,400 vehicles). However, this is equivalent to almost two arterial lanes of capacity and represents an estimated $7.5 M annual benefit to residents in terms of travel time savings by 2031. The trip reduction estimates in **Table 9** do demonstrate how a focus on walking and cycling, in addition to investments in transit can play a role in reducing auto demands in the Community. While other TDM measures, such as ride-sharing concepts, may take some time to expand, a focus on Active Transportation is critical in achieving these targets.

6.4.1.1.1 Future Road Network Deficiencies

The assessment of future road network deficiencies and improvement needs has been based on the assumption that the City will be able to achieve the Transit & TDM mode share targets established in the STMP, resulting in an overall non auto share of 18% of peak hour trips.

Even with the noted increase in demand by 2031, the majority of the network operates at acceptable levels of service with some localized congestion on Dorchester Road and Drummond Avenue at Highway 420, as illustrated in **Figure 15**.

Figure 15: 2031 Network with 18% Non-Auto Use – P.M. Peak Capacity Deficiencies



By 2031, most QEW and Highway 420 crossings will reach or exceed their respective capacities during the p.m. peak and the Highway 420 and QEW screenlines are expected to attain a v/c ratio of 0.91 and 0.81, respectively, as illustrated in **Figure 16**. These two deficiency areas will need to be addressed in the STMP as the freeway corridors bisecting the City restrict the number of crossing opportunities for traffic.

On a network-wide basis, by 2031 it is estimated that approximately 46 km of the road network within the City will be operating at LOS E-F, which is at or above capacity, compared to 2.8 km in 2006. A further 46 km of roadway is expected to operate at LOS D, (up from 7.0 km in 2006) which represents the threshold used by many municipalities to indicate when improvements should be identified. These future deficiencies are expected to result in an average of 1,588 vehicle-hours of delay for the average weekday p.m. peak hour, which represents an increase of 107% compared to 2006. This level of delay

translates into an annual economic cost of approximately $50 million per year[7].

In addition to these deficiencies, most of the north/south arterial roads south of Lundy's Lane are expected to reach capacity by 2031, including Drummond Road, Dorchester Road, and Stanley Avenue. Stanley Avenue to the north of Morrison Street is also forecast to experience congestion through the existing two lane section of road.

McLeod Road is also forecast to be operating over capacity to the west of QEW (in the Kalar Road area), through the QEW interchange, and to the East of Portage Road.

In the Mountain Road/QEW/Highway 405 area there are also a number of road segments that are forecast to be operating at or near capacity by 2031 including portions of Mountain Road, Taylor Road, and Four Mile Creek Road in the Highway 405 Interchange area. The Region is undertaking a Municipal Class Environmental Assessment study for the Glendale Avenue/QEW/Highway 405 area and will be developing solutions to address future capacity deficiencies in this area.

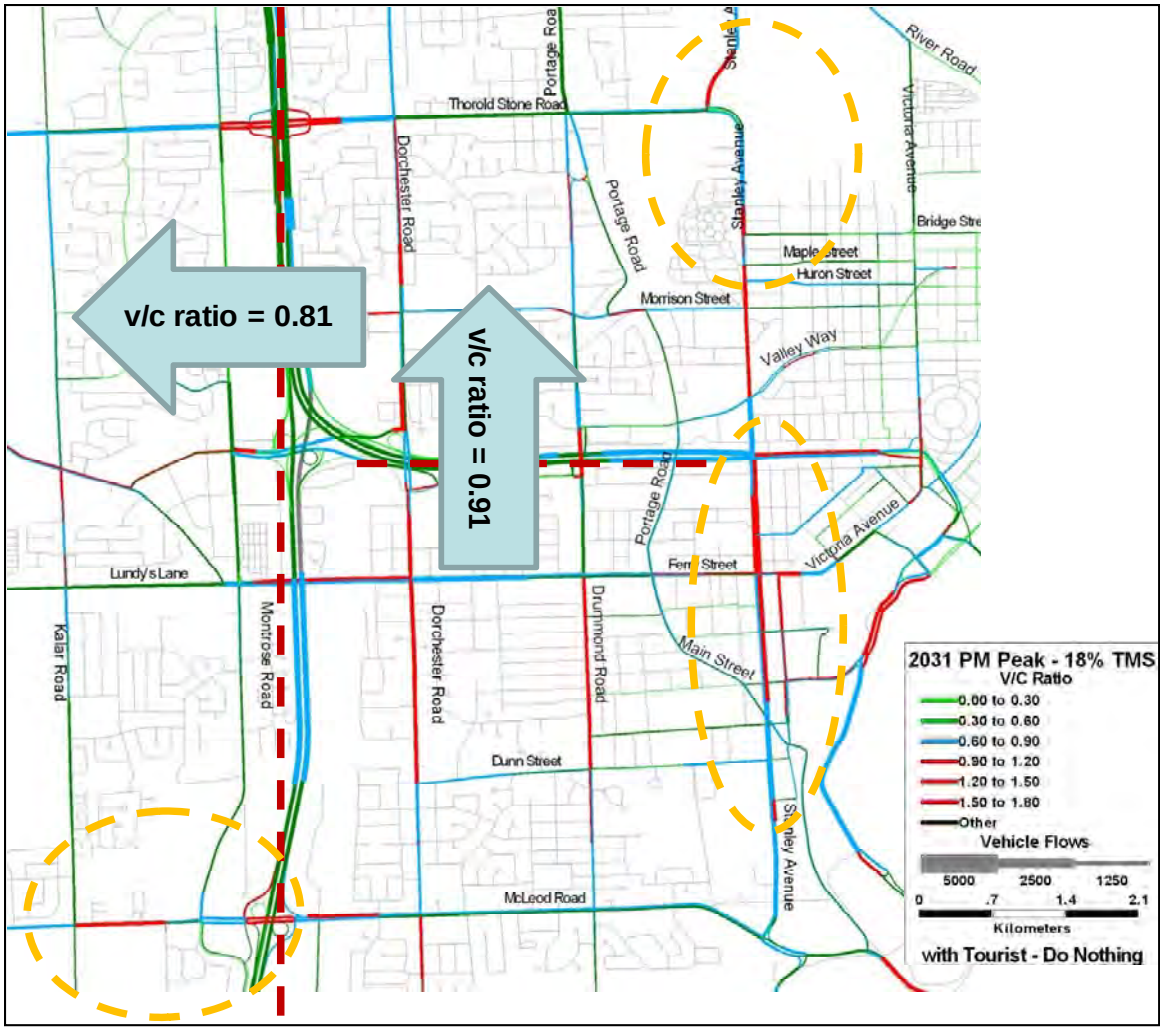
In addition to localized road widening projects, potential improvements to address the capacity issues may also include:

- A new QEW mid block crossing at Morrison Street/Dunn Street/or South of McLeod Road
- Widening North South arterial roads crossing Highway 420
- Dorchester Road and/or Drummond Road widening
- Improving Mountain Road/McLeod Road Interchanges
- Widening Stanley Ave; and
- Thorold Stone Road Extension

An assessment of these and other potential road network improvements is given in *Evaluation of Proposed Road Improvements* (**Appendix H**).

[7] *Assuming 10% of daily traffic in the peak, 260 weekdays per year, and an average value of time of $12.hour*

Figure 16: QEW & Highway 420 Crossing Road Capacity Deficiencies



6.4.2 Evaluation of Road Network Improvement Alternatives

6.4.2.1 Overview of the Evaluation Process

This section outlines the evaluation process undertaken in order to identify potential road infrastructure improvements and ultimately select a preferred alternative. More detail on the evaluation of alternatives can be found in **Appendix H**.

The improved transit and TDM measures planned by the City are expected to increase the overall level of non-auto use by 2031. However, even with an increased level of non-auto mode use, the modelling work undertaken identified a number of key locations on the road network which will remain as future areas of congestion. Specific areas of concern include the Mountain Road/Highway 405 area, the Thorold Stone Road/Bridge Street area, and the QEW and Highway 420 crossings.

A number of potential road improvements were developed and subsequently evaluated. The evaluation of alternatives has been undertaken in accordance with the requirements of the Municipal Class EA process. The evaluation also was guided by the principles of sustainability and the STMP study goals, principles, and objectives as discuss in **Section 4**.

Multiple alternative improvements were proposed and evaluated against each other using comparison factors within each criteria group, resulting in a recommended alternative. Following this process, nearly 20 improvements were recommended and presented for comment at the Public Information Meeting held on January 27, 2011.

The result of the evaluation process provides a set of preferred alternatives.

6.4.2.2 Evaluation Criteria

Four key areas for evaluation were identified and further divided into relevant measurable and comparative criteria, as summarized in **Table 10**.

Table 10: Summary of Evaluation Criteria

Area for Evaluation	Evaluation Criteria
Transportation System	• Change in Congestion • Network Travel Time (Delay) • Support for Transit • Use of Existing Infrastructure
Social/Cultural Environment	• Support for Walking/Cycling • Potential Noise Impacts • Potential Effects on Cultural Heritage Features • Potential Effects on Stable Residential Neighbourhoods
Natural Environment	• Potential Effects on Air Quality • Land Taken for Transportation Infrastructure • Potential Effects on Designated Environmentally Sensitive Areas • Potential Effects on Other Natural Areas
Economic Environment	• Total Capital Cost • Support for Planned Residential/Employment Growth Areas • Support for Tourism • Support for Goods Movement • Effects on Local Businesses

6.4.2.3 Network Deficiencies and Alternatives Evaluated

The results of the travel demand modelling undertaken as part of this STMP study indicated that by 2031, specific areas of the network would experience congestion beyond acceptable levels. Having identified these key areas of deficiency, a range of alternatives was generated to address these issues. These alternatives were subsequently compared against the “Do Nothing” scenario, where no improvements would be made to the network.

Table 11 shows the alternatives that were evaluated to respond to each area of deficiency in the transportation network that was identified.

Table 11: Network Deficiencies and Alternatives Evaluated

Area of Network Deficiency	Alternatives Evaluated
Highway 405/Mountain Road Area	• Proposed alternatives to address issues in this area are the subject of a separate study being undertaken by the Region
Thorold Stone Road/Bridge Street Area	• Thorold Stone Road Extension to Bridge Street • Widen Stanley Avenue • Thorold Stone Road Extension to Victoria Avenue
QEW Crossings	• Morrison Street Crossing • Dunn Street Crossing • Widen McLeod Road • New QEW Crossing South of McLeod Road
Highway 420 Crossings	• Dorchester Road Widening • Stanley Avenue Widening (to 6 lanes) • Drummond Road Widening

6.4.2.4 Evaluation of Alternatives for Improvements to Network Deficiency Areas

Each of the areas identified as having future network deficiencies and the proposed alternatives for improvements in those areas were assessed, using the same evaluation criteria and process, as described in the following sections. The recommended alternative for each deficiency area is highlighted; where possible, quantitative measures were used to compare the relative advantages and disadvantages of each option. Qualitative descriptions were used where criteria were not easily quantified. For each area of network deficiency a preferred alternative was selected. A summary of the evaluation is discussed below. Additional information can be found in **Appendix H**.

Evaluation of Options

- **Thorold Stone Road/Bridge Street Area** – **Table 12** provides the results of the evaluation of options for the Thorold Stone Road/Bridge Street area. The proposed Thorold Stone Road extension to Bridge Street is preferred from a transportation system, social/cultural and economic perspective.
- **QEW Crossings** – **Table 13** provides the results of the evaluation of options for the QEW crossings. The proposed new QEW crossing south of McLeod Road is preferred from a transportation and economic perspective.
- **Highway 420 Crossings** – **Table 14** provides the results of the evaluation of options for the Highway 420 crossings. The proposed Drummond Road widening is preferred from a transportation and economic perspective. While the "Do Nothing" alternative is preferred from a social/cultural and natural environment perspective, it does not address the transportation deficiencies and is least preferred from an economic perspective.

Table 12: Evaluation Summary for Thorold Stone Road/Bridge Street Area

Evaluation Criteria	Do Nothing	Alternative 1 – Thorold Stone Road Extension to Bridge St	Alternative 2 – Widen Stanley Ave	Alternative 3 – Thorold Stone Road Extension to Victoria Ave
Transportation System				
Change in Congestion				
Network Travel Time (Delay)				
Support for transit				
Use of Existing Infrastructure				
Transportation Summary **Overall, Thorold Stone Road Extension to Bridge Street is preferred from a transportation system perspective**				
Social/Cultural				
Support for Walking/Cycling				
Potential Noise Impacts				
Potential effects on cultural heritage features				
Potential effects on stable residential neighbourhoods				
Social/Cultural Summary **Overall, Thorold Stone Road Extension to Bridge Street and Thorold Stone Road Extension to Victoria Avenue are preferred from a social/cultural perspective**				

Evaluation Criteria	Do Nothing	Alternative 1 – Thorold Stone Road Extension to Bridge St	Alternative 2 – Widen Stanley Ave	Alternative 3 – Thorold Stone Road Extension to Victoria Ave
Natural Environment				
Potential effects on air quality				
Land taken for transportation infrastructure				
Potential effects on designated Environmentally Sensitive Areas (ESAs)				
Potential effects on Other Natural Areas				
Natural Environment Summary **Overall, Do Nothing is preferred from a Natural Environment Perspective**				
Economic Environment				
Total capital cost ($M)				
Support for Planned Residential/ Employment Growth Areas				
Support for Tourism				
Support for goods movement				
Effects on Local Business				
Economic Environment Summary **Overall, Thorold Stone Road Extension to Bridge Street is preferred from an economic perspective**				

Table 13: Evaluation Summary for QEW Crossings

Evaluation Criteria	Do Nothing	Alternative 1 – Morrison Street Crossing	Alternative 2 – Dunn Street Crossing	Alternative 3 – Widen McLeod Road	Alternative 4 – NEW QEW Crossing South of McLeod Road
Transportation System					
Change in Congestion					
Network Travel Time (Delay)					
Support for transit					
Use of Existing Infrastructure					
Transportation Summary **Morrison Street Crossing and New QEW crossing South of McLeod Road are preferred from a transportation system perspective**					
Social/Cultural					
Support for Walking/Cycling					
Potential Noise Impacts					
Potential effects on cultural heritage features					
Potential effects on stable residential neighbourhoods					
Social/Cultural Summary **Widening of McLeod Road is preferred from a social/cultural perspective**					

Evaluation Criteria	Do Nothing	Alternative 1 – Morrison Street Crossing	Alternative 2 – Dunn Street Crossing	Alternative 3 – Widen McLeod Road	Alternative 4 – NEW QEW Crossing South of McLeod Road
Natural Environment					
Potential effects on air quality					
Land taken for transportation infrastructure					
Potential effects on designated Environmentally Sensitive Areas (ESAs)					
Potential effects on Other Natural Areas					
Natural Environment Summary **Do Nothing is preferred from a natural environment perspective**					
Economic Environment					
Total capital cost ($M)					
Support for Planned Residential/ Employment Growth Areas					
Support for Tourism					
Support for goods movement					
Effects on Local Business					
Economic Environment Summary **Widening McLeod Road and New QEW Crossing South of McLeod Road are preferred from an economic perspective**					

Table 14: Evaluation Summary for Highway 420 Crossings

Evaluation Criteria	Do Nothing	Alternative 1 – Dorchester Road Widening	Alternative 2 – Stanley Avenue Widening (to 6 lanes)	Alternative 3 – Drummond Road Widening
Transportation System				
Change in Congestion				
Network Travel Time (Delay)				
Support for transit				
Use of Existing Infrastructure				
Transportation Summary **Drummond Road Widening is the preferred alternative from a transportation system perspective**				
Social/Cultural				
Support for Walking/Cycling				
Potential Noise Impacts				
Potential effects on cultural heritage features				
Potential effects on stable residential neighbourhoods				
Social/Cultural Summary **Do Nothing is preferred alternative from a social/cultural perspective**				

Evaluation Criteria	Do Nothing	Alternative 1 – Dorchester Road Widening	Alternative 2 – Stanley Avenue Widening (to 6 lanes)	Alternative 3 – Drummond Road Widening
Natural Environment				
Potential effects on air quality				
Land taken for transportation infrastructure				
Potential effects on designated Environmentally Sensitive Areas (ESAs)				
Potential effects on Other Natural Areas				
Natural Environment Summary **Do Nothing is preferred alternative from a natural environment perspective**				
Economic Environment				
Total capital cost ($M)				
Support for Planned Residential/Employment Growth Areas				
Support for Tourism				
Support for goods movement				
Effects on Local Business				
Economic Environment Summary **Drummond Road Widening is preferred from an economic perspective**				

6.4.2.5 Preferred Alternative(s)

Table 15 shows the results of the evaluation, including the preferred alternative for each area of network deficiency and the associated rationale. A full list of recommended road improvements is provided in **Section 7.2.5**.

Table 15: Preferred Alternatives

Area of Network Deficiency	Preferred Alternative	Rationale
Thorold Stone Road/Bridge Street Area	Thorold Stone Road Extension to Bridge Street	Preferred from the transportation system, social/cultural and economic perspectives
QEW Crossings	New QEW Crossing South of McLeod Road	Preferred from the transportation system and economic perspectives
Highway 420 Crossings	Drummond Road Widening	Preferred from the transportation system and economic perspectives

6.4.2.6 Long Term Initiatives

Several initiatives beyond the 2031 planning horizon of the STMP study should be considered.

Extension of Highway 420

Highway 420 is currently under the jurisdiction of MTO. Through the on-going NGTA Corridor Study, MTO has indicated that they do not foresee the need for a future Highway 420 extension. Responding to the NGTA draft report, the Region has agreed to the lifting of the Highway designation provided the local municipality agree to the same.

The travel demand model points to the need for additional network capacity in the area of Beaverdams Road beyond 2031. Based on this need, the City may protect the lands by requesting MTO to keep the existing Highway designations around the Beaverdams Road area or relinquish the designation in favour of the City.

A route planning EA study for a new multi-use corridor connecting QEW and Highway 406 under Phase 2 of the NGTA EA study. The Region has future plans for the realignment of Regional Road 20 (RR 20) around the Allanburg Bridge to connect to McLeod Road. Subject to the outcome of the NGTA route planning EA and the potential realignment of RR 20, the Region may consider an EA study for the future arterial corridor connecting Highway 420 and Thorold Stone Road beyond 2031. This corridor study will take into consideration the function of Lundy's Lane as a Regional road. Should the City move ahead with protecting for a corridor within the City limits, the

Region may consider protecting beyond the City limits to Thorold Stone Road.

Morrison Street Flyover Corridor Protection

The travel demand modelling undertaken as part of this STMP indicated that even with a new QEW crossing south of McLeod Road (at Oldfield Road), additional crossing capacity may be required in the future. In the interest of protection long term opportunities to address needs beyond 2031, the Morrison Street right-of-way should be protected for a potential future road crossing (see **Appendix I**).

Morrison Street Flyover provides the greatest level of relief to the future crossing capacity issues on the network (beyond Horizon 2031). The flyover could take the form of a grade separated bridge crossing, connecting to the existing Morrison Street/Dorchester Road intersection through, or adjacent to, Optimist Park and the existing retail development on the south side of Morrison Street, as indicated in **Figure 17**.

Figure 17: QEW Flyover at Morrison Street

The Morrison Street flyover would have longer term crossing benefit for the City. Good planning principles support the protection of the corridor for the following reasons:

- The flyover could provide a new Active Transportation link (pedestrian and cycling trail) over the QEW
- This option better relieves future congestion along Thorold Stone Road than an extension of Highway 420
- The absence of this intervention could result in a need to widen Thorold Stone Road to six lanes, which is not suitable from a number of environmental, social and economic perspectives

The Region has indicated that the flyover would also support local retail and other development. It is considered that the potential relief offered by the flyover to the Thorold Stone Road widening should be re-evaluated at the time of any future EA considering the Morrison Street flyover.

Dorchester/Morrison – Traffic Accommodation at Rail Crossings

A desktop review of the Dorchester Rail Crossing at Morrison Street was conducted to assess traffic blockages due to railway traffic. A possible secondary road access to Dorchester Road was assessed to determine whether it would help to alleviate congestion at a development entrance and address delays at the crossing. As there is limited opportunity for motorists to divert to this alternate route before signals at the second crossing are triggered, and therefore provide no significant reduction in the delay currently experienced at the crossings, it was determined that it would not be feasible to pursue this alternative.

6.4.2.7 Additional Assessment

The preferred improvement alternatives were combined into a preferred network and additional model runs were undertaken to identify the need for additional improvements. Improvements identified through previous transportation planning studies were also considered, particularly where recommendations were made to address localized deficiencies that may not show up in a regional transportation model. These recommendations are outlined in **Section 7.2.5**

7. SUSTAINABLE TRANSPORTATION MASTER PLAN

The preferred alternative is a comprehensive STMP for the City covering the following key elements of the transportation system:

- Signage and Wayfinding – strategic improvements to facilitate efficient and safe travel to/from the city and internally;
- Active Transportation – measures to increase accessibility to key destinations for pedestrians and cyclists;
- TDM – measures to reduce the need for single occupancy vehicle travel and support more sustainable travel behaviour patterns; and
- Road network – targeted improvements to reduce congestion and accommodate future growth in the city.

These components of the STMP are supported by the following elements:

- Outline project costs – a financial framework is required to enable the implementation of recommended projects;
- Policy initiatives – to support and provide a policy context for the projected capital works projects; and
- A detailed monitoring program – to ensure that the STMP continues to function as a guiding document in the future and can respond to changing needs or priorities.

The recommendations of this STMP are ultimately founded upon the desired future mode share targets established by the City. **Table 16** summarizes the existing 2006 mode shares for the p.m. peak hour and the 2031 mode share targets used to establish the STMP. In order to achieve these targets, it will be necessary to prioritize the recommendations of this STMP.

Table 16: Mode Share Targets

	2006	2031
Transit	1.7%	3.2%
Total Non-Auto	8%	18%

7.1 RECOMMENDATIONS TO ENHANCE THE EXISTING TRANSPORTATION NETWORK

7.1.1 Wayfinding/Signing

There has been significant improvement in the overall signing and wayfinding strategies that have been implemented in the past, and the City is well-positioned to implement the strategies noted in *Wayfinding/Signing Strategy* (**Appendix J**). The noted strategies are intended to support the overall goals and objectives of the STMP, and should be reviewed on a regular basis (in conjunction with the next STMP update) to confirm the recommended strategies remain up-to-date and applicable.

The wayfinding/signing strategy outlines a recommended plan that provides clear direction and information to all City travellers, regardless of travel mode. A wayfinding strategy can support the use of transit and active transportation modes and can benefit a community through improved economic environment, reduced congestion for residents, and a positive impact to the overall visitor experience.

Several agencies were contacted to discuss wayfinding/signing requirements and concerns. Three primary issues to be addressed by the wayfinding/signing strategy were identified:

- Sign clarity
- Congestion and tourist traffic
- Stakeholder satisfaction.

A limited existing conditions survey was conducted and results confirmed high compliance with the 1998 TMP Signing Strategy. This survey provided a base from which to build this wayfinding/signing strategy. **Appendix J** contains the detailed Wayfinding/*Signing Strategy*. The following sections summarize the strategy.

7.1.1.1 Recommended Wayfinding Strategies

Strategies to Promote Transit and Active Transportation and Reduce Congestion

Table 17 provides a summary of the recommended signing and wayfinding strategies that are primarily focused on promoting the active transportation network while assisting with reducing congestion. Recommendations are discussed further below.

Table 17: Strategies to Promote Transit and Active Transportation and Reduce Congestion

Tourist Information Map	Map indicating Tourist Districts, parking, transit and active transportation information.
Tourist District Signage	Unique signage for the eight Tourist Districts identified in the City.
Parking Signage	Signage to direct motorists to parking structures/lots with available spaces.
On-Street Information Maps	"You Are Here" guidance to nearest attractions and transportation routes.
Transit Signage/Visitor Transportation System (VTS) Information	Signage for GO and VIA Rail facilities for both motorists and pedestrians/cyclists.
Signage for Active Transportation	Walking and Cycling route information, directional signing for bridge crossings and use of specific signing.
Signage for Public Gathering and Historical/Heritage Locations	Minimal signage but a clear tourist map provided at key facilities.
Special Event Signage	Specific permanent signing for long-term (repeat) events and temporary signing for one-off events.

Tourist Information Map

It is recommended that the City, in conjunction with the Tourist Industry and NPC, focus on creating a City Tourist Information Map that clearly marks the Tourist Districts and potentially lists the major attractions in each district as well as the historical points of interest. A map that combines Tourist District information with parking, transit and active transportation information would be of greatest benefit to visitors. The maps should be made available for distribution at bridge crossings, tourist information centres, City Hall, bus and rail terminals, and major attractions, as well as posted on the City website.

Tourist District Signage

The following eight **"Tourist Districts**" were identified in the 1998 TMP Signing Strategy and generally remain the same for this Wayfinding/Signing Strategy:

- Chippawa
- Clifton Hill
- Fallsview Boulevard
- Lundy's Lane
- Marineland
- Queen Street/Downtown
- The Falls
- Whirlpool

To improve clarity, "Queen Street" has been added to the "Downtown", as some people refer to the Clifton Hill tourist area as "Downtown". The actual Central Business District (CBD) and historical Downtown is located in the Queen Street area. Also, "Fallsview Boulevard" was previously referred to as "Fallsview". The Tourist Districts are still endorsed by City staff and by the various BIAs. The strategy for signing Tourist Districts from the perspective of auto users remains the same, although new requirements for sign design and placement are introduced in this updated strategy. The most recent version of each Tourist District logo is included in **Appendix J**.

With respect to proposed signs on the QEW. it is recommended that additional tourist district logos be incorporated onto existing signage where feasible, rather than adding entirely new signage.

Variations to the 1998 TMP strategy for signing Tourist Districts are noted below, and are shown in **Figure 18**:

- **The Falls** – As a primary tourist district and tourist attraction, ease of access is a primary concern. For the QEW southbound and northbound, primary tourist signing for the City should continue to be routed along Highway 420. Primary tourist signing for The Falls should continue to be routed along Highway 420 for QEW southbound and along McLeod Road for QEW northbound (to take advantage of the Rapidsview parking lot south of Queen Victoria Park).
- **Queen Street/Downtown** – The primary change is to the designated tourist area logo. As there has been some confusion as to the location of Downtown, it was determined to add "Queen Street" text to clarify that Downtown refers to the Central Business District and historic City Downtown in the Queen Street area. Some adjustments have also been made to sign placement, primarily a recommendation to sign this area from the QEW.[8]

[8] *As noted in **Appendix J**, at the time of report writing, the Queen Street/Downtown logo has not been formally adopted by the Downtown BIA; this logo is still under review and will be finalized and approved at a later date.*

Figure 18: Additional Proposed Signing

- **Marineland** - Continues to be a significant traffic generator within the community (and the Region) and patrons are directed to the site via several major routes including the QEW to McLeod Road, primarily from the QEW north of McLeod Road. Appropriate signing is available on local roadways within the City to direct visitors to Marineland. The level of signing provided for this facility reflects its importance to the economic viability of the community.
- **Clifton Hill** - Visitors are directed to this district through signing on the City, Regional, and the Provincial highway system. One additional sign has been added to the network.

Parking Signage

The majority of tourist traffic enters the City via Highway 420 or the Rainbow Bridge and navigates towards the Falls through the congested lower Clifton Hill area. Traffic then reaches the Table Rock parking lot, and if the lot is full, vehicles circulate within the Park searching for alternate parking. Regardless of the location of the parking lots, one goal is to direct passenger vehicles to park their vehicles and travel throughout the City by transit (i.e. VTS), and/or use Active Transportation modes.

To support this goal, it will be imperative to provide adequate signage to direct motorists to either the parking structures or parking lots with available public parking space. NPC notes that once the Table Rock parking lot is at or nearing capacity, vehicles should be directed to the Rapidsview parking lot. Although it is not feasible to provide signage at every parking lot in the City, well-placed signage, especially signs with real-time information, could improve traffic circulation and reduce congestion. It is recommended that Variable Message Signs (VMS) be used at principal entry routes into the City including the QEW and the Rainbow Bridge.

Although directional parking signs will not be present on the Q.E.W or Highway 420, parking signage can be located near Roberts Street and Stanley Avenue, depending on the selected locations for directing vehicles to municipal parking; this would accommodate general non-congested traffic conditions.

During congested periods the proposed VMS on QEW directs motorists to take an alternate route to The Falls on McLeod Road. From McLeod Road people will have more than one option for parking. East of Drummond Road the signing options will include moving people south on Marineland Parkway or north to parking available on Portage Road. All signed parking facilities should be coordinated with the VTS routes.

It is also important to consider accessibility between parking areas and key tourist attractions to provide complete trip integration. Appropriate wayfinding/signage for pedestrians and other users should be incorporated into a future signing strategy and the design of parking areas.

On-Street Information Maps

On-street information maps give "you are here" visual detail and either point to or directly incorporate information on the closest transit stop and the cycling and walking trail system, in addition to the nearby attractions. An on-street information system promotes walking often just by removing the fear of getting lost, and can even assist cyclists with wayfinding for the same reason. Information on the directional signs could include distance and average walking time information.

Transit Signage/Visitor Transportation System (VTS) Information

Figure 18 identifies locations for signage directing motorist to the adjacent GO Station and VIA Station. Some of the proposed signs would require MTO approval prior to posting. Two of the signs for GO and VIA located along the Niagara Parkway are intended for tourists. The Bike Train, in particular, has potential to bring in tourists that could need directional assistance in returning to the train at the end of their sightseeing excursion. Existing and proposed sign placement should be reviewed by GO/VIA.

The wayfinding signs for pedestrians and cyclists could incorporate the GO Station and VIA Station locations as well as the VTS routes. Other useful information that supports transit route and timing information (particularly for the VTS) should be posted at transit stops, bus terminals, and the rail station.

Signage for Active Transportation

Appropriate signing will be important to support the implementation of the Cycling and Walking route plan. Relevant information that is useful, particularly for tourists but also for locals, includes:

- Walking and Cycling route information posted at bus terminals, bicycle rental facilities/outposts and the rail station, including cycling route information for Bike Train users, with directional signs posted at relevant points along the trail network.
- The Region is preparing a Cycling Map that could be distributed in the same locations as the City's Tourist Map.
- Directional signing for the international bridge crossings for pedestrians and cyclists, including where pedestrians and cyclists are not allowed to cross these bridges. Existing direction/ information signs for cyclists include the follow:
  - Rainbow Bridge – there is signage at the pedestrian turnstiles indicating that bicycles are not permitted on the walkway as it is for pedestrians only. It informs cyclists that they must travel in the auto lanes of the bridge with live traffic.
  - Whirlpool Bridge – there is signage advising that the Whirlpool Bridge is a Nexus only crossing and that cyclists are not permitted and must cross at Rainbow Bridge.
  - Queenston-Lewiston Bridge – there is signage available to inform the cyclists that they must cross the bridge with the live traffic.

Signing for commuters generally has a different focus, as commuters are often familiar with their usual route. Good visibility of street signs, including street and trail names is important. At crossroads along off-road routes, arrow signs that point in directions to major streets or destinations would be useful in providing directional assistance.

The Niagara Regional Bicycle Network Signage and Wayfinding Pilot Project has developed specific signs to be used along the cycling routes, examples of which are included in **Appendix J**.

The Active Transportation working paper prepared as part of the STMP also discusses applicable signs and route details for the City's active transportation network.

Signage for Public Gathering and Heritage/Historical Locations

With appropriate signage the following list of locations would be better identified for residents and visitors alike:

- Niagara Falls History Museum
- Niagara Falls Farmer's Market (currently Silvia Place Market)
- Willoughby Historical Museum Drummond Hill Cemetery (a national heritage site)

The use of posted signs for directing visitors to these locations should be at a minimum Rather, a well-organized and clear "tourist map" should be developed and readily available for anyone to collect at common arrival facilities, like information booths, all tourist attractions, bus and rail stations, bridge crossings, and the City website.

The introduction of on-street maps for pedestrians would assist with directing visitors to the above locations and work towards eliminating the need for printed maps.

Special Event Signage

Specific signage for tourist events that will take place over multiple years is a new component of the signing strategy. If properly positioned, the on-street tourist mapping could direct people to a permanent location(s) where long-term events, and other information of interest to tourists and residents, could be posted. The permanent posting location(s) would be best suited in high-traffic tourist locations. This primarily provides information to people who are walking through the City.

Should a permanent parking structure be constructed and operated by the City, there may be an opportunity to provide event details (including walking directions) to motorists through a permanent notice board posted at the pedestrian entrance/exit to the parking structure.

It is critical that all special event signage be removed at the end of the event.

Strategies to Divert and Manage Congestion

Table 18 summarizes the strategies that divert and manage congestion. Further explanation is provided below for each strategy.

Table 18: Strategies to Divert and Manage Congestion

Variable Message Signs (VMS)	System of VMS strategically located on the QEW to manage congestion on Highway 420.
Advisory Signs for Canal Crossings	Strategically located signs to provide travellers with real time information on crossing closures and alternate routes.
Commercial Vehicles and International Bridge Crossing	Placement of signing at strategic intersections to route trucks to appropriate bridge crossings.
Border Wait Time Advisory System	Provision of MTO Border Wait Time Advisory System information at key decision points.
Emergency Detour Routes (EDR)	Signing of EDR routes in the Region

Variable Message Signs (VMS)

At certain times there is heavy congestion along Highway 420 and during these congested periods, drivers experience significant delays. It is proposed that a system of variable message signs (VMS) be implemented along the QEW to manage congestion on Highway 420 by diverting traffic once congestion reaches a specific level (congestion level to be defined). Additional detail on sign messaging and placement is included in **Appendix J**.

Both the MTO COMPASS system and Intelligent Border Crossing Action Plan, discussed in the following section, may provide an opportunity to combine monitoring and information dissemination for border crossing with other congestion information for both commercial and passenger vehicles (including tourists) using the same ATMS and VMS.

MTO Advanced Traffic Management System (ATMS)

Currently, the MTO is completing a study that looks at ATMS [9] along the QEW corridor in the City vicinity (MTO Study). The MTO Study draft report recommends inclusion of VMS along the QEW and Highway 420, and drew the following conclusions:

- "A majority of the tourist traffic originates from the north (i.e., Greater Toronto and Hamilton Area)

[9] *"ATMS Feasibility Study and Preliminary Design Report: Q.E.W. – Mountain Road to McLeod Road and Highway 420 – Q.E.W. to Stanley Avenue" G.W.P. 2165-05-00, November 2010 – Draft.*

- Relative to other travel origins, there is not as much tourist traffic originating from the Fort Erie area, indicated by the relatively similar AADT and SADT counts for the segment south of McLeod Road."[10]

This data was used to assess the need for ATMS components along the corridor.

Existing QEW ATMS

There is an existing ATMS system that was deployed on the Garden City Skyway and the Thorold Tunnel to manage traffic during a multi-year rehabilitation project. A traffic operations centre (TOC) was also established nearby to operate the ATMS. After completion of the rehabilitation project, the components were retained for traffic management purposes, although the Arterial Advisory Sign and Highway Advisory radio subsystems were not actively used post project completion, and the TOC was transferred from St. Catharines to Burlington. As part of the system, two full size VMS were constructed along the QEW:

- Niagara Falls bound, in advance of Highway 406;
- Toronto bound, in advance of Thorold Stone Road.

A Closed Circuit Television Camera (CCTV) system is used to monitor traffic conditions and to verify and manage traffic incidents. Vehicle detection systems are used to capture traffic flow and composition data. The VMS (currently LED – Light Emitting Diode displays) provide real-time traffic information of upstream conditions and incidents.

Action Plan for Intelligent Border Crossings

The Transport Canada/MTO Intelligent Border Crossing project identified ITS technologies that could be implemented to provide for more efficient movements of goods and people between Canada and the USA within Ontario. As part of this project, short-term initiatives would provide traveller information using VMS at the QEW/Highway 420 interchange, and would have traffic conditions monitored at Thorold Stone Road.

MTO COMPASS System

The Intelligent Border Crossing Action Plan looks to an expansion of the MTO COMPASS system along the QEW and Highway 420, which includes CCTV, vehicle detection, VMS, power and communications, in addition to Automated Incident Detection along the QEW from Highway 406 to Highway 420, and on Highway 420 between QEW and Stanley Avenue.[11]

MTO Recommended ATMS and Corresponding VMS

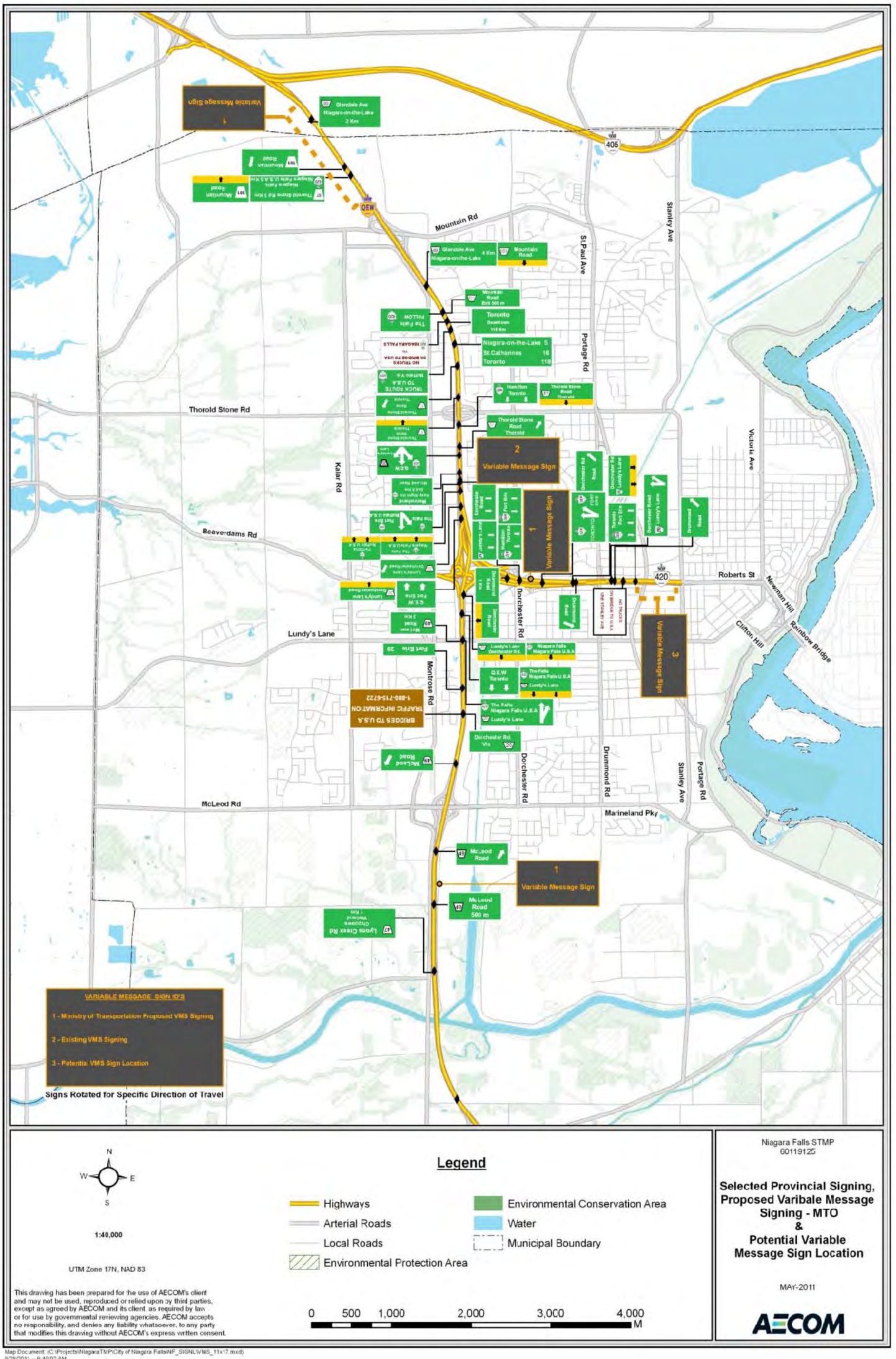
- Corridor 1: QEW from Mountain Road to the Highway 420 Interchange:

[10] *ibid, pg. 15.*
[11] *ibid, pg. 24.*

  - A new VMS sign in the southbound direction may be considered to provide more border crossing related information to travelers. It is noted in the MTO Study that the purpose of this additional VMS would be *"to provide border crossing information rather than recurring traffic congestion information"*;[12] however, *"the sign could also be used for informing travelers of traffic conditions on the Niagara Region arterial roadways if supporting traffic data collection and monitoring subsystems are implemented by the Region"*.[13]
  - The report does not otherwise mention the potential to provide alternate route information (e.g., redirecting traffic from Highway 420 to McLeod Road). The size and location of the VMS was not noted in the MTO Study, but was referred to future development for a specific deployment strategy.
  - **Figure 19** shows a potential location for VMS for southbound vehicles on the QEW between Highway 405 and Mountain Road.
- Corridor 2: Highway 420 from the QEW Interchange to Stanley Avenue:
  - ATMS is considered beneficial for this corridor, and a VMS for the westbound direction on Highway 420 was included as a recommended subsystem (roadside pole mounted VMS).
  - **Figure 19** shows a separate VMS recommended for the STMP for eastbound traffic on Highway 420.
- Corridor 3: QEW from Highway 420 Interchange to McLeod Road
  - The MTO assessment concluded that deployment of a full ATMS system in Corridor 3 is not cost effective for the near future. It was determined that a CCTV subsystem could provide data to assist with analysis of traffic movement in the corridor. This analysis would support future projects to improve traffic management activities on arterial roadways in the surrounding area.
  - It is understood that a VMS is to be deployed, under a current contract, for northbound QEW south of McLeod Road. **Figure 19** shows a possible location for this VMS, based on information in the MTO study.

[12] *ibid, pg. 35.*
[13] *ibid, pg. 35.*

Figure 19: Selected Provincial Signing, Proposed VMS (MTO and Potential VMS Locations



Advisory Signs for Canal Crossings

The implementation of advisory signs for canal crossings should be considered, such as for the Allanburg crossing (a lift bridge). Strategic placement advisory signs would provide travellers with real-time information on crossing closures (i.e., that a crossing would be closed until an estimated or specific time). Implementation of such signs would require co-ordination with the St. Lawrence Seaway Authority.

Advisory signs would assist with reducing congestion at the closed canal crossing and allow motorists to re-route to an open crossing while they are passing critical routing decision points. This would be relevant in the Thorold Master Plan since any such signage would be placed beyond the City boundary.

Commercial Vehicles and International Bridge Crossing

Commercial vehicles entering the City with the intention of border crossing have defined signage and routing. As shown on **Figure 19**, updated signage installed on the QEW for southbound vehicles, south of Mountain Road indicates that trucks are not permitted on the bridge to USA via Highway 420, beyond which is an additional sign indicating that trucks should not be travelling east bound on Highway 420 (also shown on **Figure 19**):

If trucks do enter Highway 420 eastbound with intentions of crossing into the USA, an alternate route sign is present between Drummond Road and Portage Road diverting trucks north on Stanley Road with the intention of using the Queenston-Lewiston Bridge.

For commercial vehicles travelling southeast on the QEW, there is signing to inform trucks to avoid the Rainbow Bridge; however, NITTEC (Niagara International Transportation Technology Coalition) has requested that additional signs be placed at each of the major intersections along Stanley Avenue from Marineland Parkway to Highway 405. These suggested additional sign locations are indicated on **Figure19**. For the purposes of this signing strategy, the directional signs to the international bridges are shown below (directional arrow changes as required):

Queenston-Lewiston Bridge	Rainbow Bridge	Whirlpool Bridge
		

Border Wait Time Advisory System

MTO is currently developing a Border Wait Time Advisory system to provide information to both passenger and commercial vehicles. The intent would be to provide the latest anticipated wait time at upstream border crossings at key decision points. The information would be provided through purpose-built roadside signs.

Emergency Detour Routing (EDR)

Emergency Detour Routing (EDR) for the Region was completed in 2008. Routes marked with yellow signing labelled EDR were placed on defined sections along the QEW to assist motorists in the case of a highway closure. These alternative route options were carefully selected to guide motorists through the Region on rural and residential streets, within several of the Niagara Region municipalities. Signing route options were taken into account and approved by the MTO, Ontario Provincial Police, and City officials.

The completion of the project resulted in the signage of 12 EDR routes, each of which was located along the QEW between Beamsville and the City (i.e., up to Lyons Creek Road). The signing system utilizes the Regional road network so roadways which were not designed for high traffic volumes and trucks are no longer used during highway closures. Niagara Falls has four route options in case of highway closure passing through Niagara Falls.

All route figures are included in **Appendix J**, and consist of the following:

- Regional Emergency Detour Routes – illustrates the sectional breakdown of the routing system within the Region;
- EDR Signing Between Mountain Road and Glendale Avenue – the indexed zones extend vertically from Glendale Avenue to Lyons Creek Road within the City. This figure illustrates the EDR signing and roadways used in the event of highway closure;
- EDR Signing Between Thorold Stone and Road Mountain Road;
- EDR Signing Between McLeod Road & Thorold Stone Road; and
- EDR Signing Between Lyons Creek Road and McLeod Road.

Sign Clarity through Design and Placement

For tourists and residents to get the most out of directional signing, the sign design and placement is critical. The planning and design of an effective signing system can be the cornerstone of a healthy tourist community. Through a combination of aesthetics and commonality a general flow will be more recognizable in the signing system, contributing to the overall wayfinding of the City. To accomplish this, the City must ensure signing conforms to appropriate guidelines/resources (e.g., OTM Handbook 8) with regard to the use of logos, type, colour, language, symbols, layout and placement. Details on the approach to achieving useful sign design and placement is included in **Appendix J**.

Signing Inventory and Effectiveness Survey
It is recommended that the City continue to update their database of signs. The last data was collected in 2003, and should be updated within 10 years from the previous update. This information will be useful for updating the Signing Strategy on a regular basis.

In general, the Signing Strategy should be updated at the time of revision of the Sustainable TMP, or every five years, unless a specific need is identified prior to the STMP update timeline.

A signage effectiveness survey should be incorporated into the next Public Survey and/or visitor survey to be conducted as part of the STMP update. It would be useful to collect data prior to the anticipated STMP update. It is recommended that a survey target specific feedback from travellers and residents including:

- Signage effectiveness and completeness related to various users and the multiple signing/wayfinding needs and objectives. For example, commuters, recreational users, and commercial operators could be surveyed on the following, as applicable:
    - Tourist Districts and attractions;
    - Pedestrian trails;
    - Cycling routes;
    - Transit, including the VTS, routes, times, stop locations, etc.;
    - Parking (location and availability);
    - Event signage;
    - Bridge crossings; and
    - Commercial vehicle routes.
- Sign message(s) - clarity (i.e., are any signs considered confusing) and legibility/design; and
- Sign location(s).

7.1.1.2 Other Signage Considerations

Signing Plan for Recommended Network Updates
The following new directional signs will be required upon completion and/or construction of the recommended road improvements noted in *Travel Demand Modelling* (**Appendix G**) and *Evaluation of Proposed Road Improvements* (**Appendix H**), should those recommended improvements be approved. Changes to traffic patterns will occur and consequently the currently posted signs will need to be updated in the field:

- New/revised signs will be required for the following three locations, which represent the areas where the road network and current traveller routes will be changed from a signing perspective:
    - Thorold Stone Road extension to Bridge Street.

- Allendale widening and connection to Stanley Avenue (north of Ferry, south of Dunn).
- Buchanan/Fallsview widening and realignment (Livingstone – Forsythe).

- Given the recommended road improvements, temporary signage will likely be required at the following locations, primarily to notify local residences of changes to the existing road network. As these signing requirements would be temporary, they are not shown on the detailed signing plan.
  - New crossing of QEW/Hydro Canal south of McLeod Road (i.e., new route).
  - Stanley Avenue/Marineland Parkway realignment (new turning location/access).

Casino Signage

No specific information was obtained with respect to requirements for additional casino signage, beyond what is currently in place today.

Niagara Region

The Region noted that at this time any signage on Regional roadways is to comply with the Regional sign specifications Canadian Tourism Oriented Directional Signage (CTODS). The Region, in consultation with the area municipalities, is in the process of developing a new tourism signage policy. Upon approval, the existing Sign By-Law (approved 1980) will likely undergo amendment to incorporate the new tourism signage policy.

Regional Wine Route Signage

The Region specializes in the creation of world-renowned wines, and has developed a Wine Route that allows visitors a map-guided tour of the wine country. A copy of the Wine Route map is included in **Appendix J**.

A complementary signing system is also in place within the Region. The Wine Council of Ontario is responsible for any changes, additions, or deletions to signs along the route. If approved, winery specific wayfinding signs are provided by CTODS, and/or the Region. The Wine Route logo, once approved, is installed by the Region along Regional roads. The current Wine Route does not occupy any Regional roads; it follows St. David's Road in the Town of Niagara-On-The-Lake and along the Niagara River Parkway in the City.

7.1.2 Parking

Parking is a key element of the transportation system in the City and is frequently cited as an important issue by residents, stakeholders and visitors alike. The provision of adequate, convenient and affordable parking is central to the long-term economic vitality of the City, given the importance of the tourism industry and the ability of the area to attract visitors.

The supply and management of parking linked to hotels and other accommodation is an issue which requires significant consultation, given the range of stakeholders involved. The City therefore considers this to warrant a separate study to be conducted outside the scope of this STMP. The parking study will consider the following elements:

- A review of guiding policy documents and other transportation studies with reference to parking
- Case studies of parking policies in other Canadian cities
- An inventory of the existing hotel parking supply in the City
- An assessment of the range of issues, challenges and opportunities for parking
- A set of recommendations to guide future parking policy and practices in the City
- An action plan to implement these recommendations.

Going forward, any form of parking considered by the City should be an integral component of a wider TDM strategy and sustainable urban development initiatives. These initiatives should champion sustainability and showcase the efficient movement of people and goods.

7.2 RECOMMENDATIONS FOR THE FUTURE TRANSPORTATION NETWORK

7.2.1 Roadway Standards Review

It is recommended that the City undertakes a Roadway Standards Review of its local network. The purpose of the review would be to establish opportunities for context sensitive solutions within roadway designs to accommodate all modes of transportation.

In particular, the Roadway Standards Review should seek to identify the necessary requirements to safely and efficiently accommodate pedestrian and cyclist movements within the Right of Way. Furthermore, the Roadway Standards Review (Review) should be undertaken to ensure compliance with all the relevant obligations of the Accessibility of Ontarians with Disabilities Act (AODA).

By undertaking the Review, the City will be able to establish a future network which has sustainability and accessibility as guiding qualities. In addition, it will ensure that the future transportation network meets the diverse range of user needs, rather than simply being functional infrastructure. This Review may be undertaken with the Region in order to adequately assess roadways under regional jurisdiction.

7.2.2 Active Transportation

This section presents specific recommendations for the priority ranking of proposed active transportation facility routes in the City. An approach to implementing and studying the proposed routes based on ease of implementation, usefulness, and other factors, is described in the following sections.

Many of the top-ranked priorities should be easily implemented by the City providing a base network of useful facilities. Successive projects will move the City towards a more complete network of active transportation facilities. Later priorities may be more complex, requiring that the study of options and feasibility commence while the initial basic routes are being implemented. The City should develop a coordinated approach to implementing these basic routes, with achievable targets for future development, which involves an understanding of the time required to develop each project to an implementable design stage.

7.2.2.1 Off-Road Implementation Priorities

The first priorities that this STMP recommends are the implementation of off-road active transportation facilities forming an interconnected network within and across the existing built-up areas of the City. These will tend to be easier to implement: they are dedicated active transportation facilities generally located outside of street rights-of-way. Based upon the feedback received in the public survey and consultations, these facilities are more likely to attract users, thereby increasing demand for more active transportation facilities of all types for both pedestrians and cyclists.

Currently, off-road trails and bikeways are coordinated, implemented and funded through the City's Parks, Recreation & Culture Section; future consideration should be given to align these active transportation functions within the City's Transportation Services Section. This will ensure that the facilities are developed primarily to meet transportation requirements, and coordination of roadway crossings will be simplified. As a significant partner in the development of these facilities, the Parks, Recreation and Culture Section of the City will provide valuable contributions to the development process given the following:

- They have experience negotiating agreements for trails uses located adjacent to hydro canals and within transmission corridors
- They have experience developing and maintaining trails projects
- Many of these facilities may be located on Parks properties
- As a funding partner, could contribute development of amenities (staging facilities, seating, shade trees, etc.) and/or connections to recreation facilities, local parks and trails

Note that all of these facilities are intended to be implemented as continuous routes, with appropriately-developed crossings for any roadways along the

route. Notwithstanding the need to minimize impacts on motor vehicle traffic, directing users to existing intersections is only encouraged where it would not create inconvenience or constitute a barrier to use the route, as that may result in users crossing unsafely at unmarked locations.

Among the many off-road projects proposed, several have been identified broadly as priority projects. In this section, these are organized into four priority groups (i.e., Group A through Group D) based on ease of implementation, and a strategic approach to establishing a wider and connected network that can intensify and expand as uses increase and additional support and opportunities grow.

Group A: Short-Term Implementation (2012-2017)

Group A is composed of two routes that are prioritized primarily because they are generally located on land owned by the City that is either currently somewhat developed or is planned to be developed for use as trails. These routes are also centrally located within the City and can connect widely to other planned or existing active transportation facilities.

Group A off-road route priorities are as follows:

- **Route 10a. NS&T Trail-West** – The sections between Kalar Avenue and Montrose Road should be prioritized for implementation.
- **Route 10c. NS&T Trail-Centre** – The sections between Dorchester Road and Stanley Avenue should be prioritized for implementation.
- **Route 10d. NS&T Trail-East** – This entire route should be prioritized for implementation.
- **Route 10e. Erie Avenue Connection (On-Road)** – This is an on-road segment required to connect city-owned lands forming the NS&T Trail route to other city-owned lands comprising the Olympic Torch Run Memorial Trail and a parkette to be developed at the north-east corner of the intersection of Queen Street and Erie Avenue. The entire route should be prioritized for implementation. It may be beneficial to first prepare a feasibility study of various options and alternatives to this connection, including facility transitions, and possibly inclusive of other local, Downtown routes that may connect.
- **Route 13. Mitchell Line Trail** – This entire route should be prioritized for implementation. A connection to the existing Gary Hendershot Memorial Trail should be reviewed in detail early in the development process to ensure that any barriers to connection can be identified and overcome quickly.

Group B: Short-Term Implementation (2012-2017)

Group B is composed of several routes that are generally located within unobstructed Hydro One Transmission Corridors, one of which is located primarily on City-owned lands. While similar to Group A, the additional constraints associated with accessibility and adjacent uses additional studies would likely be required prior to implementing the route. The length and

location of these routes, as well as their potential for connections to existing and planned routes, makes each of them very important network connections for the City's active transportation users.

Group B Off-Road Priorities are as follows:

- **Route 8b. Hydro One Transmission Corridor 8-East** – The sections between Olden Avenue and Stanley Avenue should be prioritized for implementation with a short on-road section on Portage to cross the active rail corridor.
- **Route 9a. Hydro One Transmission Corridor 9-West** – The sections between Kalar Avenue and Montrose Road should be prioritized for implementation.
- **Route 9b. Hydro One Transmission Corridor 9-East** – The sections between Thorold Stone Road and Stanley Avenue should be prioritized for implementation.
- **Route 11d. "Grand Boulevard" Trail –** This entire route should be prioritized for implementation, and should be considered a City Marquee Project [14]due to its central location and associated potential for heavy tourist use. This means that it would be developed and landscaped to a level of service and quality exceeding the minimum facility requirements, possibly in the form of a separated facility with dedicated cycling facilities parallel to a pedestrian promenade.
- **Route 15a. Hydro One Transmission Corridor 15-West** – The sections between Garner Avenue and Montrose Road should be prioritized for implementation.
- **Route 15c. Hydro One Transmission Corridor 15-East** – The sections between Dorchester Road and Hydro One Transmission Corridor 12 should be prioritized for implementation.

Group C: Medium-Term Implementation (2018-2022)

Group C is composed of three routes within hydro canals and one route in a hydro corridor presently obstructed by other uses. Each of these is either an already-planned route or an extension of an existing route. Although opportunities may appear readily available for these routes, it is expected that coordination related to established uses, user safety, access and arterial road crossings will be significantly more challenging to overcome than the routes within the generally unobstructed hydro corridors.

Group C Off-Road Priorities are as follows:

- **Route 5. Millennium Trail – Phase 5** – This entire route, from near Morrison Street, to the proposed Millennium Trail Phase 6 should be prioritized for development. Crossing Highway 420 at the QEW interchange is expected to be a very significant challenge, and in the long-term a vision for a more direct, off-road connection is

[14] *"City Marquee Projects" are further discussed in the Active Transportation paper, Appendix E.*

recommended. As an interim solution, using on-road facilities, particularly on Dorchester Road, will be necessary.

- **Route 6. Millennium Trail – Phase 6** – This entire route should be prioritized for implementation, from proposed Millennium Trail Phase 5 to existing Phase 1, south of Lundy's Lane. Connection to Phase 5 is described above; connecting to Phase 1 should similarly be envisioned as a direct, off-road connection, preferably under Lundy's Lane, but again, an interim solution using on-road facilities will likely be necessary.
- **Route 12. Hydro One Transmission Corridor 12** – The sections of this route between the Gale Center and McLeod Road/Marineland Parkway should be prioritized for implementation. Extensions north and south of this segment would only be developed under certain conditions described earlier in this report. Consideration should be given to possible extra-width pathway development including possible "promenade" treatments, as well as to establishing strong connectivity between parking and transit uses existing in the central part of the corridor to improve access for split-mode trips.
- **Route 14b. Gary Hendershot Memorial Trail Extension** – This entire route should be prioritized for implementation, from the existing southern limit of the Gary Hendershot Memorial Trail to McLeod Road.

Group D: Medium-Term Implementation (2018-2022)

Group D comprises three unique projects, each with its own challenges and benefits.

Group D Off-Road Priorities are as follows:

- **Route 11b. Robert Street Crossing | Bridge | "Gateway"** – This would be a significant project with technical and cost challenges. It would provide an extremely useful connection between the Downtown and tourist areas of the City and provide a 'gateway' into the city for visitors from the U.S. crossing the Rainbow Bridge. This project should be prioritized as a City Marquee Project.
- **Route 11c. Victoria Avenue Promenade** – This project should be prioritized as a City Marquee Project. It should be conceived in conjunction with, or as a complimentary facility to on-road route N, Victoria Avenue South. Combined, the two projects would act as complimentary facilities, providing route options for a range of user-types through the centre of the tourist areas of the city. Improvements to the existing promenade should be considered that will be reflective of and connected to the proposed "Grand Boulevard" Trail. Study of options and feasibility should commence immediately, including consideration of combined or separated off-road facilities, or a facility 'split' at each end that would direct cyclists from adjacent facilities onto a potential on-road facility for the length of the promenade

- **Route 11e. Seneca Street connection to River Road (Partly On-Road)** – This short connection will greatly enhance the choices and options for active transportation users, recreationists and tourists, and should be implemented in its entirety. Potential challenges related to land ownership, developing an on-road segment and connecting to River Road/Niagara Parkway, in combination with its modest size, and present existence as an informal route, place it in the lower-end of this report's off-road route priorities.

Longer term implementation projects (2022-2030) are considered to be the remaining Marquee Projects (Routes 10b, 12a and 15b). Further, while all the strategic routes provide valuable connections for recreation and tourism use, some do not present a sufficient transportation opportunity to justify prioritization. These routes includes portions of the Millenium Trail (Routes 2, 3), and the Hydro One Transmission Corridor (Route 8a). These represent potential longer term future active transportation route planning.

Figure 20 displays the proposed off-road active transportation network for the City.

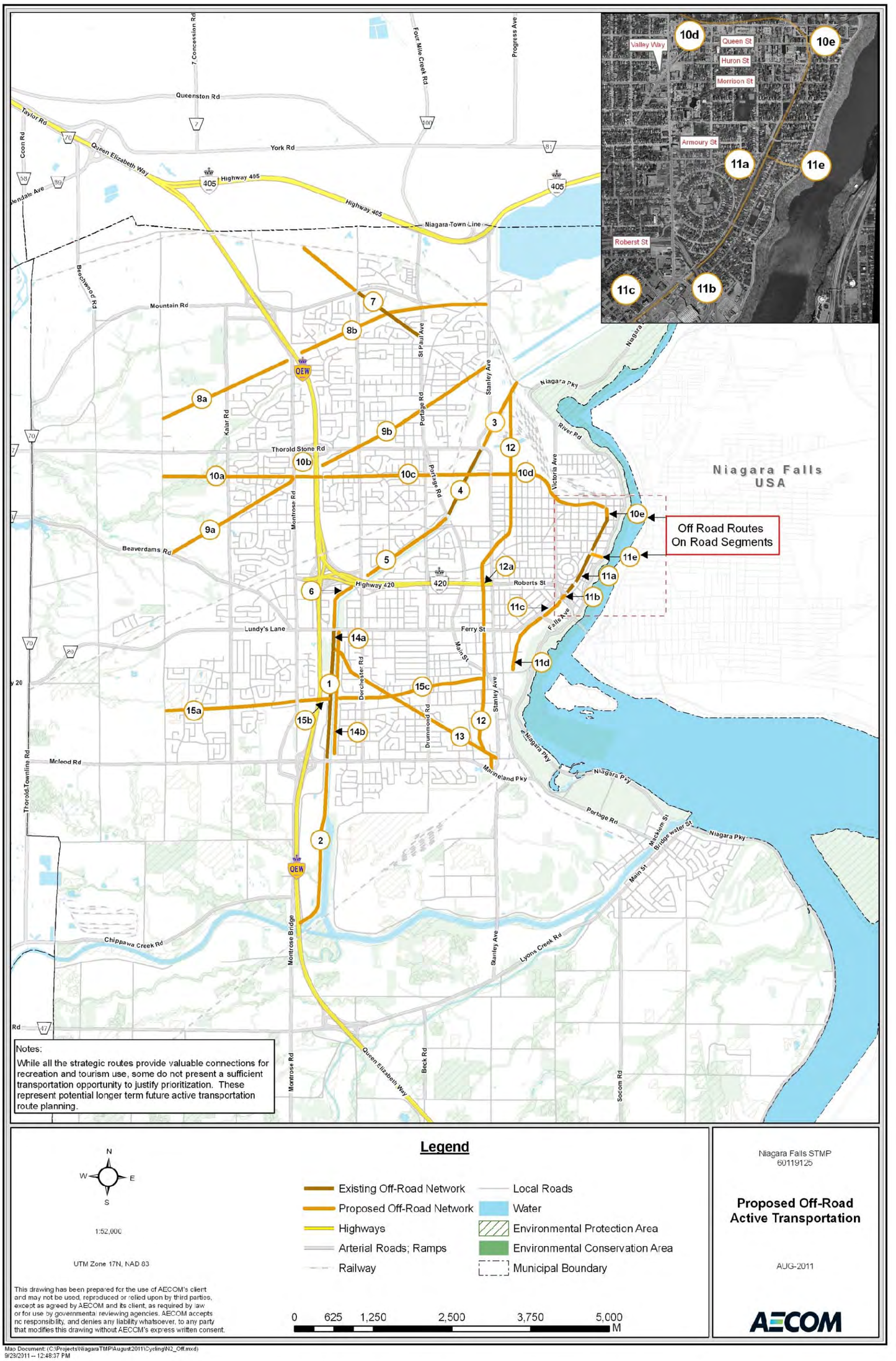
7.2.2.2 On-Road Implementation Priorities

On-road active transportation facilities include any active transportation facilities within road rights-of-way. Usually thought of as bicycle lanes or marked routes, they can include a range of forms including shared lanes and multi-use pathways. In the broadest sense, they include sidewalks. However, for the purpose of this STMP study, the focus is on 'cycling' facilities. These routes, being primarily single-use, dedicated transportation facilities, are the key components of any active transportation network.

This STMP provides a prioritization of the routes based upon balancing ease-of-achievability with usefulness and realistic understanding of the time and study that will be required to implement complex facilities. Organized in four groups, in order of descending priority, these routes will create a core, on-road network of active transportation facilities that will serve the needs of the City very well, and provide a basis for future development beyond the current built-up areas, and for intensification within, based on local routes.

Some of the on-road routes are on Regional roads and/or intersect with Regional roads. Of the many partnerships the City will need to form, the Niagara Region Public Works, Transportation Division, is among the most important. The network recommended in this STMP is primarily intended to serve the needs of the City. The most useful transportation corridors in the City are generally owned by the Region, which has different goals than the City, and different practices than some recommended in this STMP.

Figure 20: Proposed Off-Road Active Transportation Network



It is important for the City to take a leading role on the development of facilities that service the City, and to cooperate with the Region to promote and achieve the City's goals for sustainable transportation.

Group 1A: Short-Term Implementation (2012-2017)

Group 1A is composed of four routes that are prioritized primarily because each of them should be relatively easy for the City to implement, while providing central, east-west routes that connect well with planned on- and off-road routes. Each route is situated on a City-owned roadway, reducing the need for coordination, and each is on a less-busy street, exposing both drivers and potential users to this kind of facility in a less-intense environment.

The primary challenges, for design and coordination, will be developing the routes continuously and visibly through all intersections. The start and termination points of facilities should be carefully designed by the City. In addition, accommodations for existing and future connections to achieve routes that will be publicly successful should be made.

Group 1A On-Road Priorities are as follows:

- **Route C. Morrison Street/Zimmerman Avenue –** This route should be prioritized for implementation or completion of existing facilities, from Dorchester to eastern extent, including facility implementation on Zimmerman Avenue from Bridge Street to River Road/Niagara Parkway. The status of any existing or planned facilities should be confirmed immediately.
- **Route Ca. Woodbine Street** – This route should be prioritized for implementation or completion from Kalar Road to Montrose Road. The status of any existing or planned facilities should be confirmed immediately.
- **Route Da. Barker Street/Peer Street/Peer Lane** – This route should be prioritized for implementation in its entirety. This route is proposed as a less-busy alternative to sections of Lundy's Lane, east of the QEW. , Given its lack of continuity across the highway and hydro canal, this route cannot replace a continuous facility on Lundy's Lane. However, it can serve as a very useful route within the denser eastern portion of the City and may be implemented while studies proceed in association with facilities on Lundy's Lane.
- **Route Ea. Dunn Street** – This route should be prioritized for implementation in its entirety. This route is proposed as a less-busy alternative to sections of McLeod Road east of the QEW. It cannot replace a continuous facility on that road, because of its lack of continuity across the highway and hydro canal. However, it can serve as a very useful route for the denser eastern part of the City and may be implemented while study proceeds for facilities on McLeod Road.

Group 1B: Short-Term Implementation (2012-2017)

Group 1B is composed of four north-south routes that are prioritized for the following reasons:

- Each provides strong, complimentary connections to the prioritized off-road routes, which are primarily east-west
- Each provides strong, complimentary connections to Group 1C routes
- Group 1B will create a strong, loop network for the City.

Most of these routes have already been partially developed. Completion of facilities on these roads appears to be generally feasible, with fewer challenges than routes that are of lower priority.

As with Group 1A, it will be important to develop continuous and visible routes through all intersections, and carefully design the start and termination points of facilities, accommodating existing and future connections.

Group 1B On-Road Priorities are as follows:

- **Route H. Kalar Road** – This route should be prioritized for completion of existing facilities and further implementation from Mountain Road to McLeod Road. Opportunities should be sought to implement new facilities as part of planned roadway upgrades, except where these fall beyond an approximate five-year horizon. In such cases, the City should consider implementing active transportation facilities as a stand-alone project. Development of facilities south of McLeod Road should follow the pace of residential development in that area.
- **Route I. Montrose Road** – This route should be prioritized for completion of existing facilities and further implementation between Kalar Road and the shopping centre south of McLeod Road. This would include the consideration of an off-road segment, parallel to the QEW and connecting directly to Mountain Road in the north.
- **Route J. Dorchester Road** – This route should be prioritized for completion of existing facilities and further implementation between Mountain and McLeod Roads; a southward extension may also be considered. Study of the Highway 420 crossing should be prioritized, as it is a crucial component of this route.
- **Route M. Stanley Avenue** – This route should be prioritized for completion of existing facilities and further implementation between Church's Lane and McLeod Road. Study of the Thorold Stone Road/Hydro canal crossing and the Highway 420 intersection should be prioritized, as these are crucial components of this route.

Group 1C: Medium-Term Implementation (2018-2022)

Group 1C is composed of three complex west-east routes that can connect active transportation users across the entire City, from the rural and suburban western areas, easterly across the QEW and/or hydro canal,

towards the denser residential and employment areas. These are all very challenging locations to build active transportation facilities. However, they are also possibly the most important places for the City to build active transportation facilities. Completion of these routes, and the Group 1B routes, will provide the City with a comprehensive, connected loop system through the built-up areas of the City.

Because of their complexity and constraints, this STMP recommends that the City commence a detailed study of these routes as soon as possible to determine the best-fitting facilities. With the amount of time associated with study activities and the effort and expense required, implementation is expected to be delayed. Ensuring strong connections to all existing and future on- and off-road routes will be challenging (e.g., the Gary Hendershot Memorial Trail and Millennium Trail).

Group 1C On-Road Priorities are as follows:

- **Route B. Thorold Stone Road/Bridge Street –** This route should be prioritized for implementation or completion in its entirety. The status of any existing or planned facilities should be confirmed immediately. Given the complexity of the route, detailed study of a range of options and alternatives for the entire route will be required. The construction of an eastward extension of Thorold Stone Road to the Gale Centre, and beyond to Victoria Avenue and Bridge Street, is a key component that is understood to include active transportation facilities. These construction activities will connect the Thorold Stone Road and Bridge Street facilities. It may be possible to prioritize and implement the Downtown segments on Bridge Street while studies of the Thorold Stone Road sections are on-going. This would be advantageous for the Downtown area and for routes (especially off-road) that are planned in this area.
- **Route D. Lundy's Lane/Ferry Street –** This route should be prioritized for implementation. However, because of the complexity of the route, a detailed study of a range of options and alternatives for the entire route between Garner Road and Victoria Avenue will be required. Barker Street is proposed as an alternative route to Lundy's Lane east of the Q.E.W.; however it cannot provide the same cross-city connections and is not preferred, except as an interim solution or complementary alternative.
- **Route E. McLeod Road/Marineland Parkway –** This route should be prioritized for implementation; however, because of the complexity of the route it will require detailed study of a range of options and alternatives for the entire route between Garner Road and Victoria Avenue. Dunn Street is proposed as an alternative route to McLeod Road east of the Q.E.W.; however it cannot provide the same cross-city connections and is not preferred except as an interim solution or complementary alternative.

Group 1D: Medium-Term Implementation (2018-2022)

Group 1D is comprised of six different routes, two of which combine to create a useful east-west route within the north portion of the City. While the balance of the routes are useful, however complex, once implemented they can provide short-cuts and overall additional capacity for the core active transportation network within the denser, eastern parts of the City.

Group 1D On-Road Priorities are as follows:

- **Route A. Mountain Road** – Segments of this route between Mewburn Road and St. Paul Avenue within the west portion should be prioritized for implementation or completion. The status of any existing or planned facilities should be confirmed immediately.
- **Route Aa. Church's Lane** – This route should be prioritized for implementation or completion. The status of any existing or planned facilities should be confirmed immediately. Extra priority may be given to implementing safe, designated facility connections near and to St. Paul and Stanley Avenues, Whirlpool Road and at the railroad crossing.
- **Route K. St. Paul Avenue/Drummond Road –** This route should be prioritized for completion of existing facilities and further implementation between Mountain and McLeod Roads. Study of the Highway 420 crossing should be prioritized.
- **Route L. Portage Road/Main Street/Marineland Parkway/ Willoughby Drive –** This route should be prioritized for completion of existing facilities and further implementation between Thorold Stone Road and the southern extent of the community of Chippawa. Study of the Morrison Street/Hydro canal and Highway 420 crossings should be prioritized.
- **Route N. Victoria Avenue-North** – This route should be prioritized for completion of existing facilities and further implementation along the entire corridor.
- **Route Na. Victoria Avenue-South –** This route should be prioritized for implementation in its entirety. Study of the options for active transportation development in the roadway should be carried out in coordination with study of the off-road route within the Victoria Avenue Promenade. The results of this study may find an increased priority level for this route.

Longer-term implementation projects (i.e., horizon dates falling between 2022-2030) should focus on intensifying the on-road network and extending into new development areas.

In addition, the proposed Morrison Street crossing (designated as Route Cb) is considered to be a longer-term project, if it is to be a stand-alone pedestrian/cycling bridge. Preference should be given to improving crossing opportunities at Lundy's Lane, Thorold Stone Road or on or off-road alignments. If however a vehicle flyover is constructed, space should be

allocated for cyclists and pedestrians with connections to higher priority Routes C and Ca.

Figure 21 displays the proposed on-road active transportation network for the City.

City and Region residents are heavily dependent on the use of the automobile as a means of transportation. The City has the opportunity to impact residents' behaviour, promote change and increase active transportation. In order to encourage more residents to integrate cycling and walking choices into their daily travel, the City should strive to undertake the following:

- Undertake the development of infrastructure initiatives such as cycling lanes, wider curb lanes, paved shoulders, sidewalks and trails.
- Work with surrounding municipalities and the Region to integrate cross jurisdictional facilities.
- Incorporate pedestrian and cycling friendly design and maintenance standards.
- Provide marked routes with signage through residential neighbourhoods, on major roadways connections and open space trails.
- Work with employers and major end user destinations (commercial areas, libraries, municipal recreational facilities and schools) to provide appropriate on site amenities (e.g., bike lockers, shower facilities.)
- Promote active transportation through educational and awareness campaigns such as "Share the Road" to increase public awareness of cycling as a safe and viable mode of transportation.

7.2.2.3 Budget Cost Estimates for Proposed Short-Term Off-Road Facilities

These budget estimates are provided to assist the City in budgeting for the proposed improvements. They are order-of-magnitude budget cost estimates only and are based upon approximate unit costs and approximate quantity take-offs. These costs do not reflect actual costs to implement any facility and should be refined as planning and design of the proposed facilities proceeds. Soft costs (e.g., design/engineering fees) and contingency amounts are not included and where applicable, additional consideration should be made for inflation and construction cost increases.

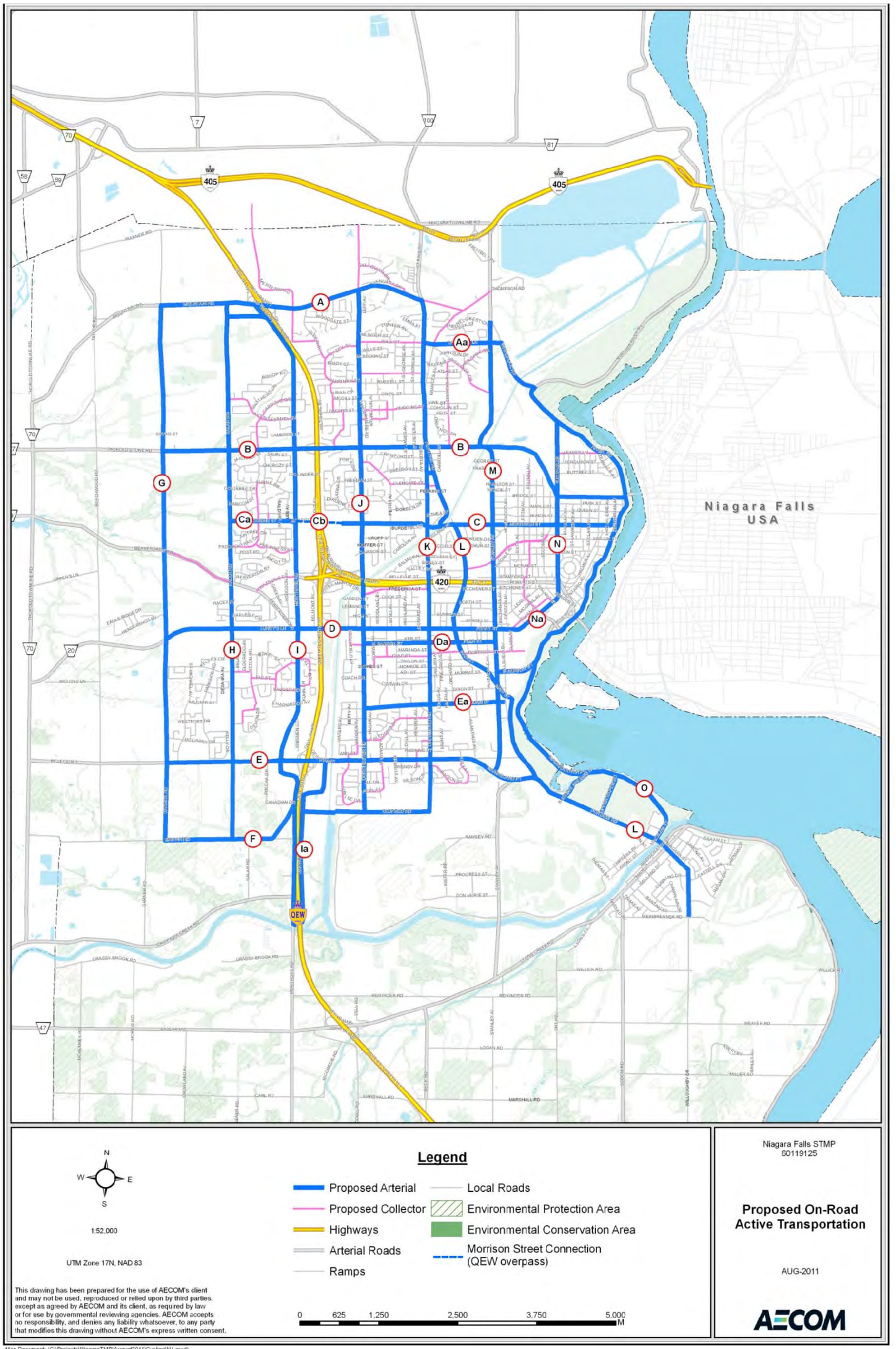
The estimated costs for off-road facilities include factors for pavements, signage, un-signalized roadway crossings and amenities such as shade tree planting, bike locks, trail-heads, benches and waste receptacles. Lighting and signalized mid-block crossings (both recommended) have been separated from basic implementation costs. For some routes with complex situations, a "complex scenario factor" has been applied.

The single on-road pathway in Group A (i.e., Route 10e) assumes that the route can be implemented without significant roadway reconstruction or new signalization. This should be tested early in the planning of these routes as it will have a significant impact on the cost to implement the route.
Table 19 summarizes the total budget cost estimates for these proposed facilities based upon the above-mentioned factors. A more detailed breakdown of cost estimates is provided in **Appendix E**.

Table 19: Budget Cost Estimates for Proposed Short-Term Off-Road Facilities

Group	Route	Budget Estimate ($)
A	10a NS&T Trail – West	1,100,000
	10c NS&T Trail – Centre	2,450,000
	10d NS&T Trail – East	1,250,000
	10e Erie Avenue Connection (On-Road)	100,000
	13 Mitchell Line Trail	2,200,000
B	8b Hydro One Transmission Corridor 8 – East	2,200,000
	9a Hydro One Transmission Corridor 9 – West	1,750,000
	9b Hydro One Transmission Corridor 9 – East	2,325,000
	11d Grand Boulevard Trail	1,275,000
	15a Hydro One Transmission Corridor 15 – West	1,750,000
	15c Hydro One Transmission Corridor 15 – East	1,875,000
	Total	**18,275,000**

Figure 21: Proposed On-Road Active Transportation Network



7.2.3 Transit

It is recommended that the transit mode share target of 3.2% by 2018, as identified in the Transit Strategic Business Plan and Ridership Growth Strategy, is adopted in the STMP. This has been incorporated into the modelling work undertaken and an increased mode share will contribute to reducing future road network requirements.

Since the adoption of the Transit Strategic Plan and Ridership Growth Strategy in March 2009, the city has evolved at a rapid pace with the construction of several major generators. To meet the needs of the community a Transit Routing Ad-hoc Advisory Committee has been formed to review the proposed routing structure and propose a revised routing plan where needed.

For reference, the planned future transit system is shown in **Figure 22**.

7.2.4 Transportation Demand Management (TDM)

Overarching recommendations for TDM include:

- Appoint/hire a dedicated TDM Co-ordinator for the City, and source support resources to prepare a program business plan, co-ordinate program marketing, monitor results, organize public outreach programs, and implement TDM strategies (further discussion is required regarding budget implications). There may be opportunities to partner with the Region and/or neighbouring municipalities to "share" a TDM Co-ordinator on a part-time basis.
- Market TDM throughout the community as part of the TDM program and incorporate marketing approaches and outreach tools and programs that target specific markets, including the tourist sector.
- Update the Niagara Falls OP to include and be in line with the City's TDM strategies. The City is encouraged to include in its O.P. the model local bicycle transportation policies developed by the Regional Niagara Bicycling Committee.
- Initiate discussions with the Region and the Province with respect to modifications to the Development Charges Act to recognize efforts to promote TDM (and transit). Recommendations should be identified for an equitable funding


Source: Metrolinx


Source: Metrolinx

approach within the Development Charge framework to recognize both the costs and potential benefits of various TDM measures and investments in transit and other non-auto infrastructure.

- Develop a separate infrastructure capital program within the annual budget to implement TDM-related initiatives.
- Develop an approach to rationalize the need to resolve all existing and anticipated areas of congestion in the community, considering but not limited to the following issues:
    - The desire to improve the competitiveness of transit service;
    - The nature and duration of congestion;
    - The impact of congestion on walking and cycling;
    - Safety issues arising from current and anticipated congestion; and
    - Impact on economic, social and sustainability considerations as documented in the Goals, Principles and Objectives Working Paper.
- Reassess Traffic Impact Study guidelines, and if necessary formalize changes and requirements to be published and broadly disseminated to the community.
- Consider TDM in the context of all development reviews. One way to consider TDM in the context of all development reviews is to create a standard checklist by which engineers and planners can review proposals and offer opportunities to enhance the proponent's commitment to accommodating all modes of transportation. This could be a quickly implementable approach to increase awareness and support for TDM.
- Continue participation in the Region's Regional TDM development work as part of the TDM Advisory Committee and other future opportunities.

It is important to note that a successful TDM program needs a champion in the municipality and in the wider community. Promotion, preparation of marketing material, securing funding and coordinating community programs require an individual to take a leadership role and ensure that the TDM program is implemented as planned.

Table 20 outlines the recommendations of this STMP regarding future TDM strategies. Outline cost estimates for the creation of a TDM co-ordinator position and initial marketing and promotional activities is provided in **Section 8.2**.

Figure 22: Future Transit Facilities

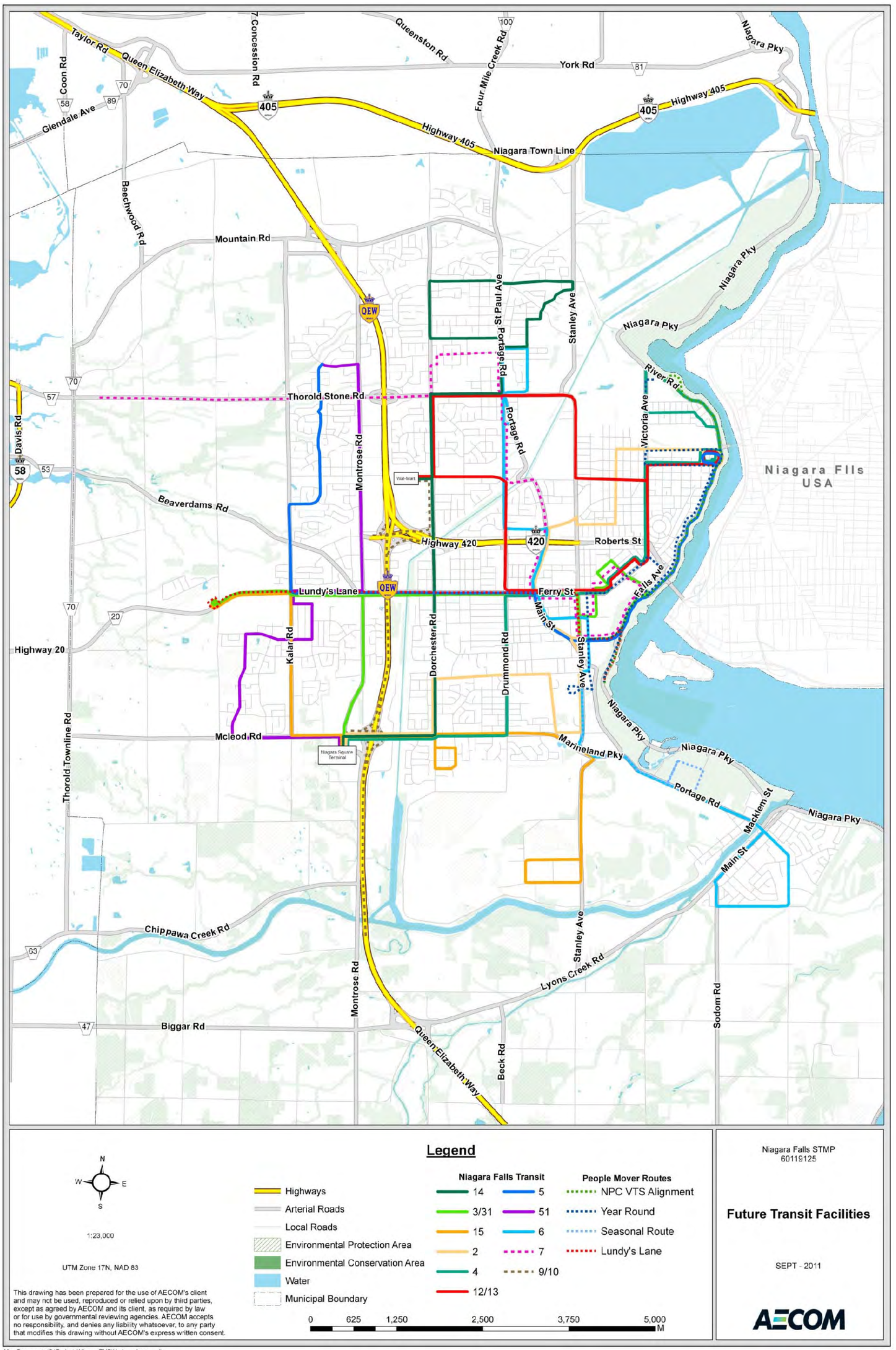


Table 20: TDM Recommendations

	TDM Initiative	Target Market
SHORT TERM PLANNING HORIZON		
Education, Promotion and Outreach		
1	Appoint/hire a dedicated TDM Co-ordinator for the City.	Program Management
2	Continue participation in the Regional TDM development work.	Program Management
3	Explore the creation and support of Niagara Falls Transportation Management Associations (TMAs).	Commuters
4	Provide strong TDM presence on City web site and develop a TDM brand.	Community-Wide
5	Develop a joint TDM marketing program for the City, NPC and private sector.	Program Management/ Community-Wide
6	Provide walking, cycling and transit information on Niagara Falls' tourism web sites. It is understood that a Google map-based trip planner is currently under development by Niagara Falls Transit.	Tourists
7	Provide information on City web site about City's carbon dioxide (CO2) emissions and reduction measures.	Community-Wide
8	Promote carpooling initiatives and investigate partnership with a private carpool/ride-matching service.	Commuters
9	Develop TDM program for City staff.	Commuters
10	Promote compressed work weeks, teleworking, and flexible hours for City employers.	Commuters
11	Promote and expand the Active and Safe Routes to School (ASRTS) program.	Students
12	Promote secondary and post-secondary institutions and student groups' adoption of TDM programs.	Students
13	Promote awareness of GO Transit services from Toronto, including the Bike Train.	Tourists/ Commuters
14	Provide education program to increase general awareness of benefits of walking and cycling.	Community-Wide
15	Complete a goods movement and delivery transportation management plan.	Shippers
16	Continue cycling events and initiate TDM events (e.g., car free day).	Community-Wide
17	Provide cycling safety clinics for all ages.	Community-Wide
18	Initiate community walking events for all ages.	Community-Wide
19	Develop and implement Regional and Municipal TDM monitoring program.	Program Management
20	Develop web-based trip planners for cycling and walking.	Community-Wide
Travel Incentives		
21	Develop employer transit pass program.	Commuters
22	Promote employee transportation allowance (private sector).	Commuters
23	Review current public parking supply and pricing and develop a City-wide	Community-Wide

	TDM Initiative	Target Market
	parking implementation plan.	
24	Promote City-wide emergency ride home programs for sustainable mode users.	Commuters
25	Examine the feasibility of a “smart card” program with the Region.	Community-Wide
26	Encourage dedicated, preferential parking spaces for carpools, car shares in both public and private lots.	Community-Wide
27	Expand winter bus stop maintenance program to include all bus stops.	Community-Wide
Land Use and Transportation Integration		
28	Provide bike parking at City facilities, major destinations, schools and tourist attractions.	Community-Wide
29	Require bike parking, change room and shower facilities at all major workplaces.	Commuters
30	Require pedestrian- and transit-friendly road networks.	Community-Wide
31	Expand scope of ‘Traffic Impact Studies’ to include consideration of all modes – for all developments, with a focus on accessibility rather than capacity.	Residential and Commercial Developments
32	Promote shared parking practices/facilities at commercial retail and mixed use developments.	Community-Wide
33	Establish maximum parking requirements, and parking exceptions, for residential, commercial, industrial and institutional developments.	Community-Wide
34	Fully wire all new homes for high-speed internet access, to facilitate telecommuting.	Households
35	Create a standardized list of TDM policies/initiatives to enable developers to reduce automobile trips.	Community-Wide
36	Partner with the private sector to provide transit shelters and station facilities throughout the City.	Community-Wide
37	Review development staging in new communities to ensure higher densities are contained in initial phasing.	Community-Wide
38	Use trees and other green elements to provide shelter, aesthetic benefits, shade and separation from motorized traffic.	Community-Wide
39	Pursue changes to LEED rating systems transportation and parking credits.	Community-Wide
40	Amend Development Charges Act to enable municipalities to levy charges for all transportation-related infrastructure.	Program Management
Transportation Supply		
41	Develop a core cycle network, including addressing gaps in the current network of on- and off-street bike routes.	Community-Wide/Cyclists
42	Develop a network of pedestrian pathways/sidewalks at places of residence, employment, key destinations and transit stops.	Community-Wide/ Pedestrians
43	Establish pathway maintenance standards that are focused on the needs of pedestrians, cyclists and those requiring accessibility.	Community-Wide
44	Conduct a survey of all sidewalks in the City, including inventory and condition.	Community-Wide/ Pedestrians

	TDM Initiative	Target Market
45	Develop a transit priority plan/priority lanes to improve transit service levels.	Community-Wide
46	Continue to install bike racks on buses.	Community-Wide
47	Assess the feasibility of a privately-owned car share program.	Community-Wide
MEDIUM TERM PLANNING HORIZON		
Travel Incentives		
48	Expand flexible transit pass program to include post-secondary education students, weekly passes and weekend passes (particularly for tourists).	Community-Wide/Tourists
Land Use and Transportation Integration		
49	Un-bundle parking costs from residential units at time of purchase, for new multi-unit complexes.	Households
50	Provide zoning flexibility for home-based business/home offices.	Households
51	Integrate local shopping and essential services into suburban neighbourhood land use planning.	Community-Wide
52	Limit student parking at local high schools, colleges and universities – along with transit, walking and cycling improvements.	Students
53	Limit on-site residential parking for new, single-family homes.	Households
54	Ensure that transit services are provided to new residential and commercial developments at an early stage, with developer funding.	Community-Wide
Transportation Supply		
55	Schedule buses every 15 minutes (at minimum) on high volume transit corridors, during peak periods.	Community-Wide
56	Investigate implementation of a bicycle sharing program, working with the NPC.	Community-Wide/Tourists
LONG TERM PLANNING HORIZON		
Travel Incentives		
57	Transportation Pricing – area-based tolls.	Community-Wide

7.2.5 Road Network

While the improved transit and TDM measures proposed by the City are predicted to increase the overall level of non-auto use by 2031, the modelling work undertaken as part of the STMP identified a number of locations on the road network where congestion will remain a key issue.

Multiple alternative improvements were developed and evaluated in accordance with the requirements of the Class EA process. These were then evaluated against each other to generate a set of recommended alternatives as shown in **Table 21**.

Table 21: Recommended Road Improvements

Area of Network Deficiency	Preferred Alternative	Rationale
Thorold Stone Road/Bridge Street Area	Thorold Stone Road Extension to Bridge Street	Preferred from the transportation system, social/cultural and economic perspectives
Q.E.W. Crossings	New QEW Crossing south of McLeod Road Morrison Street Flyover	Preferred from the transportation system and economic perspectives Longer term crossing benefits – relieves future congestion along Thorold Stone Road
Highway 420 Crossings	Drummond Road Widening	Preferred from the transportation system and economic perspectives

Specific additional improvements to highlight are as follows:

Buchanan-Allendale Couplet System

Within the tourist area (i.e., along Stanley Avenue), continued growth will result in significant congestion during the peak summer months. The widening of Stanley Avenue would have significant impacts to many of the tourist businesses and hotels along this route and was therefore not recommended. Given the underutilization of the parallel collector roads; Allendale Avenue and Buchanan Avenue/Fallsview Boulevard, it is recommended that the City investigate improvements to these routes to support tourist traffic flows as an alternate corridor to Stanley Avenue. These improvements may also stimulate additional economic development along these corridors as they are improved and better connected to the major road network. To implement this couplet system, Allendale Avenue would need to be extended north of Ferry Street and would connect back to Stanley Avenue in the vicinity of Forsythe Street. Allendale Avenue would also need to be extended south of Dunn Street to connect back to Stanley Avenue in the vicinity of Livingston Street. A Schedule C EA study would be required to confirm the proposed limits of this work and the most appropriate locations to connect back to Stanley Avenue.

Connectivity from Fallsview Tourist Area to Historic Drummondville Area

As part of this EA study it may be worthwhile to consider potential opportunities to improve connectivity from the Fallsview Tourist Area towards the Historic Drummondville Area. The existing alignment of the Portage Road/Main Street/Stanley Avenue/Dixon Street intersection does not presently allow traffic from the Fallsview Tourist Area to access Main Street

towards Historic Drummondville, as a raised median prevents left turn movements. Instead, traffic is required to travel north on Stanley Avenue and turn west on Murray Street. Therefore, as part of the EA study the feasibility of improving Dixon Street to join up with the improved Allendale Avenue couplet should be considered.

Improvements may also be considered to the existing Allendale Avenue/Main Street/Murray Street intersection to improve traffic operations at this location, including the feasibility of constructing a roundabout. A new potential connection from Main Street to Allendale Avenue, south of this location could also be investigated to reduce the number of entrance roadways that converge at this intersection. An improved road network in this vicinity may resemble Figure **23**.

Figure 23: Potential Improvements Near Allendale Avenue/Main Street/Murray Street

On the east side of Stanley Avenue, a similar couplet can be created via an improved Livingston Street connection to Fallsview Boulevard. The jog at Fallsview Boulevard and Buchanan Street should be eliminated to create a continuous north-south route across Ferry Street. Buchanan Avenue should be upgraded between Ferry Street and Forsythe Street, and the City should consider opportunities to connect Buchanan Street directly to Roberts Street using a right-in/right out entrance design to provide some relief to the Highway 420/Stanley Ave intersection. The feasibility of this connection would need to be investigated in more detail during a Schedule C Class EA study.

Extending Fallsview Boulevard Across the Moraine to Connect with Portage Road

Finally, the existing section of Portage Road, between Marineland Parkway and Buchanan Street, will also require improvements to address erosion issues on the current steep embankment. It is recommended that the City consider a new connection from Portage Road to Oakes Drive/Livingston Street intersection across the rail line, to allow for the current section of Portage Road to the north of this point to be converted to a walking/cycling trail, with less risk of damage associated with traffic.

Table 22 outlines the full range of recommendations and categorizes these by short, medium and long-term horizons for implementation. **Figure 24** shows the location of these additional recommendations.

Several recommendations shown in **Figure 24** are not listed in **Table 22**. Item #2, Mewburn Road Reconstruction from Mountain Road to York Road is currently under the City's jurisdiction and if a partial interchange at Mewburn Road and Highway 405 is constructed, then the City and the Region should enter into discussion regarding jurisdictional changes to Mewburn Road as referenced in the Transportation Services Sustainability Review report.

Item #3, Mountain Road Widening from Kalar Road to Olden Avenue, is the section over the QEW that is under the MTO's jurisdiction. Based on the Environmental Study Report (ESR) filed in 2007, Mountain Road from Taylor Road to Dorchester Road is identified in the 2012 capital budget and the reconstruction to a 2 lane urban cross section with bike facilities and a roundabout at Mewburn Road is due to be carried out shortly.

Also, with respect to Item #12 McLeod Rd Widening – Kalar Road to Hydro Canal, improvements to McLeod Road under the jurisdiction of the Region (between Montrose Road and Stanley Avenue), the Region is in the process of filing the ESR in 2011. Upon approval from the MOE, the Region will proceed with implementing the improvements.

Figure 24: Recommended Network Improvements

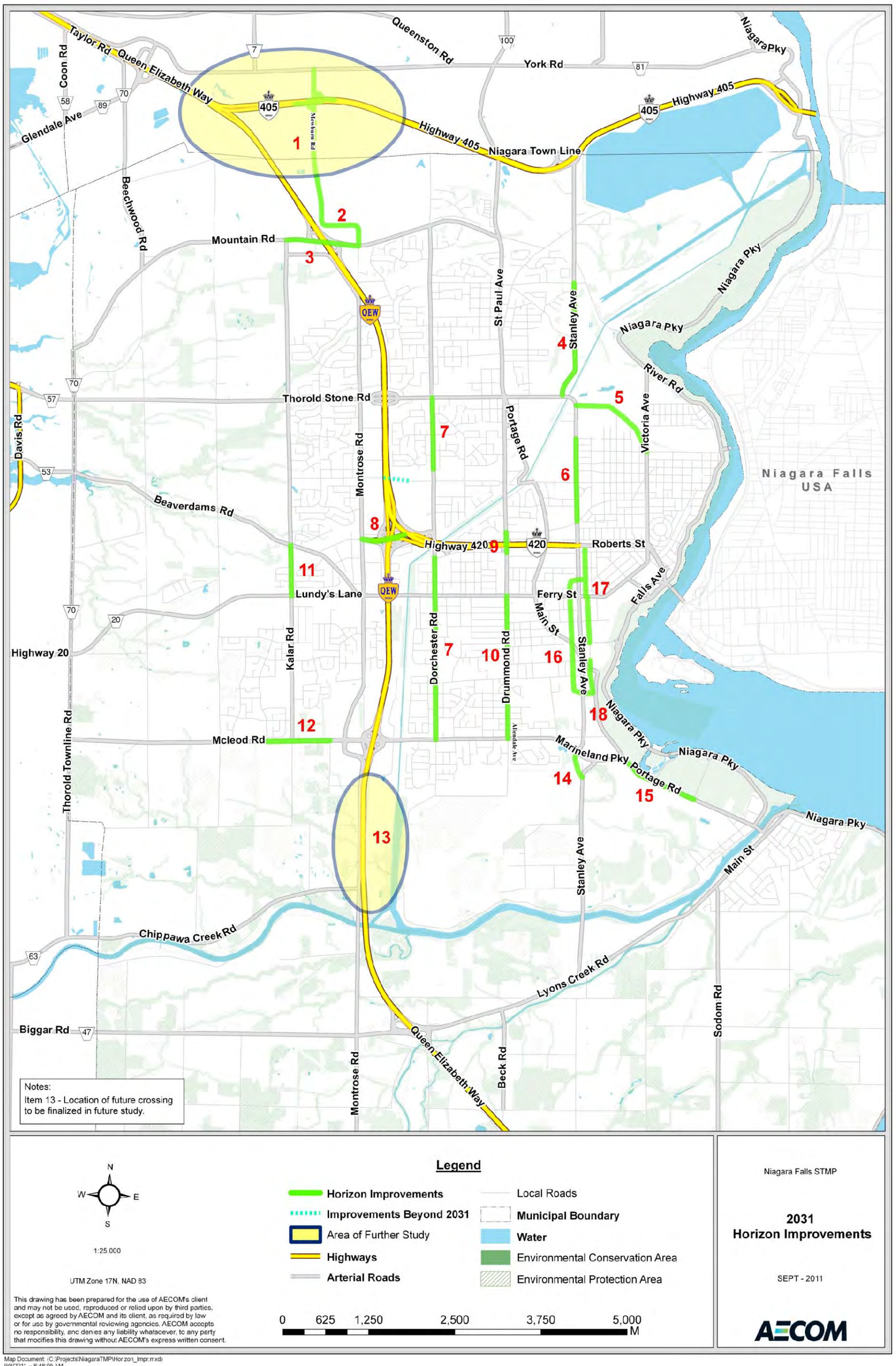


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Table 22: Roadway Improvement Recommendations

ID#	Project	Limits	Total Est. Cost ($2009)	Rationale
Short Term				
5	**Thorold Stone Road Extension**	Stanley Ave to Gale Centre	3,351,750	EA complete, support for Downtown and new arena
12	**McLeod Road Widening**	Pin Oak Drive to Parkside Rd	5,265,000	Current development pressure. ESR to be completed Nov. 2011[15]
11	**Kalar Road Widening**	Beaverdams Rd to Rideau St	8,460,400	EA complete
18	**Livingston St/Fallsview Connection to Portage Road**		3,550,000	Addresses erosion concerns – connectivity to Fallsview area
9	**Drummond Road/Hwy 420 Bridge Widening**	Valley Way to Frederica St	5,109,000	Drummond Rd currently at capacity
15	**Portage Road Widening**	Marineland Pkwy to Upper Rapids Blvd	7,605,000	Currently approaching capacity
17	**Buchanan/Fallsview Widening**	Roberts to Livingston St	17,001,000	
16a	**Allendale Avenue Widening**	Forsyth St to south of Dunn St	7,320,000	Coordinate with MTO
			57,662,150	
Short Term Committed Projects (separate study)				
-	**McLeod Road Widening**	Parkside Rd to Dorchester Rd	12,000,000	ESR[16] to be completed Nov. 2011
			12,000,000	
Medium Term				
5	**Thorold Stone Road Extension**	Gale Centre to Bridge	6,234,150	EA complete, support for Downtown and new arena
7a	**Dorchester Road Widening**	Thorold Stone Rd to Pinedale	6,515,100	To be phased with development
16b	**Allendale Ave New Connections to Stanley**	Dixon St to Stanley Ave & Ferry St to Forsyth	4,849,000	
6	**Stanley Ave Widening**	Hamilton St to Valley Way	7,371,340	Subject to the Region's IC EA study

[15] *"Environmental Study Report – Regional Road 49 (McLeod Road)/Marineland Parkway from Pin Oak Drive to Portage Road and Regional Road 98 (Montrose Road) from McLeod Road to approximately 1 km North, City of Niagara Falls", (ESR) by Delcan, November 2011. This project was conducted concurrently to the STMP to address localized improvement needs to support proposed commercial development. For consistency the findings of the ESR report are noted herein.*

[16] *ibid.*

ID#	Project	Limits	Total Est. Cost ($2009)	Rationale
8	**Hwy 420/Montrose Road Improvements**	Widening Ramps and Improve Intersection	3,900,000	
13a	**New Hydro Canal Crossing**	Dorchester to Oakwood	9,672,000	
7b	**Dorchester Road Widening**	Frederica St to McLeod Rd	19,194,000	
2	**Mewburn Rd Reconstruction**	Mountain Rd to York Rd	6,673,000	
			64,408,590	
Long Term				
3	**Mountain Road Widening**	Kalar Rd to Olden Ave	12,063,500	
4	**Stanley Ave Widening**	Church's Ln to Thorold Stone Rd	10,136,500	
14	**Stanley Ave/ Marineland Pkwy Intersection**	Jog Elimination or Intersection Improvement	6,721,000	
13b	**New QEW Crossing**	Oakwood to Montrose	9,780,000	To be phased with development
10	**Drummond Road Widening**	Lundy's Ln to McLeod Rd	15,948,000	Relief to Main Street
			54,649,000	

7.2.6 Long-Term Initiatives

Highway 420 Extension

Highway 420 is currently under the jurisdiction of MTO. Through the on-going NGTA Corridor Study, MTO has indicated that they do not foresee the need for a future Highway 420 extension. Responding to the NGTA draft report, the Region has agreed to the lifting of the Highway designation provided the local municipality agree to the same.

The modelling work points to the need for additional network capacity in the area of Beaverdams Road beyond 2031. Based on this need the City may protect the lands by requesting MTO to keep the existing Highway designations around the Beaverdams Road area or relinquish the designation in favour of the City.

A route planning Class EA study for a new multi-use corridor connecting QEW and Highway 406 is underway as part of the NGTA EA study. Subject to the outcome of this EA, the Region may consider an EA study for the future arterial corridor connecting Highway 420 and Highway 20 beyond 2031. This corridor study would take into consideration the function of

Lundy's Lane as a Regional road. Should the City move ahead with protecting for the corridor within the City limits, the Region may consider protecting it beyond the City limits (i.e., Thorold Townline Road) to the Welland Canal.

Morrison Street Flyover

Good planning principles support the protection of the corridor for the following reasons:

- The flyover could provide a new Active Transportation link (pedestrian and cycling trail) over the QEW
- This option better relieves future congestion along Thorold Stone Road than an extension of Highway 420
- The absence of this intervention could result in a need to widen Thorold Stone Road to six lanes, which is not suitable from a number of environmental, social and economic perspectives

The Region has indicated that the flyover would also support local retail and other development. It is considered that the potential relief offered by the flyover to the Thorold Stone Road widening should be re-evaluated at the time of any future Class EA considering the Morrison Street flyover.

Rail Crossings Review

In 2008, the City completed a Class EA study which reviewed the need for grade separations at existing railway crossing locations along the railway lines that bisect the City. The recommended alternative included a future grade separation at the Morrison Street and Portage Road CN Rail crossings. It is recommended that the City continues to liaise with rail operators to discuss their future plans and ensure that the recommendations of the Class EA study are currently applicable. It is considered that the estimated costs to implement the required number of crossings (likely to be needed at two or three locations) may negate the other road improvements recommended in this STMP study. Further investigation would be required into this issue, in addition to a potential rail relocation study.

8. IMPLEMENTATION STRATEGIES

8.1 INFRASTRUCTURE PRESERVATION/ASSET MANAGEMENT STRATEGIES

Through this STMP, the City will strive to provide a high quality of infrastructure and manage its key transportation assets, to successfully meet existing needs and future growth.

The quality of life for residents of Niagara Falls is impacted by the quality of infrastructure, which includes roads, public transit and active transportation facilities. Infrastructure should be upgraded or replaced wherever necessary to maintain a high quality of life.

The City should work with all forms of local, provincial and federal government and other stakeholders in the community to plan, fund and implement improved infrastructure.

8.2 ANNUAL CAPITAL AND OPERATING BUDGET

The approved 2011 budget is posted to the City website. A review of the budget indicates that there are no specific line items to support development of sustainable transportation.

Active Transportation and Transit Initiatives

The project mode share for active transportation and transit is 18%. To fund both active transportation and transit initiatives, a portion of the annual budget must be assigned to priority activities.

Alternately, active transportation initiatives can be included in specific road projects; however, should suitable road projects not be in the capital works program, separate initiatives and funding must be set aside to continue with the priority active transportation initiatives.

TDM Initiatives

The primary short-term initiative for TDM is the creating of an administrator/coordinator position. This could be a part-time position for an existing staff member. A budget of $30k to $40k may provide for this part-time position. An additional budget of $50k would assist with initial marketing and promotional activities to get the program underway. Going forward, a more applicable annual budget can be assessed for the TDM coordinator.

8.3 FINANCING AND FUNDING OPPORTUNITIES AND ALTERNATIVE DELIVERY STRATEGIES

The current economic climate has created an even greater level of competition for major infrastructure funding. As such, it is important to

identify other potential funding sources which may be available to the City beyond its annual budget process.

Development Charges are tax levies applied to new developments to recover some of the costs associated with providing municipal services to them. The rules for applying Development Charges are covered by the Development Charges Act and administered by the Government of Ontario.

Increasingly, many Canadian and also international jurisdictions are examining various strategies to recover some of the increased value in land and property development that is generated as a result of public sector investment in transportation infrastructure. For example, Metrolinx (through its "Big Move" program) is examining the introduction of Development Charges that reflect the real value of land development rather than simply the cost of infrastructure servicing.

The City may wish to explore potential updates to its existing Development Charges by-law in order to maximize the potential funding which this source may be able to provide.

8.4 MONITORING

This STMP aims to achieve a set of specific goals and objectives. The STMP has shown that several capital works projects and a program of supporting policy initiatives is required to meet these goals and objectives. These interventions have been based upon the attitudes of residents, forecasted travel demands associated with future land use development patterns and the need to support a range of key policy areas, particularly the economy, given the importance of the local tourism industry to Niagara Falls.

The success of the STMP depends on the ongoing monitoring of a range of key performance indicators. The City must monitor its progress towards meeting these, so that priorities can be added, modified or deleted accordingly.

8.4.1 Plan Monitoring and Performance Measures

The STMP is intended to be a fluid document and must be flexible to wider changes in travel behaviour, policy directions, economic conditions, land use decisions and other considerations. In order to reflect these changes, the City should undertake regular monitoring and periodic updates to the transportation model and STMP.

A series of performance indicators have been developed that link to the goals and objectives of the STMP. The suggested monitoring program is identified in **Table 23**.

Table 23: Monitoring Program

Goal: Optimize the Transportation System			
Objective: Improve the way that the components of the transportation network, including signage and traffic signals, roundabouts, pedestrian/cycling facilities, transit priority systems ITS, and intersection improvements, etc., work together to reduce delays and best use available capacity.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Road system utilization	• Volume/capacity ratios for corridors at screenlines • Road utilization index – daily auto trips per lane kilometre of roadway • Average speeds for arterials	Biannually 5 years Biannually	• Travel time surveys • Traffic counts • TTS • Niagara Falls Transit • NPC • CUTA Transit Fact Book
Transit system utilization	• Volume/capacity ratios for routes at screenlines • Transit utilization – daily transit trips per kilometre hours of service, passengers/revenue vehicle hours • Directional split on key transit corridors	Biannually Annually Annually	
Objective: Enhance the existing transit system to efficiently move local residents throughout the network, and effectively move visitors throughout the visitor area.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Movement of local residents	• Average speeds for conventional transit compared to planned speeds • Total operating revenue/total direct operating expenses for transit system	Biannually Annually	• Travel time surveys • TTS • Niagara Falls Transit • NPC • Annual operating budget • CUTA Transit Fact Book
Movement of visitors	• Average speeds for tourist-oriented buses compared to planned speeds	Biannually	
Objective: Use TDM measures to improve the efficiency of the transportation system.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Education, promotion and outreach	• Number of hits on City TDM website • Number of participants in City-led carpooling program • Number of schools involved in ASRTS program • Number of participants in City TDM program	Annually Annually Annually Annually	• Website hit counter • Future City carpooling program registration • City ASRTS program data • Future City TDM program registration • Niagara Falls Transit • TTS • Census
Travel incentives	• Number of discounted employee transit passes purchased from Niagara Falls Transit	Annually	
Land use and transportation integration	• Employment by regular place of work, at home or elsewhere (level of telecommuting)	Biannually	

Objective: Fill the gaps – add connections and linkages within the existing transportation system to minimize the need for more infrastructure.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Minimize need for more infrastructure	• Qualitative – use of existing network and focus on filling in gaps	Ongoing	• Infrastructure tracking information
Objective: Invest in integrated public transportation services to manage high levels of travel demand: • **For local residents** • **For visitors to the community** • **Within the City and between Regional economic centres.**			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Investment in transit for residents	• $ invested in conventional transit services	Annually	• Annual capital and operating budgets • Infrastructure tracking information • Niagara Falls Transit • NPC • GO Transit • VIA Rail
Investment in transit for visitors	• $ invested in tourist-oriented transit services	Annually	
Investment in intra/inter regional transit	• $ invested in inter/intra regional transit services • Number of inter/intra regional trips	Annually Annually	
Transit ridership	• Annual transit ridership	Annually	
Transit service implementation	• Transit revenue service hours	Annually	
Objective: Optimize roads to accommodate all modes of travel, and expand roadways only when necessary.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Pedestrian and bicycling access and connectivity	• % of capital improvement plan for pedestrian and bicycle amenities and facilities • # of kilometers of sidewalks and bike lanes • # of street blocks designated as "pedestrian-first"	Annually	• Annual capital and operating budgets • Infrastructure tracking information • Niagara Falls Transit • NPC • TTS
Pedestrian-friendly streetscape environment	• # of street trees/planters adjacent to sidewalks	Annually	
Public transit use	• # of kilometers of transit service • % increase in use of transit	Annually	
Context Sensitive Solutions/Complete Streets	• Policies to support Context Sensitive Solutions/Complete Streets	Annually	
Access Management	• # of conflicts points between driveways and pedestrians	Annually	

Goal: Promote Transportation Choice			
Objective: Think ahead — embrace a comprehensive, long-term transportation planning approach that considers all modes and sets a priority for each mode related to the others.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Vehicle person counts (all modes)	• AM Peak mode share for auto, auto passenger, transit, active transportation (walk, cycle), truck and other modes	5 years	• TTS • Census • Traffic counts • Niagara Falls Transit • NPC • Annual capital and operating budgets
Budget allocation	• Budget allocation by mode	5 years	
Objective: Ensure that public transit services are planned and operated to be accessible, convenient, reliable and comparable with other modes, including the automobile.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Accessibility	• Number of fully accessible vehicles in Niagara Falls Transit fleet	Annually	• Niagara Falls Transit • NPC • CUTA Transit Fact Book • TTS • Annual capital and operating budgets • Census • Travel time surveys
Convenience	• Percentage of population within 500m of a transit stop • Average number of transfers required to travel between origins and destinations by transit	5 years Biannually	
Reliability	• Average speeds for buses compared to planned speeds • Standard deviations in average speeds for typical transit trips	Biannually Biannually	
Comparability	• Average speeds for buses compared to average automobile speeds • Average travel time between origins and destinations by transit and automobile	Biannually Biannually	
Objective: Develop safe, convenient and well-integrated bicycle and pedestrian networks and facilities that link key activity nodes within the region.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Safety	• Accidents per 1,000 vehicle kilometres (total and by severity, involving pedestrians and/or cyclists)	Annually	• Niagara Regional Police • Statistics Canada • Annual capital budget • Infrastructure tracking information
Convenience and Integration	• Total kilometres of cycling facilities constructed • Total kilometres of sidewalk constructed	Annually Annually	
Objective: Continue to support new and innovative approaches to improve upon the existing transit system, and bicycling and pedestrian networks.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Active Transportation and transit best practice	• Qualitative – seek to draw upon best practice from peer cities and worldwide case studies	Ongoing	• Relevant industry publications • Relevant industry conferences and other events

Goal: Foster a Strong Economy			
Objective: Support the planning, design, delivery, and ongoing maintenance of a fully integrated transportation system composed of roads, walkways, bikeways, transit, and railways.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Pedestrian and bicycling access and connectivity	• % of capital improvement plan for pedestrian and bicycle amenities and facilities • # of kilometers of sidewalks and bike lanes # of street blocks designated as "pedestrian-first"	Annually	• Annual capital and operating budgets • Infrastructure tracking information • Niagara Falls Transit • NPC • TTS
Pedestrian-friendly streetscape environment	• # of street trees/planters adjacent to sidewalks	Annually	
Public transit use	• # of kilometers of transit service % increase in use of transit	Annually	
Context Sensitive Solutions/Complete Streets	• Policies to support Context Sensitive Solutions/Complete Streets	Annually	
Access Management	• # of conflicts points between driveways and pedestrians	Annually	
Objective: Implement a transit system that effectively moves visitors and related service providers throughout the visitor area to capitalize on tourism revenue and lengthen the average visitor stay within the community.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Increased tourism revenue	• $ tourism revenue	Annually	• Tourism industry (information available from hotels, attractions etc.)
Average visitor stay	• Average length of stay per visitor	Annually	
Objective: Work with the Provincial government and other agencies to upgrade and expand their transportation network and corridors including the provision of improved road, rail (freight), and bus/rail transit linkages/connections to the City.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Opportunities for partnership and collaboration	• Qualitative – pursuit of opportunities for partnership and collaboration with other agencies	Ongoing	• MTO • Transport Canada • Infrastructure Ontario • GO Transit • VIA Rail • Niagara Region • NPC
Objective: Develop a transportation system that provides exemplary service to existing areas, promoting densification.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Population	• Population growth (percentage) and density	5 years	• Census • Employment surveys • Canada Mortgage and Housing data • Number of building permits
Promotion of employment densification	• Employment growth (percentage) and density	Biannually	
Promotion of residential	• Residential growth (percentage)	Monthly and	

densification	and density	Annually	(number of residential units, floor space of non-residential) • Others
Objective: Foster partnerships between the all levels of government, the private sector, educators and other stakeholders to improve the transportation system.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Opportunities for partnership and collaboration	• Qualitative – pursuit of opportunities for partnership and collaboration with other agencies	Ongoing	• Ministry of Transportation • Transport Canada • Infrastructure Ontario • GO Transit • VIA Rail • Niagara Region • NPC
Objective: Develop a transportation system that allows for the efficient movement of goods and people and is adaptable to accommodate changing needs.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Opportunities for goods movement	• Qualitative mapping – connectivity of important areas for goods movement and transportation corridors	Ongoing	• Haulage industries • CP/CN Rail

Goal: Support Sustainable Development and Growth			
Objective: Develop initiatives and strategies that reduce the need to travel for both residents and visitors.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Trip generation rates by all modes	• Person trips per capita (auto, transit, walk, cycle, etc.)	5 years	• TTS • Census • Traffic counts • Niagara Falls Transit
Average commuting trip distance by type	• Average trip length (average home-work trip distance)	5 years	
Automobile ownership	• Automobile ownership by dwelling unit	5 years	
Single Occupancy Vehicle (SOV) use	• A.M. Peak auto occupancy • P.M. Peak auto occupancy	5 years	
High Occupancy Vehicle (HOV) use			
Objective: Ensure that the health and social benefits of an active lifestyle direct transportation planning and design decisions. Generally, priority will be given in the following order: **A) Walking** **B) Cycling** **C) Public transit** **D) Smart commute strategies** **E) Single occupant vehicles;** **However, local context will influence transportation design choices (i.e. Context Sensitive Design and Complete Corridors).**			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Pedestrian and bicycling access and connectivity	• % of capital improvement plan for pedestrian and bicycle amenities and facilities • # of kilometers of sidewalks and bike lanes # of street blocks designated as "pedestrian-first"	Annually	• Annual capital and operating budgets • Infrastructure tracking information • Niagara Falls Transit • NPC • TTS
Pedestrian-friendly streetscape environment	# of street trees/planters adjacent to sidewalks	Annually	
Public transit use	• # of kilometers of transit service % increase in use of transit	Annually	
Context Sensitive Solutions/Complete Streets	Policies to support Context Sensitive Solutions/Complete Streets	Annually	
Access Management	# of conflicts points between driveways and pedestrians	Annually	
Objective: Consider urban design, zoning and parking management strategies that support walking, cycling and transit, and minimize land consumed to support automobile travel (e.g. parking lots).			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Land consumption for auto-centric infrastructure	• Amount of undeveloped land consumed and people/jobs per hectare	5 years	• Development applications

	• Qualitative mapping – amount of land taken for transportation infrastructure	Ongoing	
Impact on cultural heritage and archaeological features	• Qualitative mapping – length and type of infrastructure adjacent to/within cultural heritage/archaeological feature	Ongoing	• NPC • Niagara Region • Infrastructure tracking information
Objective: Support changes to the transportation system that will result in a reduction in vehicle emissions, minimize energy consumption, and limit environmental impacts.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Impact on designated Environmentally Sensitive Areas (ESAs)	• Qualitative mapping – potential effects on provincially and municipally designated ESAs due to construction/operation of transportation infrastructure	Ongoing	• NPC • Niagara Region • Niagara Escarpment Commission • Infrastructure tracking information
Noise pollution	• Levels of noise attributable to transportation	5 years	• Noise monitoring
Objective: Ensure that new development and redevelopment support greater levels of walking, cycling and transit, and that transit service is provided at an early stage in new developments.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Level of sustainable development	• Type and amount of development 500-800m from a core pedestrian, cycle or transit route	5 years	• Number of building permits (number of residential units, floor space of non-residential)
Objective: Be a leader in the implementation of greenhouse gas emission and carbon reduction measures to meet the challenge of current and emerging climate change issues.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Reduction in greenhouse gases	• Reduction in CO_2, VOCs, NO_x (by mode)	5 years	• Air quality monitoring
Objective: Foster the development of communities that support active transportation such as walking and cycling.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Support for walking and cycling	• Percentage of population with 500m of a core pedestrian or cycle route	5 years	• TTS data • Census data
Objective: Ensure that transportation and land use decisions are consistent with the policies and direction included in the Regional Growth Management Strategy, City OP, and the Provincial Growth Plan.			
Attributes	**Indicators**	**Frequency**	**Data Sources**
Consistency with planning policy	• Qualitative – compatibility with relevant planning guidance	Ongoing	• Regional Growth Management Strategy • City OP • Provincial Growth Plan

8.4.2 Transportation Model and Data Management

To facilitate the ongoing assessment of transportation conditions and updating of this STMP, the City should maintain their transportation model to assist in the development of forecasts of travel demands within and to/from the City.

The model should be updated at least every five years using traffic and transit count data from a screenline count program. It is recommended that a review of the model be completed every five years to determine the need to update and recalibrate the model parameters based on available data from the Census and the TTS.

In addition to the TTS survey participation, the City should consider undertaking on-board transit surveys of users of the transit system and include questions that will assist in monitoring how improvements in service have resulted in shifts in user behaviour. For example, for those who have indicated that they changed their mode of travel for particular trip purposes, questions should be included in the survey to find out what motivated the change of mode.

The influence of external traffic into the City is another area where additional data collection would assist the City in updating their transportation model. The data collected would be used to forecast future travel demands in the outlying areas of the City. Opportunities to partner with MTO to collect this data should be investigated to support the ongoing planning efforts of both organizations.

The City should also consider updating their transportation model to facilitate future STMP reviews and to support the ongoing planning and Class EA studies.

The STMP should be monitored on an annual basis, taking into consideration the following:

- The results of the annual traffic and transit passenger count program at key screenlines, on key corridors and on key transit routes
- Overall transit ridership trends
- New trends and technologies in traffic operations and management
- Private and Public Sector initiatives in implementing TDM measures
- The status of and progress towards achieving transportation system performance targets
- The status of transportation related provincial initiatives, policies and funding programs
- Population growth and land use changes within the community
- The need to re-assess, amend or update components of the STMP.

A Transportation Perspective Report should be provided to Council every 5 years (scheduled for 6 months following the release of published TTS data), to advise Council on recent trends with respect to transportation patterns within the City, and the need to update the STMP.

It is recommended that the STMP be reviewed and/or updated every 5 years in conjunction with statutory requirements to review the OP, given the close integration between land use planning, land use policy and transportation.

As public consultation is a key input to the completion of a strategic STMP, all future STMP updates should include a proactive and comprehensive public outreach program featuring formal Public Information Centres, stakeholder workshops and other innovative outreach strategies to solicit input from a wide cross section of the community.

8.5 PROCESS – CONVERTING STRATEGIC PLANS TO TACTICAL PLANS

This STMP provides the policies, strategic plans and initiatives to guide future transportation investment in Niagara Falls. The inherent value of the STMP lies in the ability of City staff to convert these strategies into tactical plans.

The recommendations of the STMP can be implemented in different ways. Policy recommendations in the STMP should be incorporated into the relevant policy documents within future OP updates. These recommendations would subsequently be implemented through the processing of land use applications under the Planning Act.

8.5.1 Policy Recommendations

It is recommended that the City update its OP to reflect the recommendations contained in the STMP, including the goals and objectives included in Chapter 4. For ease of reference, the policy recommendations provided throughout the STMP are summarized below.

Signing and Wayfinding

- Promote Transit and Active Transportation and Reduce Congestion
  - (a) Focus on improving signing and wayfinding for tourist traffic
  - (b) Signing and Wayfinding strategies should provide integration with the transit and active transportation networks, as well as parking
- Seek to Divert and Manage Congestion
  - (a) Make use of technological advances such as VMS and real-time information
  - (b) Focus on improving cross-border travel for all vehicles
- Evaluate Future Signing and Wayfinding Needs

(a) Conduct a signing inventory and effectiveness survey with regular updates
(b) Assess the signing requirements for future network improvements
(c) Consult with the Region regarding signing on roads within their jurisdiction

Parking

- Evaluate Future Parking Supply and Management Needs
  (a) Conduct a comprehensive parking study with a specific focus on the requirements of the tourism and hotel sectors
  (b) Consider parking as an integral component of future TDM and sustainable urban development initiatives

Active Transportation

- Provide an Integrated Active Transportation Network
  (a) Establish a continuous and integrated system of on- and off-road active transportation facilities within the City
  (b) Active transportation should provide for improved inter-municipal connectivity
  (c) Pedestrian facilities should be present on all streets in the City and on both sides wherever possible
- Active Transportation as a Viable Alternative
  (a) Active transportation should provide a range of route alternatives and access to significant local destination points
  (b) Active transportation should be competitive against private car travel to encourage mode shift
- Design for an Accessible Active Transportation Network
  (f) Active transportation facilities should be designed and constructed to be barrier-free.
  (a) The City should regularly update an inventory of active transportation facilities
  (b) Off-road facilities should be designed to serve commuting and recreational needs and to meet best practices for the development of such facilities
  (c) Facilities which do not presently conform to the Region standards should be considered to broaden the array of tools available to address future challenges
  (d) Marked routes should be provided with signage through residential neighbourhoods, on major roadway connections and open space trails
- Raise Awareness of Active Transportation
  (a) The City should work with surrounding municipalities and the Region to integrate cross-jurisdictional facilities and programs
  (b) The City should work with local employers and major end user destinations to provide appropriate on-site amenities

(c) Active transportation should be promoted through educational campaigns to promote cycling as a safe and viable mode of transportation

Transit

- Increase Transit Mode Share
  - (a) The proposed 3.2% transit mode share for 2018 should be adopted
- Plan for Future Transit Needs
  - (a) The City's Ad-hoc Transit Advisory Committee should review the existing routing structure to develop a comprehensive and cost-effective transit action plan

Transportation Demand Management

- Recognize the Links between Transportation and Land Use Planning
  - (a) Transit-oriented development, transit, and smart growth initiatives should co-exist to achieve successful results
  - (b) Initiate discussions with the Region and Province to revise the Development Charges Act to recognize the importance of TDM
  - (c) Reassess Traffic Impact Study guidelines to accommodate TDM needs
  - (d) Consider TDM in the context of all development reviews by creating a standard checklist by which to review proposals
- Champion TDM in the Local Community
  - (a) A City TDM co-ordinator should be appointed to plan and implement future programs
  - (b) A focused marketing campaign should be developed to reach key groups (e.g. tourists)
  - (c) Develop a separate infrastructure capital program within the annual budget for TDM

Roadways

- Address Future Network Deficiencies
  - (a) Focus improvements on the Thorold Stone Road/Bridge Street area, QEW crossings, and Highway 420 crossings
  - (b) Consider the need for a future extension of Highway 420
  - (c) Continue to liaise with rail operators to ensure that future roadway recommendations (e.g. crossings and grade separations) align with their future needs
- Classification of Roadways
  - (a) Consider a roadway classification review for major/minor arterial roads, major/minor collector roads and local roads. This would consider criteria such as:
    - traffic volume;
    - right of way width;
    - signalization;

- access management; and
- on-street parking

- Long-Term Corridor Protection
  (a) Preserve long-term corridor protection areas so that the corridors will be able to meet the long-term transportation demands of the City

Implementation

- Implement Preservation/Asset Management Strategies
  (a) Provide a high quality of infrastructure to meet future growth demands
  (b) Upgrade or replace infrastructure wherever necessary
- Funding Transportation Improvements
  (a) Work with all forms of local, provincial and federal government to plan, fund and implement infrastructure projects
  (b) Include budget line items to support the development of sustainable transportation
  (c) Explore potential updates to the existing Development Charges by-law to maximize funding opportunities
- Monitoring Progress
  (a) Develop a monitoring plan with key performance indicators to be reviewed and updated on a regular basis
  (b) Monitor and update the City transportation model on a regular basis
  (c) Review and update the TMP every five years in accordance with the OP statutory requirements

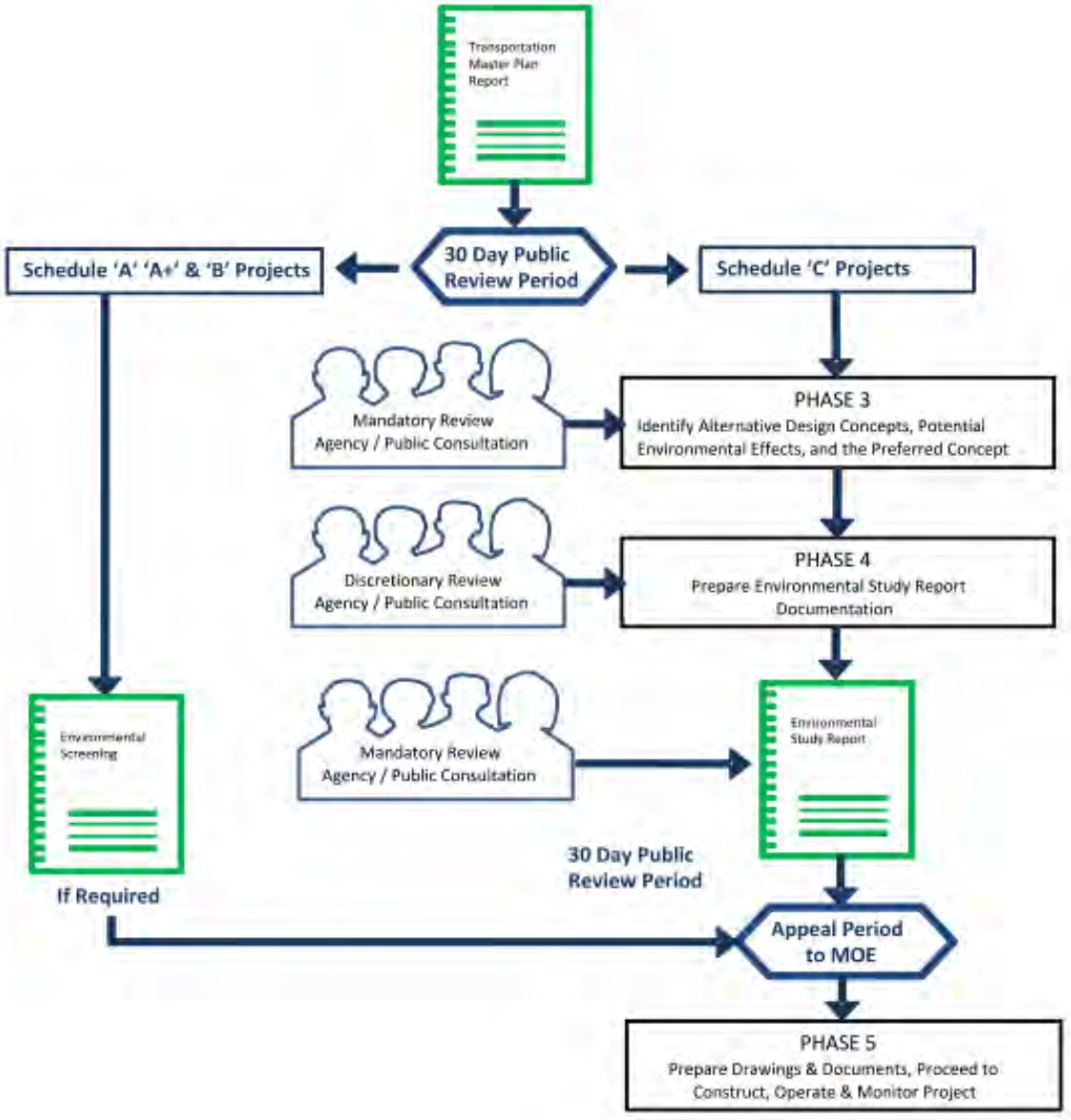
8.5.2 Municipal Class EA Process

The process followed to develop this STMP is intended to address the requirements of Phases 1 and 2 of the Municipal Class EA planning process, by providing an assessment of the existing problems and opportunities and also the range of alternative solutions.

Recommended infrastructure projects that fall within the “Schedule B” category will be able to gain the necessary approval to proceed through the approval of this STMP. This requires the issuance of a “Notice of Study Completion”, followed by a 30-day review period, which provides an opportunity for public and agency review and the submission of comments. More complex “Schedule C” projects have a greater potential for environmental impacts, and so further project-specific EA studies may be required. These would examine the alternative designs, assess potential environmental impacts and mitigation treatments, and would involve an additional public consultation process prior to implementation.

The overall EA process is presented in **Figure 25**.

Figure 25: EA Process for Recommended Projects



8.6 SUSTAINABILITY REPORT CARD

8.6.1 Greenroads™ Program

Sustainability should remain a primary consideration regarding the implementation of future roadway improvements. It is important to ensure that the key sustainability objectives of the STMP are met.

Greenroads™ is a voluntary rating system devised by the University of Washington which helps proponents of new roadways to apply sustainability best practices throughout the design and construction phases of the project. The program is not intended to supersede existing local, provincial or federal regulations, but rather encourage proponents to consider sustainability at a level above the minimal requirements.

The rating system is based upon obtaining points for a series of "Project Requirements" and "Voluntary Credits". The number of points obtained translates into a "Certified" (30-40%), "Silver" (40-50%), "Gold" (50-60%) or "Evergreen" (over 60%) rating. These credits are categorized by six major groups: Environment and Water; Access and Equity; Construction Activities; Materials and Resources; Pavement Technologies; and Custom Credits (to be designed by the proponent).

By meeting the Greenroads™ criteria on future roadway projects, the City has the opportunity to demonstrate a firm commitment to sustainability and become a leading municipality in this regard.

8.6.2 Aligning the STMP with Broader Sustainability Issues

Sustainability is a holistic concept which covers a broad range of economic, social and environmental considerations. Opportunities for the City to align the recommendations of this STMP with these wider issues may be possible in the some of the following areas:

- Buildings – future transportation facilities, such as new transit stations, hubs or even parking structures may be designed to achieve the sustainability measures required for LEED certification.
- Energy Efficiency and Alternative Sources – new buses or City fleet vehicles may utilize alternative fuel sources, such as hybrid or electric vehicle technology.
- Land Use – wider planning policies should be put in place to encourage strategic development which makes the best use of existing transportation infrastructure and allows for context sensitive design.
- Education and Outreach – information regarding the sustainable actions of the City should be publicized to encourage a change in behaviour among residents and visitors. This may help to engender a strong culture of sustainability in the City.

AECOM

NiagaraFalls CANADA

TRANSPORTATION BEYOND TOMORROW 2031

City of Niagara Falls

SUSTAINABLE TRANSPORTATION MASTER PLAN

TRANSPORTATION BEYOND TOMORROW 2031

Review of Background Reports

August 2010

NiagaraFalls CANADA

Niagara Parks

Niagara Region
Building Community. Building Lives.

Ontario

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Statement of Qualifications and Limitations

List of Appendices

1. INTRODUCTION

The following is a summary by major heading of how the findings and recommendations from previous reports done over the past several years may be incorporated into the ongoing Niagara Falls Sustainable Transportation Study and Master Plan. The previous studies and reports include major transportation planning studies, land use planning and policy studies and studies of specific problems, sub-areas and/or facilities. A short summary or overview of the relevant reports is included in the appendices to this report.

2. LAND USE POLICIES

2.1 PROVINCIAL POLICIES

The Greater Golden Horseshoe (GGH) region, which encompasses the Greater Toronto Area (GTA) and a large part of southern Ontario, including the Region of Niagara, is considered one of the fastest-growing regions in North America. In order to manage this growth, the Ontario Government enacted the Places to Grow Act in June 2005. The Growth Plan for the GGH, prepared under the Act, provides a framework for implementing the Province's vision for building stronger, prosperous communities by better managing growth until the year 2031, and serves to guide decisions on a wide range of issues including; economic development, transportation, land-use planning, urban form, housing, natural heritage and provincial infrastructure planning.

In order to achieve its objectives of directing growth to built-up areas and optimizing the use of existing infrastructure, the Growth Plan provides density targets for intensification areas and designates twenty-five Urban Growth Centers across the GGH, which will be planned as focal areas for investment and population and employment growth. Directing growth to built-up areas promotes transit-supportive densities and a healthy mix of residential and employment land uses.

One of the key policy objectives of the Growth Plan is to provide a transportation network that links urban growth centers through an integrated system of transportation modes. The Growth Plan recognizes that such a transportation system will offer competitive transportation choices that reduces reliance upon any single mode; promotes transit, cycling and walking; and provides connectivity among transportation modes for moving people and goods.

A key policy for moving people and moving goods is to ensure that corridors are identified and protected to meet current and projected needs for various travel modes. The Growth Plan identifies that overall transportation planning must support opportunities for multi-modal use where feasible prioritizing

transit and goods movement needs over those of single occupant automobiles. Whereas **public transit will be the first priority** for transportation infrastructure planning and major transportation investments, the plan underlies the need to consider separation of modes within corridors, where appropriate.

2.2 REGIONAL POLICIES

In May of 2009 Niagara Regional Council adopted the "Regional Niagara Sustainable Community Policies: Places to Grow/ 2005 Provincial Policy Statement Conformity and Niagara 2031 Amendment" This is an amendment to the Regions Policy Plan for the purpose of aligning the Region's Policy Plan with the Provinces Places to Grow Plan (2006) and the Provincial Policy Statement (2005). It also establishes a new urban vision to guide growth and development in Niagara to the year 2031. The Amendment replaces the urban policies, adds new policies regarding the Niagara Economic Gateway and infrastructure and replaces the Urban Area Boundary map with a Regional Urban Structure map.
The following objectives are basis for the policies contained in the Amendment:

- Compact, vibrant , integrated and complete communities
- Plan and manage growth to support strong competitive and diverse economy
- Protect, conserve, enhance and wisely use valuable resources of land, air, energy and water for current and future generations
- Maximize use of existing and planned infrastructure to support growth in a compact and efficient manner
- Provide flexibility to manage growth in Niagara that recognizes diversity of communities
- Promote collaboration and cooperation among governments, institutions, businesses, residents and not for profit organizations to achieve vision and objectives

The following are the growth targets for the year 2031 set out in the plan for the Region and for Niagara Falls:

	Population	Households	Employment
Niagara Region	545,000	221,240	243,540
Niagara Falls	106,800	42,740	53,640

The following are relevant transportation policies included in the Region's Policy Plan:

- Ensure that corridors are identified and protected to meet current and projected needs for various modes of travel including active transportation

- Support opportunities for multi-modal use where feasible, in particular prioritizing transit and goods movement needs over those of single occupant automobiles
- Consider increased opportunities for moving people and goods by rail, where appropriate.
- Consider the separation of modes within corridors, where appropriate
- For goods movement corridors, provide for linkages to planned or existing intermodal opportunities where feasible
- Develop transportation demand management policies to be incorporated into the Regional Policy Plan
- Local municipalities are encouraged to develop transportation demand management policies to be incorporated into local official plans
- Local municipalities to create a network of safe, attractive active transportation linkages, and provide related amenities such as sheltered walking areas and landscaped areas to enhance active transportation experiences. On-road and off-road linkages for cycling are particularly encouraged. Wherever opportunities are available, consideration should be given to enhancing connectivity between communities and neighbourhoods.
- Within urban areas, the requirement for road reconstruction and rehabilitation and sewer and water works should be viewed as an opportunity to improve the public realm within the section of roadway under consideration
- An Environmental Assessment for a transportation project should include consideration of opportunities to improve the living environment of existing residents adjacent to the street and within the adjacent neighbourhood. i.e. Noise attenuation.
- **Public transit will be the first priority for transportation infrastructure planning and major transportation improvements for moving people in Niagara.**
- The Region will make recommendations on transit planning according to the following criteria:
    - Using transit infrastructure to shape growth, and planning for high residential and
    - Employment densities that ensure the efficiency and viability of existing planned transit service level
    - Placing priority on increasing the capacity of existing transit systems to support intensification areas
    - Expanding transit service to areas that have achieved, or will be planned to achieve transit supportive residential and employment densities, together with a mix of residential, office, institutional and commercial development wherever possible
    - Facilitating improved linkages from nearby neighbourhoods to the St. Catharines Urban Growth Centre and locally designated residential intensification areas
    - Developing transit linkages among the settlement areas in Niagara and with settlement areas outside the Region

- Increasing the modal share of transit in Niagara
- Supporting multi-modal transportation where feasible

- The Region and the local municipalities will ensure that pedestrian and bicycle networks are integrated into transportation planning to:
  - Provide safe, comfortable travel for pedestrians and bicyclists within and between existing communities and new development
  - Provide linkages between intensification areas, adjacent neighbourhoods, and transit stations, including dedicated lane spaces for bicyclists on the major street network where feasible
  - Encourage provision of appropriate and sufficient bicycle parking facilities at major transit nodes and public and private facilities

2.3 MUNICIPAL POLICIES

The Official Plan (OP) for Niagara Falls is a document approved by the Minister of Municipal affairs in October of 1993 and Amended to January 2010. The OP provides a comprehensive framework for development and redevelopment of lands and sets out a public works program which guides the City's growth and development in an orderly and efficient manner. The Plan incorporates the broad concepts of the Regional Municipality of Niagara's Policy Plan and relevant Provincial and Federal legislation. The findings of various studies have been incorporated into the OP including the Recreation Master Plan, the Tourism Master plan various tourism reports, Commercial/Office opportunities Study, the Greening Plan and other land use, economic and demographic inventories.

Section 3 contains policies on infrastructure including transportation. The following are considered pertinent to transportation studies:

- The road network is shown in schedule 3 of the Plan. The road network enables motorists to move with ease to reach destinations in the City and to also recognize that the road corridor serve as a pedestrian and bicycling realm and contributes to street character.
- A hierarchy of roads includes:
  - Provincial Highways
  - Niagara Parkway
  - International crossings
  - Arterial roads (Regional and City)
  - Collector roads
  - Local Roads
- Road rights-of –way are noted generally in policies 1.4.2.4 to 1.4.2.6 and are listed for specific arterial and collector roads in policy 14.19
- There are Policies for property dedication for roads and daylight triangles which consider the needs vehicular traffic as well as of pedestrians, cyclists and transit
- The OP contains policies that state:

- The City will plan and operate transit so that the core area and centers of commerce are the primary focal points for provision of transit
- It is desirable for public transit services be encouraged in proximity to higher density residential developments, areas of high employment concentration, major medical and social service centers, housing centers for people with special needs and social amenity areas and attractions
- All development and redevelopment will provide adequate parking including parking for handicapped persons
- On street parking is generally to be prohibited on sections of arterial and major collector roads where it interferes with safe and efficient operation of the road network
- Council may consider cash in lieu of parking, as required by by-law and use monies for the provision of additional parking spaces
- Major pedestrian destinations will be linked by pedestrian and bicycle paths and sidewalks along certain roadways
- Council shall seek to eliminate railway grade crossings on a priority basis with financial assistance of appropriate authorities
- Where appropriate Council shall seek the elimination of railways within the City

In addition, there are policies in the land use section that have potential implications on the transportation choices available in the City.

- Policies 4.1.9 through 4.1.12 deal with the implementation of a people mover system utilizing the recently abandoned CP rail corridor in the core and tourist areas. There are general guidelines for the design and location of the facility.
- Policies 4.1.13 through 4.1.17 deal with the implementation of a Grand Boulevard linking the tourist districts. The Boulevard concept would provide for the extension of Victoria Avenue southerly to Robinson Street and then to Buchanan thereby connecting the existing activity node at Clifton Hill to the new Portage Road link between Marineland and Rapidsview and Fallsview. The extension of Ferry Street through to the new Grand Boulevard will also create a stronger link with the Lundy's Lane District.
- Policies 4.3.2 to 4.3.4 identify a series of entrance gateways to the City's tourist districts
- Policies 4.3.5 to 4.3.10 deal with the circulation system and streetscapes in the tourist districts with directions to guide the use and design of those streets.

In addition to the OP, the City has conducted a number of other land use studies, including the following two.

The **Historic Drummondville Land Use Plan**, completed in September of 2006, developed a community improvement plan for the Main Ferry area. That Plan identifies the following:

- Road improvements associated with gateways and focal points (at intersections of Main with Lundy's / Ferry) will be required to properly direct traffic, create a pedestrian friendly environment and create landscaping elements (i.e. widening sidewalks, landscape bulbs, street trees, landscaped medians)
- Gateways to link Fallsview and Clifton Hill that will add traffic to and create historic prominence on Main Street
- Policy to identify Main Street as Retail Street (Summer Street to Culp and Robinson) with specific commercial uses (galleries, etc.)
- Review of Battlefield Master Plan with clear pedestrian connection between Main Street and Battlefield precinct (Drummond Hill)
- Road improvements are not needed to carry associated traffic except landscaping of road right of way to identify Historic Drummondville and a redesign of connections at Main, Stanley and Murray Streets to allow better connection between Fallsview and Lundy's Lane

The **Niagara Falls Brownfield Community Improvement Plan (CIP)** was prepared in February 2006 to provide a framework of incentive programs and municipal actions that will promote the remediation and adaptive reuse and overall improvement of Brownfield properties throughout Niagara Falls. A Brownfield is defined as an abandoned, vacant, derelict, idled, or underutilized industrial or commercial property in the urban area with an active potential for redevelopment where the redevelopment is complicated by real or perceived environmental contamination, building deterioration, obsolescence, and/or inadequate infrastructure. There are a significant number of Brownfields in the older industrial areas of Niagara Falls and throughout the urbanized area. The goal of the CIP is reduced sprawl, improved visual and environmental quality of development, improved tax base, retention and growth of employment, environmental health and public safety.

3. TRAVEL DEMAND INFORMATION

The Region of Niagara has developed a travel forecast model that includes all of Niagara including Niagara Falls. That model is based on the latest data from the Census, the Provincial Transportation Tomorrow Survey and latest provincial, Regional and municipal traffic counts. There have been two recent surveys of cross border traffic. In 2000 the border crossings were surveyed by URS Cole Sherman. The data was updated by a survey conducted by Paradigm Transportation Solutions in 2007. Reports from these two surveys have been reviewed. The data from the most recent survey is incorporated into the Region of Niagara's Transportation Demand Model. The Region's Travel Demand Forecast model is being used in this study along with the most recent land use data that reflects Provincial, Regional and municipal land use and growth policies.

The ongoing Provincial Niagara to GTA Corridor Study has developed travel forecasts for the larger study area including Niagara, Hamilton, Halton and GTA. The Niagara Region's travel forecast model has been developed from the same data sources as the model used for the Niagara – GTA Corridor study and comparisons of the outputs of the two models have been conducted. The travel forecasts developed for the Niagara Falls study will also be compared to data from the Niagara – GTA study to ensure consistency.

4. NEW OR IMPROVED ROAD CONNECTIONS

4.1 NIAGARA TO GTA TRANSPORTATION CORRIDOR

This is an ongoing multi-year study that is assessing transportation requirements in a broad corridor connecting Niagara to the GTA.

The purpose of the study is to confirm and characterize the need for additional transportation capacity between the Greater Toronto Area (GTA) and the Niagara Frontier; identify the specific transportation problems and opportunities within the area; develop, assess and evaluate a range of Area Transportation System Alternatives to address the identified transportation problems and opportunities within the Preliminary Study Area; and, recommend a Transportation Development Strategy (*TDS)* based on the Area Transportation System Alternatives carried forward from the evaluation.

There have been a number of reports to date including: an overview of environmental conditions (2007); an overview of transportation and socio-economic conditions (2007); the Study vision, purpose goals and objectives (Aug 2008); grouped Transportation Alternatives (March 2010); and a listing of individual transportation alternatives being considered (March 2010). The assessment of alternatives includes:

- Transportation Demand management (TDM)
- Transportation Systems Management (TSM)
- Transit
- Air
- Marine
- Rail
- Freight inter-modal
- Road and highways

Alternatives under consideration that would impact Niagara include:

- Implement express rail service along GO Transit Lakeshore corridor
- Expand GO transit expansion to Niagara Falls
- Expand Hamilton International airport
- Widen QEW (for truck lanes)
- Convert QEW to core collector system with core lanes for international traffic
- Place freeway in Townline tunnel
- Complete Central Peninsula Highway to Hwy 403,401, 6, and 407 connections
- Build new corridor QEW in Fort Erie to either 403, 401, 407 or Hwy 6
- Upgrade or widen RR 20 with potential bypasses of settlements
- Combination of new and existing corridors to provide bypass of urban core of Hamilton
- Upgrade or widen Hwy 406 connecting to new corridor between 406 and QEW south of Niagara Falls

The study process will be continuing in parallel with the Niagara Falls study and the two will be coordinated.

4.2 NIAGARA FALLS TRANSPORTATION MASTER PLAN (1998)

This report recommend the following improvements:

- Thorold Stone Road and QEW interchange reconstruction
- Thorold Stone Road widening
- Stanley Avenue – widen to four lanes 420 to Valley Way, six lanes 420 to Dunn, four lanes Dunn to Marineland Parkway McLeod to Portage, to Lyons Creek with widening Welland River bridge.
- Allendale – extend from North to Dunn
- Buchanan – from North to Dunn as arterial standard
- Victoria Avenue 420 interchange improvements
- Widening QEW 405 to 420
- Crossing of Hydro canal between Falls industrial area and Oakwood Drive
- Visitor signing plan for City and Regional roads
- Pedestrian connections in tourist area
- Bicycle and multi-use trail system
- Portage to four lanes Marineland Parkway to upper Rapidsview Blvd
- Hwy 20/Roberts Street – physical improvements and streetscaping, intersection (design to consider grade separation) improvements at Stanley ramp improvements to Victoria Avenue
- McLeod Road – improvements and turning lanes at key intersections
- Lyons Creek Road – upgrade to arterial road standard, intersection improvements at Stanley Ave
- Taylor Road upgraded to arterial to support District Airport
- Montrose to four lanes with auxiliary lanes for local traffic
- New four-lane arterial connection between Thorold Stone and Bridge Street

4.3 UPDATE TO THE NIAGARA FALLS TRANSPORTATION MASTER PLAN (2003)

This study was prepared as a result of development proposals and Pressures in the Tourist Area (PTA) and the study area restricted mainly to PTA. The following were recommended in the study:

- Hwy 20/Roberts Street - physical improvements and streetscaping, intersection (design to consider grade separation) improvements at Stanley with ramp improvements to Victoria Avenue
- McLeod Road requires operational improvements at key intersections
- Lyons Creek Road is to be upgraded to arterial road standard

- Stanley Avenue to be widen 420 to Bridge Street, reconstructed from Thorold Stone to 405, widen to 4 lanes from McLeod to Portage, and to six lanes from 420 to North Street, 4 lanes McLeod to Lyons Creek
- New 4 lane arterial connection between Thorold Stone and Bridge Street
- Road improvements in tourist area including
    - Thorold Stone Road- from Bridge Street to Whirlpool Bridge
    - Murray Street
    - Allendale- Buchanan
    - Allendale Avenue
    - Main Street
    - Dixon Road
    - Dunn Street
    - Portage Road
    - Buchanan Avenue
    - Grand Boulevard
    - Portage Road
    - Queen Victoria Park

4.4 THE DORCHESTER ROAD AND MORRISON STREET CLASS ENVIRONMENTAL ASSESSMENT

This study conducted in September 2004 made the following recommendations:

- Improvements to the Dorchester Road corridor (approximately 3 km in length) with:
    - Two northbound and two southbound lanes (Thorold Stone to Lundy's Lane)
    - Left turn lanes at major intersections
    - Lane widths 3.5 m inside and 4.0 m outside
    - Center median islands to restrict vehicle movements at various intersections along Dorchester to restrict unsafe vehicle movements
    - Modified entrance to Zehr's to discourage left in/out traffic movements
    - No bike lanes on Dorchester due to property restrictions instead outside lanes widened to 4.0 meters to provide some accommodation for bicyclists

Improvements to Morrison Street (1 km in length) with:

- Two westbound, two eastbound lanes
- Left turn lanes, center median islands at Dorchester and new intersection west of CNR
- On road bicycle lanes from Dorchester to Drummond
- Planned for five year implementation Schedule starting in 2005 going to 2008 and beyond

- Additional access to or crossing of the QEW by Morrison were not recommended within the EA study
- Grade separation at the rail line on Dorchester and/or Morrison were not recommended but should be investigated in a separate EA to improve road network and emergency service operations
- Additional property required to accommodate preferred design (Impacts on businesses and trees)

4.5 RAILWAY RATIONALIZATION AND GRADE SEPARATIONS

The need to grade separate road and rail crossings was addressed in a report "Railway Grade Separations Class Environmental Assessment (Class EA)" prepared by Matrix Innovations Inc in 2007. That study was conducted as a Class EA with a full public consultation process. The report found that existing rail lines bisected the City resulting in train movements that contribute to delays in emergency services response times, increased traffic congestion, and traffic safety concerns. That report identified the following short list of seven potential areas for grade separation of rail lines from roadways: Morrison, Portage, Dorchester, Montrose, Thorold Stone Road, Lundy's Lane and Drummond. The report recommends that Morrison and Portage are the priorities for implementation and they be taken forward for preliminary design. The report provides preliminary cost estimates for implementation of the two projects of $11,148,000 for the Morrison grade separation and $7,926,000 for the Portage grade separation.

5. IMPROVED TRANSIT SERVICE

5.1 MUNICIPAL TRANSIT SERVICES

The latest recommendations for improvements to the Niagara Falls Municipal Transit system are contained in the "Niagara Falls Transit Business Plan and Ridership Growth Strategy. That study makes recommendations for three levels of investment to improve the transit system:

1. A base investment of $15.7 M to replace equipment (nine replacement and two additional buses, improvements to Chair-a-van, new fare boxes and Intelligent Transportation System (ITS) improvements), improve terminals, and replacement of the main garage facility
2. Short Term investments up to $20.5 M for eight additional buses, 13 replacement buses Transcab service where conventional service not justified, fare boxes and smart cards, additional ITS and increased staff
3. Long Term improvements of an additional $8M for bus rapid transit vehicles and bus rapid transit routes on Montrose south, Lundy's Lane and Garner/Lundy's Lane with terminals and traffic control improvements to support bus rapid transit.

The Transit Business Plan lays out the basic transit requirements over the next 15 years. The ongoing Sustainable Transportation Master Plan study needs to address the potential for transit to play a more important role in the movement of people within Niagara Falls. It will be necessary to review the need for and location of bus rapid transit lines in Niagara Falls by taking an even longer term view of the future requirements for improved transit services. This will require identifying the full potential for modal shift over the next twenty years and the types of transit services necessary to achieve that shift. Additional work will be required to ensure the full integration of the municipal transit system with improvements to inter-municipal and inter-regional transit and transportation systems.

5.2 PEOPLE MOVER SYSTEM

Niagara Falls' current People Mover System was inaugurated in 1985 and is deemed to be operating beyond its practical capacity. In 2003 the Federal Government announced a funding commitment of up to $25 million towards the construction of an Advanced People system to better transport large numbers of tourists in the Niagara Falls area.

In September of 2009 the City of Niagara Falls completed a "Business Case for the Proposed Niagara Falls People Mover System." That report reviewed:

- The need for the system (history, surveys, forecasts, consultations, ridership and revenue forecasts, cost benefits, etc.
- Background and History of related projects and studies including:

- 1981 – study recommends monorail system
- 1985 – Niagara Parks Commission (NPC) implemented present rubber tire propane powered system
- May 1986 – People Mover Study identifies need for system on separate right-of-way
- Summer 1987 – coordination of People Mover with Niagara Transit operation
- October 1988 – NPC study recommends enhanced people mover system for QVP.
- February 1996 – Niagara Falls People Mover Feasibility Study confirmed need to upgrade the people mover
- September 1998 – Niagara Falls Transportation Master Plan recommended a number of short and long term improvements to transportation system including upgraded people mover in PTA
- October 2000 – Niagara Falls People Moverlindividual Environmental Assessment and Economic Analyses provided details of preferred alignment
- May 10, 2001 – Minister of Environment approved EA for Niagara Falls People Mover System
- 2002 City conducted a Stated Preference Survey regarding transportation services for tourists

The report also included an Environmental Assessment and a Financial Analyses. The City, OLG and FMC purchased railway right of way from VIA station to Marineland for $40.5 M with City owning majority and OLG owning portion through Fallsview and adjacent to Casino Niagara. Funding of up to $50M was committed by the Federal and Provincial Governments. The Study contains latest forecasts of tourist (of 14M persons per year to 2025) which are considerably less than previous forecasts in earlier studies. The Alignment of rubber tired People Mover System is outlined and depicted in report.

The Business Case recommends a two phase approach to the People Mover System:

- Phase one is rubber tired vehicles operating on the roadway in mixed traffic (20 new buses to last up to 15 years) with improved stations and improvements to inclined railway.
- Phase Two is dedicated right of way. This will require addressing a number of issues on roles and relationships as well as design.

- Sets out basic requirements and specs for phase one vehicles
- People Mover will be owned and operated by City through Niagara Falls Transit
- Implementation date of 2011 to coincide with opening of new Convention Center

- Total cost estimates are $55M including vehicles, maintenance building, station upgrades, intersection improvements and fare collection system

In September of 2009 the Federal and Provincial governments renewed their commitments to set aside $25 million each for the implementation of the project. The new bus system will enhance the existing transportation system already in place and provide greater access for visitors to tourist facilities with connections to the VIA station, where riders can access the new GO transit service.

5.3 INTER-MUNICIPAL TRANSIT

In June of 2010 Niagara Regional Council approved the recommendations of report PWA 60-2010. That report allocated monies and authorized staff to proceed with the implementation of inter-municipal transit service between the downtown hubs of St. Catharines, Niagara Falls and Welland with connections from Niagara Falls to Fort Erie and from Welland to Port Colborne. The service is to be initiated in the fall of 2011. This is a three year pilot project.

This service is in addition to the services provided by the local transit companies between the urban centers and Brock University and Niagara College. This service will reinforce downtown Niagara Falls as a hub for municipal, inter-municipal and inter-regional transit.

5.4 INTRA-REGIONAL TRANSIT (GO) CONNECTION

GO Transit (Metrolinx) started GO weekend rail service to Niagara in May 2009 and was very successful in attracting riders. GO bus service to Niagara was initiated in September of 2009 with infrastructure upgrades at the Casablanca Boulevard Park-and-Ride lot and at the VIA rail station in Niagara Falls. In January 2009 GO Transit undertook a feasibility study to investigate rail expansion to Niagara. The study recommended the preferred corridor of the CN rather than CP.

The Metrolinx Regional Transportation Plan (“The Big Move”, November 2008) provides a vision, goals and objectives for seamless, coordinated, efficient, equitable and user-centered transportation within the Greater Toronto-Hamilton Area (GTHA) in the future. The plan for GO Transit Service enhancements by the year 2020 identified a permanent rail connection to Niagara Falls.

This latest report recommends the following services related to Niagara Falls:

- Preferred route is CN northern route along CNR tracks from Hamilton to Niagara Falls
- Preferred alternative station locations at:
    - Casablanca Boulevard in Grimsby

    - VIA station, St. Catharines
    - VIA station, Niagara Falls
- Preferred alternative layovers at:
    - Glendale Avenue, St. Catharines
    - VIA station, Niagara Falls
- GO rail service will first be extended to Casablanca Boulevard with bus connections to the VIA stations in St. Catharines and Niagara Falls.
- Expansion of GO rail service to Niagara Falls may be dependent on the construction of a grade separation on the Welland Canal
- GO service to James Street North Station in the City of Hamilton is to commence in coordination with the Pan Am Games in 2015.

6. BIKE PATHS AND BIKEWAY SYSTEM

The policy framework for the planning and implementation of bike path system in Niagara Falls can be found in the "Regional Niagara Bikeways Master Plan (2003)," the "City of Niagara Falls Transportation Master Plan (1998)", and an update to the "Trails and Cycling Master Plan in 2005". The Regional Study provides direction for the overall network and design guidelines. The Niagara Falls Transportation Master Plan and later update to the Trails and cycling section show a map of recommended bikeways in the City. The Plan contains a map that identifies on road cycling routes, recreational bike routes, off road recreational routes and Regional designations of suitable on street bike routes. That study recommends that the network not be signed and that the Regional network map remain as the only publicly available route map to be used as a reference by the bikeway users. The recommended priorities for implementation are the commuter and recreational loops and connections to the U.S. network. The update to the Trails and Cycling Master Plan recommends trigger project which include: completing walking trails on Millennium Trail, Mitchell Line, NS and T, downtown Trail, Grand Boulevard and Palmer Avenue. Bikeways are recommended on Drummond, St. Paul, Kalar, McLeod, Mountain and Morrison.

7. PARKING FACILITIES AND POLICIES

The 2003 Update to the Transportation Master Plan contained recommendations on the provision and coordination of parking in the tourist area. These included:

- The establishment of a Transportation Services Agency with representatives from the City and the NPC with the mandate to coordinate all transportation services in the community particularly the provision of services to tourists. This agency should develop and implement a parking strategy including provision, monitoring licensing and financial elements for parking and coordination of parking with the proposed People Mover System. (It was later decided by the City that this Agency was not necessary or desirable).

The People Mover Parking Strategy study prepared in 2003 made a number of conclusions and recommendations regarding the provision of parking to support the proposed People Mover System.
Those recommendations included the provision of up to 3,500 additional parking spaces located, operated, priced and managed in a manner to support the operation of the People Mover System. Those recommendations need to be reconsidered in light of the final approved plans for the People Mover System and most recent projections of tourist visitations and travel demand.

The Niagara Falls Downtown Parking Action Plan (2008) addresses the supply and demand for parking in the downtown area. The study recommends some increase to the supply of spaces in the downtown but that in order to achieve the transit modal split of 4% to 5%, parking should be supplied at a rate of 90% to 95% of the projected demand and that monthly parking rates should be set at least at the cost of a monthly transit pass. The City should maintain the capacity to replace the existing supply of parking with a parking structure in order to encourage and accommodate urban infill set out in the Urban Design study. A capital cost of approximately $1.8m (2008) for the structure could be recovered through user fees.

8. AIRPORT CONNECTIVITY

The latest Niagara Airports Study was completed in July of 2009. The purpose of the study was to determine if there is a role for the Region in the operation and financing of the Niagara District Airport or the Niagara Central Airport, determine a financial strategy for Regional involvement; review the governance structure for airports and set out a plan for transfer of responsibility. There are two public owned airports in the Niagara Region; Niagara District in Niagara-on-the-Lake and Niagara Central located in Welland. Both have been operating in parallel since the Second World War.

The report concluded that there is an ongoing requirement for an airport located within the Region to serve business and general aviation needs of residents and visitors alike and that Niagara District Airport is likely to continue to serve that role by providing services to recreational and flight training, tourism charter, medvac and regional business aviation segments and provide associated fuelling, maintenance and support services to the aviation community.

It is therefore logical to conclude that Niagara District Airport will be the primary local airport serving the tourist industry in Niagara Falls and that the development and evaluation of transportation alternatives in the Sustainable Transportation Master Plan must consider the need for and the alternative ways to improve road, transit and other modes of transportation between Niagara Falls and the Niagara District Airport.

9. SUMMARY

A number of conclusions can be drawn from the review of the background documents.

Land use development in Niagara Falls is constrained by Provincial policy which puts limits on the amount and type of growth that will occur in Niagara Falls. Recent amendments to the Regional Policy Plan and the Niagara Falls Official Plan have modified the growth forecasts for Niagara Falls to reflect Provincial policy. The modified growth forecasts are reflected in the land use forecasts prepared by the staff of Niagara Falls for input into the Sustainable Transportation Master Plan Study. The forecasts call for at least 40% of residential growth to occur through intensification within existing development areas.

Transit needs to be considered more of a priority in the development of additional transportation capacity in the urban areas. The recent Niagara Falls Transit Business Plan and Ridership Growth Strategy lays out a three phase plan for increasing transit services within Niagara Falls that reflects a limited growth in transit ridership. The Region has recently made a commitment to implement inter-city bus service from St. Catharines, Welland and Fort Erie to downtown Niagara Falls. The Province has recently implemented a GO train connection for tourists to the downtown VIA station and is studying the potential for full commuter service in the future. A decision was recently made to implement an improved people mover system to serve the tourist areas in the City. The challenge of the ongoing study will be to identify methods to integrate these various transit services and to expand the local, regional and inter-regional systems to capture a larger share of the transportation market and be a first priority in resolving existing and future traffic congestion.

The Province is either implementing or planning for **improvements to the transportation systems that connect Niagara Falls to the rest of the Province and to the international crossings.** These include the expansion of the QEW, and the proposed Niagara to GTA corridor. The ongoing study needs to be closely coordinated with the Niagara GTA corridor study.

Comprehensive plans for improvements to active transportation systems (bikeways and trails) are contained in both Regional and Municipal documents. The ongoing study needs to review the comprehensiveness of the proposed system, ensure it meets the needs of both residents and tourists and is connected to key traffic generators, attractions and transportation hubs, and identify the implementation priorities that will promote its increased use.

Past transportation master planning studies for Niagara Falls have **identified road improvements** to resolve traffic congestion and increase accessibility

throughout the City and particularly in the tourist areas. Many of these improvement s have been implemented others have not. The City of Niagara Falls has also identified a number of planned transportation improvements in area and mode specific studies. The ongoing master planning study needs to review the status of all the previously proposed projects, confirm the need for the projects in light of changes to land use policy and forecasts and set out an implementation program for the projects.

Parking is a major concern in Niagara Falls. The recently completed parking study for the downtown area sets out a comprehensive plan for that area. Although there was a parking study conducted as part of the People Mover Study, there remains a number of outstanding questions regarding parking in and around the tourist area including the need for, impacts of and alternatives to Valet parking which need to be addressed in the ongoing study.

Direct air transportation connections have played a limited role in serving Niagara Falls. It has been addressed to a limited extent in recent studies of the two municipal airports in Niagara with the conclusion that Niagara District Airport in Niagara-on-the-Lake is best suited to provide any charter service to the tourist industry in Niagara Falls. The ongoing study can review the potential for charter service and address connectivity between the airport and the tourist areas in Niagara Falls.

Appendix A

Summaries of Relevant Documents

This appendix contains summaries of the following relevant documents:

1. Provincial Policy Statement
2. Places to Grow - Growth Plan for the Golden Horseshoe
3. Greenbelt Plan
4. Regional Niagara Sustainable Community Policies: Places to Grow/ 2005 Provincial Policy Statement Conformity and Niagara 2031 Amendment
5. City of Niagara Falls Official Plan
6. City of Niagara Falls Comprehensive Review of Residential and Employment Land Needs Analysis
7. City of Niagara Falls Growth Management Position Papers
8. N.F. - O. P. Amendment AM-02/2010
9. Niagara Falls Brownfield Community Improvement Plan
10. Historic Drummondville Community Improvement Plan
11. Niagara's Transportation Strategy
12. Niagara Falls Transportation Master Plan (1998)
13. Update to the Niagara Falls Transportation Master Plan (2003)
14. Niagara Parkway Study Concept Plan and Planning Guidelines
15. Niagara Falls Downtown Parking Action Plan
16. Niagara GTA Corridor Planning Environmental Assessment Study
17. Niagara Falls Transit Business Plan and Ridership Growth Strategy
18. Business Case for the Proposed Niagara Falls People Mover System
19. Inter-Municipal Transit Work Plan
20. Niagara Peninsula Rail Service Expansion Class EA Study
21. Niagara Region Bikeways Master Plan 2003
22. Trails and Cycling Master Plan Update 2005
23. People Mover Parking Strategy for Niagara Falls People Mover System
24. Dorchester Road and Morrison Street Class Environmental Assessment V1
25. Railway Grade Separation Class Environmental Assessment
26. South Niagara East-West Arterial Road Corridor Environmental Assessment Study
27. Transportation Sustainability Review
28. Niagara Airports Study
29. 2000 Niagara Frontier Traffic Survey
30. 2007 Niagara Bridge Survey

Document: **Provincial Policy Statement (PPS)**
Dated: March 1, 2005
Prepared by: Province under the Provincial Planning Act

Background:
The Policy statement was issued under authority of Section 3 of the Planning Act. It provides guidance on matters of provincial interest related to land use planning and development.

Issues Addressed:
The policy statement includes enhanced policies on the following issues:

- Efficient use and management of land and infrastructure
- Protection of the environmental resources
- Ensuring appropriate opportunities for employment and residential development

Pertinent Information:
Key policy statements in the PPS that deal with transportation include the following:

- Infrastructure and Public Service facilities shall be provided in a coordinated, efficient and cost effective manner to accommodate projected needs
- Planning for infrastructure and public facilities shall be integrated with the planning for growth so that these are available to meet current and projected needs
- Use of existing infrastructure and public service facilities should be optimized whenever feasible, before consideration is given to developing new infrastructure and public service facilities
- Infrastructure and Public Service facilities should be strategically located o support the effective and efficient delivery of emergency management services
- Where feasible, public service facilities should be co-located to promote cost-effectiveness and facilitate service integration
- Transportation systems should be provided which are safe, energy efficient, facilitate the movement of people and goods, and are appropriate to address projected needs
- Efficient use shall be made of existing and planned infrastructure
- Connectivity within and among transportation systems and modes should be maintained and, where possible, improve connections that cross jurisdictional boundaries
- Transportation and land use considerations shall be integrated at all stages of the planning process
- Planning authorities shall plan for and protect corridors and rights of way for transportation to meet current and projected needs

- Planning authorities shall not permit development in planned corridors that could preclude or negatively affect the use of the corridor for the purposes for which it is planned
- The preservation and reuse of abandoned corridors for purposes that maintain the corridors integrity and continuous linear characteristics should be encouraged wherever feasible
- When planning for corridors and rights-of-way for significant transportation and infrastructure facilities, consideration will be given to significant natural heritage resources, water resources, mineral and petroleum resources, cultural heritage and archaeology resources

Relevance to Study:
The PPS provided overall guidance on the approach to conducting the study and the way alternatives are generated and evaluated. The guidelines have been incorporated into the study analyses of land use and travel forecasts.

Document: **Places to Grow - Growth Plan for the Golden Horseshoe**
Dated: June 2006
Prepared by: Ministry of Public Infrastructure Renewal Province of Ontario

Background:
The Minister of Public Infrastructure Renewal released the final *Growth Plan for the Greater Golden Horseshoe* in June 2006.

General Information:
The *Growth Plan* outlines a set of policies for managing growth and development and guiding planning decisions in the Greater Golden Horseshoe over the next 25 years. This broad based plan represents a planning "vision" for the Province of Ontario. As a part of this vision, the *Growth Plan* outlines a strategy for "Where and How to Grow", "Infrastructure to Support Growth", "Protecting What is Valuable" and "Implementation and Interpretation". The *Growth Plan* indicates that planning decisions made by the Province, municipalities and other authorities would have to conform to the policies contained in the *Growth Plan*.

The Greater Golden Horseshoe (GGH) region which encompasses the GTA and a large part of southern Ontario, including Niagara is considered one of the fastest growing regions in North America and the Growth Plan for the GGH provides a framework for building stronger, prosperous communities by better managing growth until the year 2031, and serves to guide decisions on a wide range of issues including: economic development, transportation, land-use planning, urban form, housing, natural heritage and provincial infrastructure planning.

The Growth Plan provides density targets for intensification areas and designates twenty-five Urban Growth Centers across the GGH which will be panned as focal areas for investment and population and employment growth. This will also help to promote transit-supportive densities and a healthy mix of residential and employment land uses.

The Growth Plan recognizes that the transportation systems need to offer a balance of transportation choices that reduce reliance on a single mode and promote transit cycling and walking and provide connectivity among transportation modes for moving people and for moving goods.

The Growth Plan identifies St. Catharines as an urban growth center and Niagara Falls as part of the Gateway Economic Zone with links to the U.S.

Pertinent Information:

- Plan has policies to:
  - Direct growth to built up areas
  - Promote transit supportive land use densities
  - Preserve employment lands for economic opportunities
  - Plan community infrastructure to support growth
  - ensure water and waste water available
  - conserve natural systems and agricultural lands

    - protect and conserve water, energy, air and cultural heritage and integrate waste management
- A significant portion (minimum of 40% of population growth after 2015) of population and employment growth must be accommodated through intensification of existing built up areas
- All municipalities must incorporate intensification targets into their plans that are consistent with and adopt urban boundaries consistent with the policies set out and delineated in this document
- Urban growth centers are designated in the document
- Specific population and employment targets are set out for upper tier municipalities. Lower tier municipalities must conform to targets set forth by upper tier.
- Forecasts will be reviewed and revised every five years
- By the year 2015 and for each year thereafter a minimum of 40% of all residential development occurring annually within each municipality will be accommodated within the built up area
- Municipalities will establish intensification targets and recognize urban growth centers, intensification corridors and major transit station areas as key focus for development to accommodate intensification. Major transit areas and intensification corridors will be designated in official plans.
- In recognition of the importance of cross-border trade with the US, the Plan recognizes a Gateway Economic Zone and Gateway Economic Center near the Niagara – US border. Planning and economic development in these areas will support economic diversity and promote increased opportunities for cross border trade, movement of goods and tourism.
- Public transit will be the first priority for transportation infrastructure planning and major transportation investments
- Transit will be planned to shape growth, increase modal split, support high density, ensure efficiency and viability of existing and planned transit services, and facilitate linkages from neighborhoods to urban growth centers, major transit station areas and other intensification areas

Implications:

- Population and employment forecasts are contained in schedule 3 of the Plan
- Niagara is forecast to have a population of 511,000 people and employment of 218,000 by the year 2031. The table (Schedule 3 of The Growth Plan for the Golden Horseshoe) has interim year forecasts for 2021 of 474,000 and 209,000.
- Downtown St. Catharine's is designated as an urban growth center with density of 150 residents and jobs per hectare
- Niagara Falls is designated as part of the gateway economic zone
- Land use forecasts prepared for this study must conform to the growth and density guidelines provided by this policy statement

Relevance to Study:
The growth targets have been incorporated into the Region's Amendment 2-2009 which are used as the basis for land use and travel demand forecasts in this study.

Document: **Greenbelt Plan**
Dated: 2005
Prepared by: Province

Background:
The *Greenbelt Plan*, introduced in 2005, provides direction on where urbanization should and should not occur in southern Ontario. The Greenbelt builds upon the existing policy framework established within the Provincial Policy Statement. The Plan involves and builds upon the ecological protection policies provided by the Niagara Escarpment Plan (NEP) and the Oak Ridges Moraine Conservation Plan (ORMCP).

Pertinent Information:
The Greenbelt Plan designates a large area, including much of Niagara for protection under policies that:

- Protect against the loss and fragmentation of the agricultural land base and supports agriculture as the predominant use
- Give permanent protection to the natural heritage and water resource systems that sustain ecological and human health and that form the environmental framework around which major urbanization in south central Ontario will be organized
- Provide for a diverse range of economic and social activities associated with rural communities, agriculture, tourism, recreation and resource uses
- The Greenbelt Plan identifies the importance of infrastructure to the economic well-being, human health and quality of life in southern Ontario and the Greenbelt. Policies within the Greenbelt Plan acknowledge the existence of infrastructure and the need to maintain and create new infrastructure to continue serving existing and permitted land uses within the Greenbelt
- Recognize that major infrastructure serving national, provincial and inter-regional needs traverse the Greenbelt, and the Greenbelt Plan anticipates that new and/or expanded facilities will be needed in the future to serve the substantial growth projected for southern Ontario.

Relevance to Study:

- Land use forecasts used in the Niagara Falls study must conform to the restrictions of land use outlined in the Greenbelt Plan.
- Plans for new transportation facilities and/or improvements to existing transportation facilities must conform to the policies of the Greenbelt Plan.

Document: **Regional Niagara Sustainable Community Policies: Places to Grow/ 2005 Provincial Policy Statement Conformity and Niagara 2031 Amendment**
Dated: May 2009
Prepared by: Region of Niagara

Background:
This is an amendment to the Regions Policy Plan for the purpose of aligning the Region's Policy Plan with the Provinces Places to Grow Plan (2006) and the Provincial Policy Statement (2005). It also establishes a new urban vision to guide growth and development in Niagara to the year 2031.

Policy Approach:
The Amendment replaces the urban policies, adds new policies regarding the Niagara Economic Gateway and infrastructure and replaces the Urban Area Boundary map with a Regional Urban Structure map.

Sustainable Vision:
The following objectives are basis for policy:

- Compact, vibrant , integrated and complete communities
- Plan and manage growth to support strong competitive and diverse economy
- Protect, conserve, enhance and wisely use valuable resources of land, air, energy and water for current and future generations
- Maximize use of existing and planned infrastructure to support growth in a compact and efficient manner
- Provide flexibility to manage growth in Niagara that recognizes diversity of communities
- Promote collaboration and cooperation among governments, institutions, businesses, residents and not for profit organizations to achieve vision and objectives

Issues Addressed:
- Urban structure
- Settlement areas
- Designated Greenfield areas
- Downtown St. Catharines urban growth center
- The Niagara Economic gateway
- Growth management targets
- Intensification targets for the municipalities

Pertinent Information:
- Regional targets for 2031 set out as:
    - Population of 545,000
    - 221,240 Households
    - Employment of 243,540

- Targets for Niagara Falls set out as:
  - Population of 106,800
  - 42,740 Households
  - Employment of 53,640

Relevant Transportation Policies:

- Ensure that corridors are identified and protected to meet current and projected needs for various modes of travel including active transportation
- Support opportunities for multi-modal use where feasible; in particular, prioritizing transit and goods movement needs over those of single occupant automobiles
- Consider increased opportunities for moving people and goods by rail, where appropriate
- Consider the separation of modes within corridors, where appropriate
- For goods movement corridors, provide for linkages to planned or existing intermodal opportunities where feasible
- Develop transportation demand management policies to be incorporated into the Regional Policy Plan
- Local municipalities are encouraged to develop transportation demand management policies to be incorporated into local official plans
- Local municipalities to create a network of safe, attractive active transportation linkages, and provide related amenities such as sheltered walking areas and landscaped areas to enhance active transportation experiences. On-road and off-road linkages for cycling are particularly encouraged. Wherever opportunities are available, consideration should be given to enhancing connectivity between communities and neighbourhoods.
- Within urban areas, the requirement for road reconstruction and rehabilitation and sewer and water works should be viewed as an opportunity to improve the public realm within the section of roadway under consideration
- An Environmental Assessment for a transportation project should include consideration of opportunities to improve the living environment of existing residents adjacent to the street and within the adjacent neighbourhood; i.e. noise attenuation
- Public transit will be the first priority for transportation infrastructure planning and major transportation improvements for moving people in Niagara
- The Region will make recommendations on transit planning according to the following criteria:
  - Using transit infrastructure to shape growth, and planning for high residential and employment densities that ensure the efficiency and viability of existing planned transit service level
  - Placing priority on increasing the capacity of existing transit systems to support intensification areas

  - Expanding transit service to areas that have achieved, or will be planned to achieve transit supportive residential and employment densities, together with a mix of residential, office, institutional and commercial development wherever possible.
  - Facilitating improved linkages from nearby neighbourhoods to the St. Catharines Urban Growth Centre and locally designated residential intensification areas.
  - Developing transit linkages among the settlement areas in Niagara and with settlement areas outside the Region
  - Increasing the modal share of transit in Niagara
  - Supporting multi-modal transportation where feasible
- The Region and the local municipalities will ensure that pedestrian and bicycle networks are integrated into transportation planning to:
  - Provide safe, comfortable travel for pedestrians and bicyclists within and between existing communities and new development
  - Provide linkages between intensification areas, adjacent neighbourhoods, and transit stations, including dedicated lane spaces for bicyclists on the major street network where feasible
  - Encourage provision of appropriate and sufficient bicycle parking facilities at major transit nodes and public and private facilities

Relevance to Study:

- Study to be conducted using the population, employment household and intensification targets identified in this Amendment
- The identification and evaluation of transportation alternatives will be conducted in compliance to the relevant policies included in this Amendment

Document: **City of Niagara Falls Official Plan**
Dated: Approved October 1993 – Amended January 2010
Prepared by: Planning and Development Department

Purpose of the Plan:
The Official Plan (OP) is a document approved by the Minister of Municipal affairs that provides a comprehensive framework for development and redevelopment of lands. The OP also sets out a public works program which guides the City's growth and development in an orderly and efficient manner. The Plan incorporates the broad concepts of the Regional Municipality of Niagara's Policy Plan and relevant Provincial and Federal legislation. The findings of various studies have been incorporated into the OP including the Recreation Master Plan, the Tourism Master plan, various tourism reports, Commercial/Office opportunities Study, the Greening Plan and other land use, economic and demographic inventories.

Plan Organization:
The Plan is organized into the following major parts:

- Preamble sets out purpose and basis of Plan
- Land Use Policies establishes 12 land use designation with extensive policies for the implementing those designations
- Environmental Management contains policies related to environmental matters including policies to guide the implementation of municipal infrastructure including transportation
- Administration and Implementation highlights planning tools for implementation
- The Appendices contain definitions and maps identifying areas such as Landfill sits, woodlots and potential aggregate areas

Pertinent Information:
Section 3 contains policies on infrastructure including transportation. The following are considered pertinent to transportation studies:

- The road network is shown in Schedule 3 of the OP. The purposed of the road network is to enable motorists to move with ease and reach destinations in the City, but also to serve as a pedestrian and bicycling realm and contribute to the urban character of the street.
- A hierarchy of roads includes:
    - Provincial Highways
    - Niagara Parkway
    - International crossings
    - Arterial roads (Regional and City)
    - Collector roads
    - Local Roads
- Road rights-of-way are noted generally in policies 1.4.2.4 to 1.4.2.6 and are listed for specific arterial and collector roads in policy 14.19

- There are Policies for property dedication for roads and daylight triangles which consider the needs of vehicular traffic as well as of pedestrians, cyclists and transit
- The City will plan and operate transit so that the core area and centers of commerce are the primary focal points to provide transit
- It is desirable for public transit services be encouraged in proximity to higher density residential developments, areas of high employment concentration, major medical and social service centers, housing centers for people with special needs and social amenity areas and attractions
- All development and redevelopment will provide adequate parking including parking for handicapped persons
- On street parking is generally to be prohibited on sections of arterial and major collector roads where it interferes with safe and efficient operation of the road network
- Council may consider cash in lieu of parking, as required by by-law and use monies for use in the provision of additional parking spaces
- Major pedestrian destinations will be linked by pedestrian and bicycle paths and sidewalks along certain roadways
- Council shall seek to eliminate railway grade crossings on a priority basis with financial assistance of appropriate authorities
- Where appropriate Council shall seek the elimination of railways within the City

In addition there are policies in the land use section that have potential implications on the transportation choices available in the City.

- Policies 4.9.9 through 4.1.12 deal with the implementation of a people mover system utilizing the recently abandoned CP rail corridor in the core and tourist area. There are general guidelines for the design and location of the facility.
- Policies 4.1.13 through 4.1.17 deal with the implementation of a Grand Boulevard linking the tourist districts. It would provide for the extension of Victoria Avenue southerly to Robinson Street and then to Buchanan thereby connecting the existing activity node at Clifton Hill to the new Portage Road link between Marineland and Rapidsview and Fallsview.
- Policies 4.3.2 to 4.3.4 identify a series of entrance gateways to the City's tourist districts
- Policies 4.3.5 to 4.3.10 deal with the circulation system and streetscapes in the tourist districts with directions to guide the use and design of those streets

Relevance to Study:
The OP lays out policies that will influence the identification and evaluation of alternative transportation solutions in the Sustainable Transportation Master Plan. The policies of the plan will limit the uses that can be accommodated in road allowances and provide guidance for other use of transit and the design of pedestrian and cycling facilities.

Document: **City of Niagara Falls Comprehensive Review of Residential and Employment Land Needs Analysis**
Dated: October 2007
Prepared by: urbanMetrics
Reviewer: J. Barr

Purpose:
This report is a comprehensive review of potential growth in the City. It was prepared as the first input into a wider Growth Management Study later prepared by the City.

Issues Addressed:

- Housing demand forecasts looked at need for the next twenty five years
- Existing supply of lands and development approvals
- Development applications and approvals
- Employment land requirements
- Conversions of industrial lands
- Urban Boundary expansion

Recommendations:
The following are the key recommendations that came out of the analysis:

- That the existing urban boundary for the City of Niagara Falls be maintained without modification
- That the Warren Woods application in the Westland Planning Community be considered an appropriate and efficient use of urban greenfield lands. It is recommended that the City of Niagara Falls move forward with this application for an Official Plan Amendment to establish new residential uses on lands west of the Provincially Significant Wetland that are now designated in the Official Plan as "industrial", however that lands to the east of Provincially Significant Wetland extending easterly to Montrose Road and the QEW be maintained in accordance with their current "industrial" designation.
- No residential development shall commence on any portion of the re-designated portion lands Warren Woods lands prior to the successful completion and approval of the City led Secondary Plan
- That the portion of the Warren Woods application that are already zoned and designated "residential" be initiated and developed in advance of the redesignated portion of the subject lands
- That the Thundering Waters application in the Drummond Planning Community for a comprehensively planned residentially oriented community be considered as an appropriate and efficient use of lands inside the urban boundary, and that the subject lands be re-designated for residential oriented uses
- That Secondary Planning study area be established that includes the Thundering Waters lands in their entirety, plus any other

neighbouring areas (that are deemed appropriate by the City) that will contribute toward the development of a complete community

- The Secondary Plan for the Thundering Waters area be conducted simultaneously with any Municipal Class EAs related to new municipal infrastructure required to support residential growth
- That the Thundering Waters Secondary Plan incorporate the appropriate phasing that stages development from north to south
- That Schedule B of the City of Niagara Fall's Official Plan be amended to incorporate the Thundering Waters Lands as a distinct serving area
- That vacant and available industrial land in the Stanley Avenue Business Park and the Montrose Business Park be promoted as the primary location for new and expanding industrial-oriented businesses in the City of Niagara Falls
- That vacant industrial land parcels in the west-end of the City (generally bounded by McLeod Road, Chippawa Creek Road, Thompson Creek and Thorold-Town Line Road) be maintained for strategic, long term industrial and economic development purposes
- That the existing vacant industrial lands in the northwest quadrant of the QEW and Lyon's Creek Road /Biggar Road be maintained for long-term industrial land development purposes
- That urban boundary expansions in the City of Niagara Falls not be considered at this time, and that all municipal planning and servicing resources for purposes of residential growth be directed exclusively toward land inside the urban boundary
- That the lands referred to in this report as the Northwest Community Landowners Group (NCLG) be maintain as per their current rural designation ("Good Agriculture")

Relevance to Study:
The above recommendations have been incorporated into the City's Growth Management Plan, the O.P. Amendment and the land use forecasts used as the basis for the Sustainable Transportation Master Plan Study.

Document: **City of Niagara Falls Growth Management Position Papers**
Dated: 2009
Prepared by: City of Niagara Falls Planning and Development Services

Purpose:
This report was prepared to review growth management options necessary to reflect the changes in Provincial legislation and the growth targets of the Provincial Growth Plan for the Golden Horseshoe and the Regional Policy Plan.

Issues Addressed:

- The Provincial Growth Plan was reviewed
- The strategy was to amend the City's Official Plan (OP) to reflect Option D projections prepared by the Region
- The Official Plan policies to implement the concept of inwards, upwards and then outwards
- Private applications that pre-date the approval of the Growth Plan for the Greater Golden Horseshoe continue to be processed outside the City's Growth Amendment
- OP to include criteria for determining urban boundary expansions
- Current supply of industrial land be maintained
- Term "employment lands" be used
- Undertake review of land south of Welland River and east of QEW
- Current extent of lands designated commercial be maintained
- Schedule B of OP be updated to reflect anticipated growth pattern
- Establish phasing plans for development and capital works investment

Pertinent Information:
This paper sets the framework for Amendment 02-2010.

Relevance to Study:
The information in this report is reflected in Amendment 02-2010 which sets out the growth and policies that must be incorporated into the Transportation Master Plan.

Document: **N.F. - O. P. Amendment AM-02/2010**
Dated: April 27, 2010
Prepared by: City of Niagara Falls

Purpose:
This amendment to the Official Plan was prepared to reflect the changes in Provincial legislation and respects the growth targets of the Provincial Growth Plan for the Golden Horseshoe and the Regional Policy Plan. The Plan as amended brings the Official Plan of Niagara Falls into conformity with the Regional Policy Plan.

Issues Addressed:
The Amendment contains specific growth objectives as follows:

- To direct growth to Urban Area and away from non-urban area
- To protect Natural Heritage Areas and their function from growth
- To support increased densities and the efficient use of infrastructure within the built up section of the Urban Area
- To design for proper phasing of infrastructure and development within Greenfield areas
- To meet growth targets set out by Province and Region
- To direct 40% of new development into the Built up area
- To develop Greenfield areas as compact, complete communities with a range of housing types
- To encourage alternative forms of transportation
- To make most efficient use of infrastructure through phasing policies
- To limit the urban supply to a 20 year time horizon and to maintain a minimum 10 year supply of land through intensification and Greenfield development
- To provide supply of serviced lands capable of supplying 3 years of residential development in draft approved and registered plans of subdivision
- To protect prime employment lands for long term needs in Tourist Commercial and Industrial designations and to identify the Gateway Economic Zone
- To utilize urban design criteria and guidelines with future growth to guide development into a transit and pedestrian friendly, sustainable and livable city

Pertinent Information:
The Amendment contains a number of specific policy changes to guide the implementation of the above objectives. There are comprehensive changes to:

- General policies guiding land use
- Policies defining the extent and the land uses within the Built Up Area

- Policies defining the extent and the land uses within the Greenfield Area
- Policies dealing with the phasing of development in both Greenfield and built up areas
- Policies guiding the provision of water and sanitary sewers and storm drainage
- Policies on transportation including:
    - Specification of a modal split target of 3.2 %
    - Planning for bikeways on arterial and collector roads
    - Expansion of GO service into Niagara Falls
    - Promotion of Active Transportation and trail systems
- A comprehensive set of urban design policies that emphasize streets as public space to be designed to accommodate pedestrians and cyclists
- Appropriate changes to schedules to reflect policy changes

Relevance to Study:
This Amendment sets out the growth and policies that must be incorporated into the Transportation Master Plan.

Document: **Niagara Falls Brownfield Community Improvement Plan (CIP)**
Dated: February 2006
Prepared by: RCI / GSP / Acres

Background:
There are a significant number of "Brownfields" in the older industrial areas of Niagara Falls and throughout the urbanized area. A Brownfield is defined as abandoned, vacant, derelict, idled, or underutilized industrial or commercial property in the urban area with an active potential for redevelopment where the redevelopment is complicated by real or perceived environmental contamination, building deterioration, obsolescence, and/or inadequate infrastructure.

Purpose:
The purpose of the CIP is to provide a framework of incentive programs and municipal actions that will promote the remediation and adaptive reuse and overall improvement of Brownfield properties throughout Niagara Falls.

Issues Addressed:
- Rational for Brownfield redevelopment in Niagara Falls including economic, social and environmental benefits and fit with Smart Growth
- Goals of the CIP include reduction of sprawl, improved visual and environmental quality of development, improved tax base, retention and growth of employment, environmental health and public safety
- Legislative authority under the Planning Act, Municipal Act, Provincial Policy Statement and Niagara Falls OP
- A critical needs analysis looked at: geographic distribution, impediments, and opportunities.
- Identified the Urban Area as boundary for CIP and a Pilot Project area for highest priority
- Identifies financial incentives for promoting redevelopment of Brownfield including environmental study grants, tax assistance programs, rehabilitation grant program,
- Lists general requirements to qualify for program
- Proposes a Brownfield development charges exemption program
- Sets out guidelines for identifying priority sites and projects
- Recommends a program for monitoring the implementation and success of program

Relevance to Study:
The objectives of the CIP are incorporated into the land use and travel forecast used in the Niagara Falls Sustainable Transportation Master Plan Study (NFSTMPS). The identification and evaluation of alternatives in the NFSTMPS will consider any specific proposals for Brownfield redevelopment.

Document: **Historic Drummondville Community Improvement Plan**
Dated: October 2006
Prepared by: RCI / MMM / du Toit Allsopp Hiller

Issues Addressed:

- Study prepared to develop a Community Improvement Plan (CIP) for the Main Ferry Area
- Purpose is to provide a framework to guide public sector investment and to stimulate private sector investment in area
- Plan prepared with comprehensive public consultation, numerous meetings, and feedback from Technical Advisory Committee
- Report does the following:
    - Defines appropriate area
    - Develops land use plan
    - Develops conceptual urban design guidelines
    - Develops package of financial incentives
    - Plan for physical improvements

Pertinent Information:

- policy framework
- analyses identifying critical needs
- defines area and sub areas
- vision which was used in land use plan and design guidelines
- summarizes land use plan and urban design
- tool kit of incentive programs
- other actions required for implementation including Figure 9.1 which lists targeted improvements, identifies responsibility, stakeholders and timing

Targeted Improvements and Actions:
Items on action list of concern to transportation planning include:

- The promotion of connectivity between Fallsview and Historic Drummondville with changes to intersection of Main with Stanley and renaming of Murray east of Stanley
- Revise street system in OP to identify Retail Street designation of Main and Lundy's Lane
- Study to create pedestrian linkages between Vintner's market and Battlefield Precinct
- Review location and supply of publicly and privately owned parking lots
- Seek out sponsors to help fund streetscaping and gateway improvements

Recommendations:
Report is a guideline for implementation and could be treated as a reference document with recommendations throughout.

Relevance to Study:
The identified road improvements and pedestrian connections from this plan should be incorporated into the Niagara Falls Sustainable Transportation Master Plan Study.

Document: **Niagara's Transportation Strategy**
Dated: January 2002
Prepared by: Region of Niagara

Background:
The strategy identifies the strategic directions, key transportation initiatives and specific objectives to guide the implementation of important transportation decisions in Niagara. The strategy provides a framework for developing transportation systems but does not provide specific details on transportation solutions.

Issues Addressed:
The strategy identifies a number of priority transportation initiatives that should be pursued by the Region as listed below:

- Construction of a Mid- Peninsula Transportation Corridor in the southern tier of the municipality
- Expansion of the QEW to 6 lanes
- Extension of Highway 406
- Improved arterial road system
- Expanded transit services for the physically- and mobility-challenged in Niagara
- Improved passenger services between Niagara and GTA
- Integration of transit and other passenger services
- Improved railway facilities to meet needs of passengers, business and industry
- Establishment of a Port Authority in Niagara
- Development and promotion of Niagara's airports and
- An integrated system of bikeways across Niagara

Pertinent Information:
Many of the initiatives listed in this strategy are underway or more comprehensive studies have been completed that provide details on how the initiatives will be implemented.

Relevance to Study:
The basic elements of this strategy and the more detailed implement steps outlined in follow up studies need to be considered when developing and evaluating transportation alternatives and systems in the Sustainable Transportation Master Plan.

Document: **Niagara Falls Transportation Master Plan (1998)**
Dated: **September 1998**
Prepared by: **TSH**

Issues Addressed:

- Study encompasses all aspects of mobility of people and goods throughout the City including road, transit, people mover and TDM/TSM
- Study area is entire City

Pertinent Information:

- Assessments of traffic requirements on the road system with particular attention to:
  - Thorold Stone Road and QEW interchange reconstruction
  - Thorold Stone Road widening
  - Stanley Avenue – widen to four lanes 420 to Valley Way, six lanes 420 to Dunn Street, four lanes Dunn Street to Marineland Parkway McLeod to Portage, to Lyons Creek with widening Welland River bridge.
  - Allendale – extend from North Street to Dunn Street
  - Buchanan – from North Street to Dunn Street as arterial standard
  - Victoria Avenue 420 interchange improvements
  - Widening QEW 405 to 420
  - Crossing of Hydro canal between Falls industrial area and Oakwood Drive
  - Visitor signing plan for City and Regional roads
  - Pedestrian connections in tourist area
  - Bicycle and multi-use trail system
  - Portage to four lanes Marineland Parkway to upper Rapidsview Boulevard
  - Hwy 20/Roberts Street – physical improvements and streetscaping, intersection (design to consider grade separation) improvements at Stanley ramp improvements to Victoria Avenue
  - McLeod Road – improvements and turning lanes at key intersections
  - Lyons Creek Road – upgrade to arterial road standard, intersection improvements at Stanley Ave
  - Taylor Road upgraded to arterial to support District Airport
  - Montrose to four lanes with auxiliary lanes for local traffic
  - New four-lane arterial connection between Thorold Stone and Bridge Street
- Transportation Demand Management (TDM)
  - Transit, parking, signing, bicycling, pedestrian improvements and operational improvements
  - Marketing strategy

- Possible auto zone
- Trails and bikeways
  - Map shows all potential bikeways
  - Bike routes not be signed
  - Recommend commuter loops and of road recreational loops be given priority
  - Look for possible linkages to US system of bikeways
- Parking Strategy
  - Transportation Committee
  - Need for parking in tourist area to be oriented toward People Mover System
  - Parking remains at Table Rock

- Signage
  - Include special signage for people mover parking lots
  - Trail blazer signs to tourist districts and casinos
- Transit
  - Single Transportation Service Agency to oversee people mover implementation and coordination of public transit services and fare integration
  - People Mover System

Recommendations:

- Structural road improvements listed in Table 1-1 of report
- Environmental Assessment requirements list in table 3-1

Relevance to Study:

The recommendations from this study are to be considered when developing and evaluating alternatives in Sustainable Transportation Master Plan.

Document: **Update to the Niagara Falls Transportation Master Plan(TMP), 2003**
Dated: **February 2003**
Prepared by: TSH

Issues Addressed:

- Study prepared as a result of development proposals and Pressures in the Tourist Area (PTA)
- Study area restricted mainly to PTA
- Key issues addressed include the following:
    - Corridor for proposed Grand Boulevard
    - Road and intersection improvements to permanent casino complex
    - Revised parking strategy incorporating implementation of People Mover
    - Planning and operation issues in Hwy 420 corridor
    - Improvements to city wide street network including McLeod Road and connections between Stanley Avenue and Whirlpool Bridge
    - Official Plan amendments and new policies related to transportation and parking features

Pertinent Information:

- Assessments of traffic requirements on the road system with particular attention to:
    - Hwy 20/Roberts Street – physical improvements and streetscaping, intersection (design to consider grade separation) improvements at Stanley ramp improvements to Victoria Avenue
    - McLeod Road – operational improvements at key intersections
    - Lyons Creek Road – upgrade to arterial road standard
    - Stanley Avenue – widen 420 to Bridge Street; reconstruct Thorold Stone to 405; widen to four lanes McLeod to Portage; six lanes 420 to North Street; four lanes McLeod to Lyons Creek
    - New four-lane arterial connection between Thorold Stone and Bridge Street
    - Road improvements in tourist area outlined in Table 11-1 of report and includes:
        - Thorold Stone Road- Bridge Street- Whirlpool Bridge
        - Murray Street
        - Allendale- Buchanan
        - Allendale Avenue
        - Main Street
        - Dixon Road
        - Dunn Street

        - Portage Road
        - Buchanan Avenue
        - Grand Boulevard
        - Portage Road
        - Queen Victoria Park
- Parking Strategy
    - Transportation Service Agency
    - Need for comprehensive parking study in tourist area
    - Changes to parking facilities related to implementation of upgraded People Mover System
- Signage
    - Include special signage for People Mover System parking lots
    - Trail blazer signs to tourist districts and casinos

- Transit
    - Transportation Service Agency to oversee people mover implementation and coordination of public transit services and fare integration.
    - Routes to be coordinated with People Mover System and new developments
- Trails and Bikeways
    - Supports plans of previous TMP
    - Improvements for pedestrian facilities to be incorporated into all EA studies for improvements to roads

Recommendations:

- Transportation Service Agency to coordinate provisions of transportation services to visitors
- Improvements to network under jurisdiction of City, Region and MTO
- Road improvements in PTA
- Parking Strategy associated with implementation of People Mover System
- Signage Strategy reviewed and confirmed
- Coordination of transit in PTA
- Guidelines for planning and design of pedestrian and bicycle facilities in PTA

Relevance to Study:

Findings and recommendations from the 2003 Master Plan should be reviewed and updated in the ongoing Master Plan.

Document: **Niagara Parkway Study Concept Plan and Planning Guidelines**
Dated: **February 2002**
Prepared by: Earth Tech

Issues Addressed:

- Study develops a concept plan and related guidelines for portion of Parkway lands within Niagara-on-the-Lake (NOTL)
- Developed by NOTL in cooperation with Region and Niagara Parks Commission
- Study sub areas include: South boulevard, Niagara gorge area and the North Boulevard
- Study outlines function of Niagara Parkway

Pertinent Information:

- Key information guiding the study includes the following:
    - Relevant Provincial Land use policies
    - 1988 memo of understanding (MOU) between Niagara Parks Commission (NPC) and abutting municipalities to facilitate development of land use guidelines within the Regional and municipal planning schedules
    - Niagara Parkway – Controlled Access Highway Guidelines to the Niagara Parkway Act requires permits for specific land uses within set distances of the Parkway as well as access to the Parkway
    - Niagara Parks Commission has operational policies that include a sign policy (November 20, 1998)
    - Regional Policy Plan
    - NOTL Official Plan shows the NPC lands as conservation
    - NPC does not support access to any additional industrial or commercial development along the parkway due to potential impacts of traffic flows on the Parkway
    - Niagara River recreational trail (multi-use) travels entire length of Parkway from NOTL to Fort Erie
    - Upper Canada Heritage trail is a multi-use trail along converted railway line paralleling Railway Street
    - Data suggests that the Parkway is operating at or near full capacity during peak periods
    - Signage on Parkway designed to maintain scenic nature of road
- Study contains inventory of land uses along Parkway in NOTL

Recommendations:

- Guidelines address the necessary controls on land use development and changes along the Parkway

- There are general recommendations to improve signage along Parkway that should be reviewed and considered as part of the Niagara Falls Sustainable Transportation Master Plan (NFSTMP)
- There was no intent from the start for the study to redesign the roadway to provide additional traffic capacity; therefore, study considered traffic impacts of concept plan to be a major consideration

Relevance to Study:
The NFSTMP must develop transportation solutions that recognize the constraints imposed by the planning guidelines for the Niagara Parkway.

Document: **Niagara Falls Downtown Parking Action Plan**
Dated: **May 2008**
Prepared by: IBI Consulting

Issues Addressed:
The Parking Action Plan deals with parking in the downtown area and follows the community Improvement Plan prepared in 2004.
The Parking Action Plan outlined in this report addresses the following critical questions:

- How much parking will be required?
- Who should it be provided by?
- Where should it be located?
- How much will it cost?
- How will it be financed?
- What critical steps are required to achieve success?

The report addresses the following issues:

- The health of the current parking operation (Downtown and City Wide)
- Re-examine and re-affirm the Parking Strategic Plan adopted by Council in 1995
- Review existing parking policies and practices
- Reinforce the user pay philosophy/concept
- Develop a set of Guiding Principles for a ten-year financial plan

Pertinent Information:
Report contains the following:

- Parking inventory and conditions in downtown
- History of parking provision in the downtown area
- Summary of past studies
- Approximately 524 of the 710 municipal and City Hall owned parking spaces are leased to customers on a monthly basis; 241 of these spaces are located in City Hall lots and the remaining 283 spaces are located in the municipal parking lots
- On-street operation is comprised of 625 parking spaces where approximately 35% or 225 spaces have a user fee associated with them and the remaining spaces are free of charge and permit parking
- Downtown Niagara Falls has approximately 1,690 private parking spaces associated with various buildings and used by employees and customers of the commercial uses in Downtown
- Approximately 1,170 parking spaces were occupied during the daytime peak period (11:00 a.m.) which equates to approximately 40% of the supply
- The visitor parking permit allows the holder to parking on streets in areas posted “No Parking, Except by Permit” for a maximum period of four hours

- Annual gross parking revenue for Downtown Niagara Falls is approximately $170,000 where $75,000 is generated through the on-street operation and approximately $95,000 is generated through the off-street operation

Recommendations:

- The parking supply in Downtown Niagara Falls currently totals approximately 2,995 parking spaces, including 240 spaces located in city hall parking lots, 470 spaces located in municipal parking lots, 625 spaces located on-street and 1,660 spaces located on private property. On this basis, approximately 45% of the total parking supply in Downtown Niagara Falls under the City's jurisdiction and the remaining 55% is commercial private parking.
- Based on the results from this parking study the peak period occurred at 11:00 a.m. with approximately 1,155 or 40% of the spaces occupied. During the peak period, approximately 182 spaces of the 470 municipal off-street supply were occupied, 122 spaces of the 178 City Hall spaces were occupied (Lot C2 was not included in the parking survey) and 172 or 28% of the on-street parking spaces were in use.
- The market study prepared in June 2007 provides some instructions on achieving the vision set out in the CIP. This study is comprised of two phases, the first phase includes occupying the existing vacant floor space in the east end of the downtown, with specialty non-food related retail, restaurant and service retail uses which equates to approximately 205,000 sq.ft. of floor space as per the market study. The second phase will include approximately 225,000 sq.ft. of floor space for the following uses, food related retail, other convenience, specialty non-food related retail, and restaurant and service retail.
- For Phase 1, there is an overall deficiency of 12 and 39 parking spaces during the Saturday and weekday peak period. The minor deficiencies at some of the blocks such as block S6 and N6 can be accommodated on adjacent blocks that have parking surpluses. Block N7 which has the Rosberg building has a parking deficiency of approximately 92 and 168 parking spaces during the weekday and weekend peak periods.
- Based on the above noted deficiencies, additional parking is required in the area surrounding Block N7 to accommodate its projected parking demand. On this basis, the following modifications are recommended on an interim basis:
    - Convert municipal Lot C3 into a paid parking facility and relocate its current users to a proposed 60-space lot on City property located along the former railway lands
    - Operate the City Hall Staff lot (C1) as a public parking facility during the weekday evenings from 6:00 p.m. to 6:00 a.m.
- Once Phase 2 commences the following is recommended for West Downtown:

  - The City enter into a 75/25 profit sharing agreement for the operation of an existing private parking lot. An agreement of this type will allow the City to secure parking in west downtown without committing to the costs associated with a land purchase and construction.
- Phase 2 is expected to have an overall parking deficiency of 29 and 78 parking spaces during the weekday peak period and weekend peak period, respectively
- To achieve a transit modal split of 4% to 5%, municipal parking should be supplied at a rate 90% to 95% of the projected parking demand
- In order to encourage transit ridership, monthly parking rates should be at least the cost of a monthly transit pass
- In order to facilitate each urban infill set out in the CIP and Urban Design study, the City should maintain the capacity to replace a large portion of the municipal parking in the Downtown. In the east downtown the logical location for a future parking garage would be municipal lot M2 combined with the existing private lot immediately to the west (Lot 35).
- Similarly, in the west end of the downtown, the City should retain the capacity to develop a garage on its existing M10 Lot in Block N4 or Block N3, where the development of a future City surface parking lot is recommended
- In total, the capital cost of these new facilities is approximately $1.8 million in 2008 dollars. It is important to note that a substantial portion of the $1.6 million in present day costs associated with the downtown parking program will be recovered through user fees
- Finally, to ensure that the Downtown Parking Program utilizes all of its resources and is financially self sufficient it is imperative that the tasks set out in the Parking Action Plan are implemented. A table in the report sets out the implementation plan with timelines.

Relevance to Study:
Study provides data and policy guidance for consideration when developing and analyzing parking options in the ongoing study.

Document: **Niagara GTA Corridor Planning Environmental Assessment Study**
Dated: **December 2007 – March 2010**
Prepared by: URS MRC AECOM

Background:
This is an ongoing multi-year study that is assessing transportation requirements in a broad corridor connecting Niagara to the GTA. There have been a number of reports including:

- A study plan (2007)
- An overview of environmental conditions (2007)
- And overview of transportation and socio-economic conditions (2007)
- Study vision, purpose goals and objectives (Aug 2008)
- Grouped Transportation Alternatives (March 2010)
- A listing of individual transportation alternatives (March 2010)
- Executive Summary (March 2010)

Issues Addressed:

- This report documents the key tasks and activities to be completed during the first phase of the Niagara to GTA Corridor Planning and Environmental Assessment (EA) Study. It builds upon the previous work undertaken during the development of the Environmental Assessment Terms of Reference (EA T of R) for the Niagara to GTA Corridor, which received MOE approval in June 2006.
- Study Purpose:
    - Confirming and characterizing the need for additional transportation capacity between the Greater Toronto Area (GTA) and the Niagara Frontier
    - Identifying the specific transportation problems and opportunities within the area depicted in Exhibit 1-1 of that document
    - Developing, assessing and evaluating a range of Area Transportation System Alternatives to address the identified transportation problems and opportunities within the Preliminary Study Area
    - Recommending a Transportation Development Strategy (*TDS)* based on the Area Transportation System Alternatives carried forward from the evaluation

Pertinent Information:

- The Study Plan:
    - Provides background information about the study, discusses the purpose of the study, describes the existing policy context within which the study is being undertaken, and identifies related studies
    - Outlines the Environmental Assessment process that is being followed in undertaking this study, as well as the overall schedule for the study

  - Confirms the Ministry of Transportation (MTO) as the proponent of the study, outlines the assumptions and confirms that the study will comply with the Ontario Environmental Assessment Act (OEAA) and the approved EA T of R
  - Provides a broad level overview of the process that will be undertaken in identifying the transportation problems and opportunities within the Preliminary Study Area
  - Provides an overview of the existing natural, social, economic and cultural environmental conditions in the Preliminary Study Area
  - Provides a broad overview of the process to be followed in generating and evaluating the Area Transportation Alternatives, as well as the process for selecting the preferred Preliminary Planning Alternatives for inclusion in the *Transportation Development Strategy (TDS)* that will mark the completion of Phase 1 of this EA study
  - Outlines the Project Team's proposed consultation approach to be employed for this study, and provide a record of the consultation undertaken during the preparation of the Study Plan. The tenth and final chapter provides a glossary of key terms
- The study area includes the Region of Niagara, the City of Hamilton and the Region of Halton. This area is characterized by a mix of urban and rural communities and includes various urban centers (such as Fort Erie, Welland, St. Catharines, Niagara Falls, Hamilton, Burlington and Milton) as well as numerous rural residential clusters and settlements. This area falls within the area designated under the Greenbelt Act and Greenbelt Plan (*February 2005*).
- Report contains good summary of land use policies in study area as well as summary of pertinent transportation studies, expected population and employment growth and trade and tourism in the study area
- The majority of information in the report relates to the study approach to be followed

Alternatives Generated:

There is a two stage process for developing and assessing transportation system alternatives.

The assessment of alternatives includes:

- Transportation Demand management (TDM)
- Transportation Systems Management (TSM)
- Transit
- Air
- Marine
- Rail
- Freight inter-modal
- Road and highways

In the second phase the study is looking at:

- Optimizing existing networks
- New/expanded non-road infrastructure
- Widening or improving roads
- New transportation corridors

Alternatives under consideration that would impact Niagara include:

- Express rail service along GO Transit Lakeshore corridor
- GO transit expansion to Niagara Falls
- Expansion of Hamilton International airport
- Widening of QEW (for truck lanes)
- Convert QEW to core collector system with core lanes for international traffic
- Place freeway in Townline tunnel
- Central Peninsula Highway to Hwy 403, 401, 6, and 407 connections
- New corridor QEW in Fort Erie to either 403, 401, 407 or Hwy 6
- Upgrade or widen RR 20 with potential bypasses of settlements
- Combination of new and existing corridors to provide bypass of urban core of Hamilton
- Upgrade or widening of Hwy 406 connecting to new corridor between 406 and QEW south of Niagara Falls

Relevance to Study:
The study and related reports provide input information that can be used in the Niagara Falls study including:

- Travel forecast data
- Overview of transportation and socio-economic conditions
- Identification of alternatives that should be considered in Niagara Falls study
- Factors to be considered in the evaluation of alternatives
- Area Transportation System Problems and Opportunities
- The outputs of the Niagara to GTA Corridor Transportation Needs Assessment will provide input to the base road network and the alternative transportation to be considered in the Niagara Falls study

Document: **Niagara Falls Transit Business Plan and Ridership Growth Strategy**
Dated: March 2009
Prepared by: IBI

Issues Addressed:

- Public attitudes toward transit
- Review of policy framework (vision, mission, service and financial goals, accessibility standards, transit supportive policies)
- Review of markets, services, operations and infrastructure
- Best practices and staffing levels that can improve performance of transit services
- TDM strategies to reduce auto use and improve transit travel
- Out of town bus maintenance operations
- Strategy to year 2018
- Five year plans for service, operations, management, infrastructure, financial and implementation

Pertinent Information:

- Existing services include: 12 fixed routes, Chair-a-Van (operated by St. John Ambulance), three fixed-route shuttle services for tourists, and four fixed-route inter-municipal routes (three to post secondary schools), one to Fort Erie under contract to Town
- 2,800 trips (1,400 passengers) on average week day
- 2% of population travel by transit
- Four inter-municipal routes (three under contract to Brock and Niagara College student unions, operating on school days till generally 11:00 pm (60 minute headways to Brock, 30 minute headways to Niagara College)
- Regular routes recover 50% from fare box, inter-municipal recovers 100% from funding plus fare box, and shuttle services recover 81%
- 865,00 revenue passengers in 2007
- Chair-a-Van has 1,050 registrants with potential of 24,200 registrants by 2015, is now providing approximately 20,000 annual trips, charges same fare as conventional service
- 60% of ridership is adult (low student ridership; captures only 3% of post secondary student population and 1% to 3% of other students); seniors have a ridership rate of 3%
- Level of service provided is below that provided by other similar sized cities
- Study identifies a number of unmet needs and service delivery problems that are contributing to the under use of the system
- Circuitous one-way low frequency (60 minute headways) routings make for long travel and wait times
- Focal points for transit have shifted to Main and Ferry, Niagara Square, Wal-Mart Plaza, and Town and country plaza; new terminals (focal points) needed at these locations

- Average age of the fleet is 10.5 years (18 year replacement cycle); eight new buses required in next three years
- Garage is undersized for present operation and buildings are in poor physical condition. A new facility is required.
- Downtown Transit and inter-city bus terminal is in good conditions; other terminal points need improvements
- The study looks at three levels of investment: basic, short-term, and long-term
- Base line (maintain existing) requires investment of $15.7M for equipment replacement, improvements to terminals, and new maintenance garage:
    - nine replacement buses, plus two additional buses
    - Chair-a van
    - Garage replacement, improvements to terminals and bus stops
    - New fare boxes
    - ITS improvements
- Short term (improve to peer-level) requires investment of $20.5M for base, plus:
    - Eight additional buses for growth
    - 13 replacement buses
    - Use of Transcab services in areas and periods where conventional services not justified
    - Garage replacement, improvements to terminals and bus stops, shelters, benches
    - Fare boxes and smart card system
    - Further ITS improvements
    - Additional staff for supervision (1), bus operations (17), maintenance (4), service planning (1)
- Long Term (improve frequency (30 minute headway) and time of operation) requires an additional $8.0M for:
    - Bus Rapid Transit vehicles
    - Bus Rapid Transit on Montrose south/Lundy's lane and Garner/Lundy's Lane
    - Stations, terminal and intersection and traffic control improvements for bus rapid transit
- Report provides details on route improvements, new and improved facilities and infrastructure required for each of the three scenarios
- There is a detailed financial plan laid out in the report for the implementation of the identified improvements to capital and operations
- The report identifies a set of transit supportive polices for land use planning and design as well as parking management
- There are recommended policies on transit priority measures including signal priorities, queue jumping, turn lanes for buses
- Identifies potential corridors for transit priorities including Lundy's Lane/ Ferry Street, Route 6 and Hotel Casino precinct

- Transit supportive policies are set out for inclusion in OP

Recommendations:

- Short- and long-term plans for basis of planning for transit service and for setting capital and operating budgets
- Adoption of supportive policies outlined in plan
- Work with Region and other municipalities to implement inter-municipal improvements
- Incorporate findings of this study into ongoing Transportation Master Plan
- Chair-a-van be moved to direct City management
- Undertake a transit priority measures study
- Amalgamate Transportation Services Division into one facility
- A schedule for action plan and implementation is outlined on page 107 with a target of implementing new services by April of 2011 and having new garage by September of 2012.

Relevance to Study:

Findings from this study should be considered a starting point in developing a more comprehensive plan for transit expansion to the year 2031.

Document: **Business Case for the Proposed Niagara Falls People Mover System**
Dated: September 2009
Prepared by: City of Niagara Falls

Issues Addressed:

- Need for the system (history, surveys, forecasts, consultations, ridership and revenue forecasts, cost benefits, etc.)
- Background and history of related projects and studies
- Environmental Assessment
- Financial Analyses

Pertinent Information:

- The City, Ontario Lottery and Gaming (OLG), and Falls Management Company (FMC) purchased railway right of way from VIA station to Marineland for $40.5 M with City owning majority and OLG owning portion through Fallsview and adjacent to Casino Niagara
- Funding of $50M committed by Federal and Provincial Governments
- Project history summary highlights the following points
    - 1981 – Study recommends monorail system
    - 1985 – Niagara Parks Commission (NPC) implemented present rubber tire propane powered system
    - May 1986 – People Mover Study identifies need for system on separate right-of-way
    - Summer 1987 – coordination of People Mover with Niagara Transit operation
    - October 1988 – NPC study recommends enhanced People Mover System for QVP
    - February 1996 – Niagara Falls People Mover Feasibility Study confirmed need to upgrade the People Mover
    - September 1998 – Niagara Falls Transportation Master Plan recommended a number of short- and long-term improvements to transportation system including upgraded People Mover in PTA
    - October 2000 – Niagara Falls People Mover Individual Environmental Assessment and Economic Analyses provided details of preferred alignment
    - May 10, 2001 – Minister of Environment approved EA for Niagara Falls People Mover System
    - 2002 – City conducted a Stated Preference Survey regarding transportation services for tourists
- Study contains latest forecasts of tourists (of 14M persons per year to 2025), which are considerably less than previous forecasts
- Forecasts are sufficient detail to support analysis of need in ongoing NF-STMP
- Alignment of rubber-tired People Mover System outlined and depicted in report

Conclusions:

- The Business Case recommends a two phase approach to the People Mover System
  - Phase One is rubber-tired vehicles operating on the roadway in mixed traffic (20 new buses to last up to 15 years) with improved stations and improvements to inclined railway
  - Phase Two is dedicated right of way; this will require addressing a number of issues on roles and relationships as well as design
- Sets out basic requirements and specifications for Phase One vehicles
- People Mover will be owned and operated by City through Niagara Falls Transit
- Implementation date of 2011 to coincide with opening of new Convention Center
- Total cost estimates are $55M including vehicles, maintenance building, station upgrades, intersection improvements and fare collection system

Relevance to Study:

A modified approach to People Mover is being implemented and will be incorporate into the Master Plan evaluation and recommendations.

Document: **Inter-Municipal Transit Work Plan**
Dated: October 2009 (report to Council May 2010)
Prepared by: ENTRA Consultants (for Niagara Region)
Reviewer: J. Barr

Purpose:
The report looked at alternative transit connections between the major urban hubs in Niagara.

Issues Addressed:

- Revised vision and objectives for inter-municipal transit service delivery
- Alternative service concepts considered:
  - Do-nothing
  - Triangular services to transit hubs in big-three municipalities with service to communities adjacent to corridors (Thorold and Pelham)
  - Second tier feeders to concentrated population and within proximity of triangle (Fort Erie, Port Colborne and Niagara-on-the-Lake)
  - Rural demand response service to meet needs of rest of Region and supplement fixed route service
- Alternative connections considered in these concepts
- Alternative methods of delivering the service considered
- Stakeholder meetings were held in May of 2009
- On line Public Survey was conducted
- Demographic information was analyzed
- A demand analyses was conducted to look at potential ridership of alternatives
- Two alternatives considered by Niagara Regional Council (based on triangular service between hubs)

Pertinent Information:

- Capital cost for purchase of eight transit buses $3.1 million
- Buses will take approximately one year for delivery (Labor day 2011 set for startup)

Recommendations:

- A three year pilot project commence in 2011 with hourly service between hubs and connections from Niagara Falls to Fort Erie and Port Colborne to Welland

Relevance to Study:

- Travel forecasts from this study will be incorporated in to Niagara Falls study

Document: **Niagara Peninsula Rail Service Expansion Class EA Study**
Dated: Currently underway (July 2010)
Prepared by: Niagara Region (report PWA 63-2010)

Purpose:
To review service proposals put out by Metrolinx for the Province GO service to Niagara

Issues Addressed:
The report explores the proposed GO rail service expansion to Niagara by Metrolinx and summarizes responses for Niagara Region Stakeholders

Pertinent Information:

- The Metrolinx Regional Transportation Plan (The Big Move, November 2008) provides a vision, goals and objectives for seamless, coordinated, efficient, equitable and user-centered transportation within the GTHA in the future
- GO 2020, the strategic plan for GO Transit Service enhancements by the year 2020, identified future rail connections to Niagara
- GO Transit/Metrolinx started GO Transit weekend rail service to Niagara in May 2009 and was very successful in attracting riders
- Go bus service to Niagara was initiated in September of 2009 with infrastructure upgrades at the Casablanca Boulevard Park-and-Ride lot and at the VIA rail station in Niagara Falls
- In January 2009 GO Transit undertook a feasibility study to investigate rail expansion to Niagara; the study recommended the preferred corridor of the CN rather than CP
- EA study initiated in November of 2009
- Public Information Centers (PICs) were held during January, February, and May, 2010
- This latest report addresses service to Niagara and identifies:
    - Alternative routes (CN Rail vs. CP Rail lines)
        - CN is northern route along CNR tracks for Hamilton to Niagara Falls
        - CP is southern route which follows CP tracks for Hamilton to Welland then north to Niagara Falls and south-east to Fort Erie
    - Alternative station locations including downtown station in Niagara Falls
    - Alternative layover sites
    - Potential implementation options

Recommendations:

- CN rail route from Hamilton to Niagara Falls
- Preferred alternative station locations at:
    - Casablanca Boulevard in Grimsby

    - VIA station, St. Catharines
    - VIA station, Niagara Falls
- Preferred alternative layovers at:
    - Glendale Avenue, St. Catharines
    - VIA station, Niagara Falls
- GO rail service will first be extended to Casablanca Boulevard with bus connections to the VIA stations in St. Catharines and Niagara Falls
- Expansion of GO rail service to Niagara Falls may be dependent on the construction of a grade separation on the Welland Canal
- GO service to James Street North Station in the City of Hamilton is to commence in coordination with the Pan Am Games in 2015

Relevance to Study:

- GO rail connection to be considered in the development of alternative transit network strategies in Master Plan study
- Travel forecasts will look at ridership projections from GO studies
- VIA rail station in Niagara Falls will be considered a hub of inter-region transit connections as well as inter-city bus connections

Document: **Niagara Region Bikeways Master Plan 2003**
Dated: August 2003
Prepared by: Marshal Macklin Monaghan

Issues Addressed:

- Establishes a long term vision and strategy for programs and infrastructure for recreational, tourism and utilitarian cycling.
- Provides a comprehensive planning and design guidelines and strategy for improving coordination.
- Vision is to develop integrated system of bikeways across Niagara providing linkages for residents and tourists for leisure, fitness and utilitarian purposes

Pertinent Information:

- Five phases to study: understanding cycling, assessing existing conditions, developing network, implementation strategy, documenting strategy
- Survey findings: 52% of residents cycle, 70% households own bike, 475,000 bike trips per week, 50% residents make 300,000 recreational bike trips per week, 255 of utilitarian and 9% of recreational riders ride in winter
- 15% of tourists (2million) cycle tourists in 2000
- Technical Committee provided guidance on the network development and design guidelines

Recommendations:

- The study recommends three facility types each with minimum design guidelines
    - Multi-use trails are completely separated from the travelled portion of a roadway and are used to encourage the widest range of users including pedestrians, cyclists, skaters, skateboarders, etc., where surfaces permit
    - Paved shoulder bike lanes are located in the traveled portion of the roadway and designed for one way cyclist travel (paved shoulders in rural areas and marked bike lanes in urban areas); markings and a hierarchy of signing identify route as part of Regional bikeway network
    - Signed Route is an on-road bike route with no special lane designations where the cyclists share the pavement with motor vehicles. Where paved shoulders are provided an edge line may be used to separate cyclists traffic from motor vehicle traffic.
- The Region has identified a system of bike routes throughout the Niagara Region including the City of Niagara Falls. The Region publishes a map of the bike routes which will be updated periodically as changes occur in the system. The study recommended a time frame for the implementation of the bikeway network that would see

the network implemented over a 20 year timeframe. The network is shown in figures 5.7, 5.8 and 5.9 of that document.

- Design guidelines for the bikeway network are set out in chapter six of the report. The guidelines take into consideration: types of facilities, user characteristics, terrain, alignments, etc. The guidelines can be utilized in the design of new roadways, retrofitting existing roads or the construction of special purpose facilities. It provides guidelines for the design of the route, pavement markings, support facilities, resting and staging areas etc. It also provides guidelines for dealing with how to design crossing of facilities with roadways, railways etc. and dealing with constraints such as bridges, tunnels ferry crossings, etc.
- Chapter seven provides recommendations for outreach programs that should be considered in the City's approach to promoting cycling in Niagara Falls

Relevance to Study:
Study provides a bikeways network and design guidelines that should be considered when developing and evaluating alternative bikeway linkages and policies supporting the development and integration of cycling in road allowances.

Document: **Trails and Cycling Master Plan Update 2005**
Dated: August 2005
Prepared by: TSH

Issues Addressed:

- Study prepared to update the 1997 Trails and Bikeways Master Plan contained as part of overall Transportation Master Plan
- Eight year update based on 2 day workshop with 20 guests (November 25, 2004) and discussions with City's engineering and planning departments.
- Key issues addressed include the following:
    - Role and/or coordination between departments
    - Update trail and bikeway network
    - Identify ten projects with low costs and high likelihood of successful implementation by 2015.

Pertinent Information:

- Report contains map of the Niagara Falls Active Transportation Network Plan (2005 Update). The map identifies:
    - On road cycling routes
    - Recreational bike routes
    - Off road recreational trails, as well as
    - Region of Niagara designations of suitability (i.e. busy paved road – "use with caution"; and paved road – "suitable for road bike")
- Appendix contains a list of accomplishments for the last five years (1999 to 2003) which included:
    - Fundraising initiatives for projects
    - Biking promotion awareness activities
    - Review of developments and road projects
    - Review of policy proposals and Regional initiatives
    - Recognition of achievements of individuals and organizations
    - Hosting and promoting biking activities
    - Review of use of hydro corridors for bikeways and trails
    - Planning and promotion of Millennium Trail
- Appendices also contain Terms of Reference for the Trails and Bikeway Committee including mandate, membership, meeting format, task responsibilities, etc.

Recommendations:

- Regional Bicycling Map is recommended to remain as the one and only publicly available route map.
- City's network map is to be for planning purposes to be cross-referenced by departments for consideration of alterations to or along road ROW's and easements

- City to follow route designation and design adopted by Region with identification of "suitability" of routes without any new investments in infrastructure
- Capital projects to include:
    - Integrate educational and marketing efforts
    - New Pedestrian Charter
    - More staff support
    - Revise Bikeway Committee
    - Trigger Projects
        - Complete walking trails on Millennium Trail, Mitchell Line, NS and T¸ Downtown Trail, Grand Boulevard and Palmer Ave
        - Bikeways on Drummond St. Paul, Kalar, McLeod, Mountain and Morrison

Relevance to Study:
The findings of the 2005 study should be reviewed and updated as part of a comprehensive evaluation of the bike network and policies in the ongoing Master Plan study.

Document: **People Mover Parking Strategy for Niagara Falls People Mover System**
Dated: September 2003
Prepared by: IBI Group

Issues Addressed:

- A Parking Needs Assessment of future parking demand for private vehicles and motor coaches within tourist area
- Alternative Operational Strategies explored including public, public/private partnerships, and publicly regulated/privately managed
- Involvement of private sector in selling People Mover passes
- On-street parking strategies for helping to bring visitors to People Mover parking lots and reducing conflict with people mover operations
- Parking Signing and Way finding Strategies to bring visitor to People Mover parking lots
- By-laws and regulatory strategies to control parking supply and manage parking demand including zoning, and cash-in-lieu policies

Pertinent Information:

- Based on the projection of visitations and parking demand it is expected that over the next ten years the parking demand in the primary areas will most likely exceed supply

Conclusions/Recommendations:

- The People Mover Parking system must provide parking supply that is within walking distance of stations, minimizes travel on key roadways around Queen Victoria Park and Casino operations, minimizes vehicular and pedestrian conflicts and orients visitors toward the use of the People Mover System
- It is estimated that an additional 3,500 parking spaces will be required in the Primary tourist area
- The parking supply should be located to promote the People Mover System and build revenue stream for the People Mover System. Private lots should be included where appropriate.
- The City should negotiate with private sector partners to manage and operate the parking supply
- The People Mover parking lots should offer People Mover passes in combination with parking
- Pricing strategies should be set so as to encourage use of People Mover parking lots
- Advanced technologies should be used to assist in parking way finding when demand and traffic congestion growth warrant it
- Ontario Lottery and Gaming (OLG), Falls Management Company (FMC) and other employers should be approached to have their parking demands accommodated in People Mover lots

- Property should be secured where feasible to accommodate future parking deficits
- Encourage private sector participation in distribution of People Mover passes
- Encourage use of People Mover parking lots for employee parking
- Retain adequate supply of on-street parking to accommodate high turnover land uses
- Zoning by-laws should be modified to introduce minimum and maximum parking requirements
- Parking lots should be removed as a permitted use in the Fallsview and Clifton Hill area
- Developers should be encouraged to submit parking needs studies to identify minimum parking requirements
- Zoning by-law should prohibit off-site parking supplies with exemptions in vicinity of People Mover stations

Relevance to Study:
The findings of study are to be incorporated into the Master Plan study.

Document: **Dorchester Road and Morrison Street Class Environmental Assessment V1**
Dated: September 2004
Prepared by: Delcan

Purpose of the Study:

- Class EA Study regarding the need to reconstruct Dorchester Road from RR 20 (Lundy's Lane) to RR 57 (Thorold Stone Road)
- Schedule "C" study initiated in February 2002
- Study area is Dorchester Road between Lundy's Lane and Thorold Stone Road and Morrison Road from Dorchester to Drummond.

Pertinent Information:

- Need for study initiated from Dorchester Road Traffic Safety and Operation Review in 1999
- Issues identified in safety and operation review conducted by City and Region in 1999 and site visits includes: inadequate levels of service at various intersections, high collision rates at intersections, illegal left turns at Zehr's, driveways near signalized intersections, frequent delays due to train crossings
- Additional issues: narrow roadway width, insufficient sidewalk and boulevard width, pavement condition
- Extensive consultation including three PIC's, meetings with stakeholder groups, business community, Bicycle Committee
- Tables in report summarize issues and concerns raised in meetings and considerations of the comments received
- Issues raised include:
    - Extending Morrison over QEW to Montrose (pro and con)
    - Access to QEW from Morrison
    - Widening Dorchester to four lanes
    - Traffic signals at Dawson
    - Close entrances onto Dorchester from Zellers plaza
    - Grade separation of rail lines (pro and con)
    - Bicycle lanes
    - Residential disturbance
    - Save trees
    - Boulevards along Dorchester (pro, con, compensation)
    - Impacts of design and implementation on businesses
    - Access to local residences and local streets
- Bob Darrall (City), Steve Brant (consultant) were project managers
- Report contains description of the study area conditions including natural, socio-economic, cultural, transportation, and utilities
- Chapter 4 contains detailed analyses of traffic conditions including existing (2002) and future (2012). Analyses were conducted for the P.M. peak hour conditions.
- In Chapter 5 analyses looked at five potential solutions including:
    - Do nothing

  - Improvements to Dorchester
  - Diversion of traffic to Montrose
  - Divert traffic to Drummond
  - Limit development in vicinity of Dorchester
- Report looked at 13 design (cross section) alternatives for Dorchester and four for Morrison
- Chapter 6 lays out preferred design and mitigation measures and implementation requirements

Recommendations:
Recommended improvements to the Dorchester Road corridor (approximately 3 km in length)

- Two northbound and two southbound lanes (Thorold Stone to Lundy's Lane)
- Left turn lanes at major intersections
- Lane widths 3.5 m inside and 4.0 m outside
- Center median islands to restrict vehicle movements at various intersections along Dorchester to restrict unsafe vehicle movements
- Modified entrance to Zehr's to discourage left in/out traffic movements
- No bike lanes on Dorchester due to property restrictions instead outside lanes widened to 4.0 m to provide some accommodation for bicyclists

Morrison Street (1 km in length)

- Two westbound, two eastbound lanes
- Left turn lanes, center median islands at Dorchester and new intersection west of CNR
- On-road bicycle lanes from Dorchester to Drummond
- Planned for five year implementation Schedule starting in 2005 going to 2008 and beyond
- Additional access to or crossing of the QEW by Morrison was not recommended within the EA study
- Grade separation at the rail line on Dorchester and/or Morrison was not recommended but should be investigated in a separate EA to improve road network and emergency service operations
- Additional property required to accommodate preferred design (impacts on businesses and trees)

Relevance to Study:
Findings of this study should be incorporated into the Master Plan.

Document: **Railway Grade Separation Class Environmental Assessment**
Dated: November 2007
Prepared by: Matrix Innovations Inc.

Issues Addressed:

- Study prepared to identify the need to grade-separate road-rail crossings within the City Limits of Niagara Falls
- Issue of rail crossings raised in previous EA studies including Dorchester, Montrose, and Kalar
- This study conducted as a Class EA with full consultation
- Study area started with all rail crossings in Niagara Falls and soon centered on the CNR Stamford subdivision
- Key issues addressed include the following:
    - Existing railway lines bisect the City and result in train movements that act as a barrier contributing to delays in emergency service response times and increased traffic congestion and safety concerns
    - Transportation assessment found that without one or more grade separations there will continue to be significant impacts to efficiency of road network and users as well as emergency services resulting in following problem/opportunity statement: " Existing railway lines bisect the City resulting in train movements that contribute to delays in emergency services response times, increased traffic congestion and safety concerns"
    - Evaluation of potential grade separations considered: traffic operations, safety, geometry of roadway, drainage, natural features, access and ROW, utilities, noise, archaeology, visual aesthetics and existing land use
    - Alternatives included: do-nothing, non structural improvements, physical improvements (relocation of rail line), limiting development, TDM, alternative emergency routes and railway grade separations
- Public consultation included:
    - Notice of commencement October 15/04
    - Focus group sessions with emergency services (October 14/04, October 27/05 and February 2007)
    - Public Information Sessions June 16/05 and December 15/05
    - Contact with a number of technical agencies; twelve responses from 11 agencies

Pertinent Information:

- Mr. Daryl Smith was project manager
- 10 to 12 trains per day on the Stamford Line (survey conducted on November 5/05 and November 10/05 showed eight trains weekday

and 12 on weekends with up to 142 cars per train; train speeds ranged from 5 to 29 km/hr

- Comments from public included:
  - Relocating rail line to the west
  - potential access problems to Cropp Street if grade separation at Dorchester
  - Include Stanley and Whirlpool in EA study
  - Need to maintain traffic flow both east/west and north/south
  - Study is emergency service driven
  - Resolve problems associated with expanding mall in residential area
  - Concerns about snow removal around grade crossing at Morrison
  - Possible need for traffic signals at Morrison and north leg of Portage
- Study looked at environmental conditions at all potential locations for grade separation including:
  - Natural environment
  - Vegetation communities
  - Woody vegetation/trees
  - Wildlife
  - Noise
  - Cultural environment
  - Archaeological (pre-contact / historical)
  - Transportation (railways / roads / transit / bicycle network / pedestrian facilities)
- Report summarizes history and analyses of collisions on the roads and the level railway crossing
- A comprehensive traffic analyses was performed at each of the twenty-one existing at grade road/railway crossings
- Initial screening included calculations of warrants for separation, engineering considerations, drainage, utilities
- A set of design guidelines were developed for the evaluation of alternatives design concepts at each of the selected locations (report contains design drawings for each of the concepts). Impacts and benefits were determined based on those designs.
- Chapter 6 lays out selected design, mitigation and implementation requirements for Morrison and Portage grade separations with information on design, structures, utilities, property requirements, construction, traffic management and control, construction staging, public information plan, traffic diversions, incorporation of site plan changes, environmental mitigation steps including noise, archaeology, etc.
- Table 6.1 gives preliminary cost estimates for preferred preliminary design totaling $11,148,125 for Morrison and $7,926,375 for Portage
- Appendices have data sheets on each of the grade crossings including photographs of roads and rail lines. Also contains data

sheets on all public consultation and public input, supporting data for traffic analyses, environmental assessment, archaeology assessment, noise assessment, transit route maps, cycling routes, train crossing survey, assessment of relocating rail line, refinement to preferred plan and preliminary cost estimates

Recommendations:

- Preliminary screening looked at positive and negative attributes of each alternative to identify locations with best overall benefits in terms of traffic, emergency response times and safety, resulting in the following short list:
    - Morrison
    - Portage
    - Dorchester
    - Montrose
    - Thorold Stone Road
    - Lundy's Lane
    - Drummond
- Recommended Morrison and Portage as the preferred locations to proceed with preliminary design

Relevance to Study:

The railway grade separation priorities identified in this study should be incorporated into the Transportation Master Plan.

Document: **South Niagara East-West Arterial Road Corridor Environmental Assessment Study**
Dated: July 2010
Prepared by: Delcan Consulting Inc. for Niagara Region

Purpose:
The purpose of the study is to develop a new east-west arterial road corridor in the southern tier of the Niagara Region. Report is being prepared as phase 3 and 4 of the Municipal Class Environmental Assessment.

Pertinent Information:

- Only two of the five steps of the EA process were assigned to consultants (identifying problem, and identifying alternative and preferred solution)
- Project justified under the Greenbelt Plan, Places to Grow legislation, and Niagara's Growth Management Strategy (GMS)
- Project being coordinated with Provincial Niagara GTA Corridor Study
- Needs assessed under travel forecasts to the year 2031 reflecting Provincial and Regional land use development policies
- Other factors affecting need include: economic link for movement of people and goods in southern tier, reduction of travel times, alternative connection to Hwy 406 and QEW, and improved and alternative connectivity to international crossing for commercial traffic
- Three alternative corridors with 27 alternative alignments were identified. The corridors are:
    - "A" from Hwy 140 at East Main Street in the west to QEW interchanges at either Sodom Road or Netherby Road in the east
    - "B" from Hwy 140 at Townline tunnel in the west to the QEW interchanges at either Netherby Road or Bowen Road in the east
    - "C" for Hwy 140 at 3rd Concession Road in the west to Bowen Road QEW interchange in the east
- Corridors were screened against objective criteria set out in study
- Corridor "B" is identified as preferred alternative
- 16 alignments in corridor "B" were evaluated against constraints of natural environment, archaeological and cultural heritage environment and were shortlisted to eight
- Staff at the Region support selection of corridor "B" and eight alternative alignments

Recommendations:

- Staff at Region recommend that phases three and four of the EA process be initiated
- Additional modeling to be conducted reflecting more refined data from the Niagara 2031 GMS

Relevance to Study:

- Land Use and Travel forecast for this study should be consistent with Niagara Falls study as they have been developed form the same base and using the same model and modeling procedures
- The need for and the alternative solutions for this project need to be considered when developing and evaluating alternative transportation solutions in Niagara Falls
- The implementation of a solution in this corridor may have a small affect on the volume of traffic on the QEW through Niagara Falls

Document: **Transportation Sustainability Review**
Dated: July 2009
Prepared by: Niagara Region W.D. Report PWA 82-2009 (Philips Engineering and Delcan Consulting)

Purpose:
To provide information in support of the transfer of roads and policies for sidewalks, storm sewers, street lights, and medians on Regional Road allowances and provide an update on the increased fiscal responsibility for the operation, maintenance and future capital cost associated with the net increase to the Regional Road system as well as the increased operational/maintenance cost associated with the assumption of storm sewers that provide drainage for Regional road right-of-way and street lights on Regional Roads.

Issues Addressed:
- Review of background documents related to management of roads in the Region
- Review of specific roads and infrastructure including sidewalks, storm sewers, street lighting, and medians
- History of maintenance and capital expenditures
- Review of road classification criteria including:
    - Principles of geographic function, trip types, origin and destinations of traffic, continuity
    - Access guidelines
    - Multi-modal route guidelines
- Proposed road transfers
- Process for road transfers

Recommendations:
- Area municipalities continue to have jurisdiction for design, construction and maintenance of sidewalks in Regional Road rights-of-way
- Niagara Region be responsible for storm sewers 675 mm or less (as these are most likely to service storm water generated in the road right-of-way in nonurban areas); all other storm sewers remain the responsibility of the area municipality
- Niagara Region assume responsibility of street lighting within the Regional Road network
- Area municipalities retain responsibility for landscape features in medians requested by the area municipality
- Proposed changes in jurisdictional responsibility include the following in Niagara Falls:
    - Niagara Region to be responsible for RR57 Thorold Stone Road extension to Victoria Avenue (1 km, four-lane extension)

- City of Niagara Falls to assume responsibility for RR43 Bridge Street from RR102 Stanley Avenue to Victoria Avenue (after extension of Stanley Avenue)
- Niagara Region to take responsibility for Victoria Avenue from the Niagara Parkway to RR43 Bridge Street to provide connectivity with international bridge, tourist areas and Niagara Parkway, railway station, and intercity bus terminal
- Niagara Region to take over responsibility for Mewburn Road from the municipal boundary to RR101 Mountain Road with an interchange at Highway 405

Relevance to Study:

Road network analyses and generation of alternatives needs to include consideration of changes in jurisdiction of roads.

Evaluation of alternatives that include specific urban design elements in the road right-of-way need to base cost and evaluation criteria on the latest changes in jurisdictional responsibility.

Document: **Niagara Airports Study**
Dated: July 2009
Prepared by: Jacobs Consultancy Inc. Aviation Solutions (for Niagara Region)

Purpose:
The purpose of the study was to:

- Determine if there is a role for the Region in the operation and financing of the Niagara District Airport or the Niagara Central Airport
- Determine financial strategy for Regional involvement
- Determine governance structure for airports
- Set out plan for transfer of responsibility

Items Addressed:

- Inventory of airside facilities
- Economic impact of airports
- Situational analyses of the two airports
- Review of background documents on two airports
- Survey of stakeholders for both corridors
- Review of potential impacts of GTA Transportation corridor
- Comparative analyses with other airports
- Review of alternative governance structure
- Project financial support requirements for 2009 – 2014
- Review of potential funding sources

Pertinent Information:

- Two public owned airports in Niagara; Niagara District Airport in Niagara-on-the-Lake (NOTL) and Niagara Central Airport in Welland
- Operating in parallel since second world war
- Niagara Central traffic ranged from high of 24,000 movements to low of 14,000 during past seven years
- Niagara District airport
    - Situated on 130 hectares of land
    - Is primary business and general aviation airport in the Region
    - Not seen as competitor with larger airports in Golden Horseshoe
    - Federal airport zoning is in place to protect from incompatible uses
    - Airport generated revenue of $264,000 and operating costs of $367,000 in 2008 and is heavily subsidized by funding municipalities
    - Has great potential for growth with emerging opportunity for scheduled service to Toronto City Center but mainly as a regional corporate/private and small commercial general aviation and flight training facility

Conclusions:

- Ongoing requirement for an airport located within the Region to serve business and general aviation needs of residents and visitors alike. Niagara District Airport is likely to continue to serve that role.
- Niagara Central Airport will continue to focus on local recreational and flight training markets
- Roles of two airports will essentially remain the same over medium term
- Niagara District Airport (NDA) will service the recreational and flight training, tourism charter, medvac and regional business aviation segments and provide associated fuelling, maintenance and support services to the aviation community

Recommendations:

- Niagara Region should take over ownership of NDA as the Niagara Regional Airport
- Region should provide matching funding, review the operation of Commission, and create a Regional Airport Authority
- Region should not participate in the Niagara Central Airport

Relevance to Study:

- Niagara District Airport will be the primary local airport serving Niagara Falls
- There may be potential for additional tourist related air traffic to come to Niagara Falls via the NDA
- The development and evaluation of transportation alternatives in the Sustainable Transportation Master Plan must consider the need for and the alternative ways to improve road, transit and other modes of transportation between Niagara Falls and the NDA

Document: **2000 Niagara Frontier Traffic Survey**
Dated: May 2001
Prepared by: URS Cole Sherman

Background:
The 2000 Niagara Frontier Traffic Survey was conducted on the four Niagara River bridges in late August to obtain up-to-date information on weekday and weekend travel characteristics and patterns of automobile travelers. A total of 19,500 interviews of vehicle drivers were carried out. The survey operation involved three professional field managers and a staff complement of 53 people to do the surveying and the traffic counts.

The survey was a bi-national initiative sponsored by transportation agencies on both sides of the border with the Region of Niagara and the Greater Buffalo-Niagara Regional Transportation Council serving as the lead agencies and the Region of Niagara acting as proponent.

Previous studies have indicated that the international bridges at Niagara account for more than 1/3 of the automobile trips crossing the gateways between Ontario and the United States. Tourism is a major industry on both sides of the border. For example, it has been estimated that Niagara gateway tourists account for 40% of the total Ontario tourism-related expenditures.

The international bridge crossings were most recently surveyed in 1990 when automobile crossings of the Niagara Frontier were close to a peak of 19 million vehicles per year. Since that time, annual crossing activity decreased to 14 million vehicles in 1995 and has subsequently grown to 15 million vehicles in 2000. Over the 10-year period, there have been significant changes in the patterns of tourism, shopping and commuting activity. These patterns have been affected by the currency exchange rate and the strong development and economic growth in the Frontier area, including the opening of Casino Niagara.

Pertinent Information:
During the last two weeks of August, 2000, the average number of automobile crossings (two way total, four bridges) for the weekday was 54,900 and was 67,700 for the weekend day. A noticeable change from the survey has been an increase in the proportion of American-based automobile traffic on the bridges. About half (52%) of the trips were made in U.S. vehicles in 1990 (August weekend). This has increased to 69% in 2000. Canadians are making less tourism and shopping trips than in 1990.

A comparison of the trip purpose of Ontario and New York State-based weekday travel indicated that 42% of the Ontario trips were tourism-related, while 78% of the New York-based trips were for tourism purposes. The Casino was identified as the purpose for 18% of the trips by New York

residents. Shopping continues to be a significant purpose for Ontario travelers (17% of trips) but accounted for only 5% of the trips by New York residents. 19% of the Ontario residents entered New York State for the purpose of work, while only 6% of the New York residents travelled to Ontario for work.

A new question was added to the survey to determine the proportion of border crossings in August for which business was the overall trip purpose. 16% percent of the trips (9,050 vehicle trips) were made on an August weekday for business purposes. On the weekend day, only 4% of the trips were for business reasons. This information is available for feasibility studies of toll facilities.

As outlined in the analysis section of the report, each of the Niagara bridges has a distinct role in accommodating the various border-crossing markets. That role is determined by a number of factors including: the location of the resident population relative to the bridge (a high proportion of Buffalo residents use the Peace and Rainbow bridges); the location of attractions (Casino Niagara is closest to the Rainbow bridge), restrictions on bridge use (the Whirlpool bridge is for the use of Canpass subscribers), and the convenience of the connection of the bridge with the freeway system (the Peace and Lewiston-Queenston Bridges are directly connected to the freeway system on both sides of the bridge).

The analysis also presents summaries of the origin/destination trip patterns for the bridges individually and as a system. Most of the cross border trips stay within the Niagara Frontier area. (For purposes of the study an internal study area consisted of the Niagara Region in Canada and the counties of Erie and Niagara in the United States). Over half (57%) of the weekday trips across the bridges have both the trip origin and destination located within the internal study area. Only 14% of the trips are through trips (external to external) and do not start or end within the internal study area.

Findings:
The report presents a series of trip tables based on a 32-superzone system to show the trip patterns in more detail. Separate trip distributions are given for weekday, weekend day, weekday peak period, and for the weekday for each bridge. The tables indicate how much each superzone contributes to the overall trip pattern. For example, on the weekend day, the following are the percentage of daily trips attracted to a number of key areas: Niagara Falls Ontario (15.3%), Greater Buffalo (10.6%), Fort Erie (10.5%), Niagara Falls New York (6.9%), and the Greater Toronto Area (10.7%).

A major objective of the survey program was to prepare a high quality database. The database was developed in Microsoft Access and is available in Access. The format of the database is described in the report and also in the Microsoft Access database package. The database is easily understood

without requiring the use of supplementary lookup tables. It will be of interest to highway and urban transportation planners, bridge planners, and for economic impact and tourism studies.

Relevance to Study:
Data from survey considered when constructing travel forecasts model utilized in study.

Document: **2007 Niagara Bridge Survey**
Dated: July 2008
Prepared by: Paradigm Transportation Solutions Limited
Reviewer: J. Barr

Background:
During the month of July 2007, a comprehensive passenger vehicle survey was conducted at the four international border crossings between Ontario and New York. The study was a bi-national initiative of a number of Canadian and American transportation agencies, with the Ministry of Transportation Ontario (MTO) and the Greater Buffalo-Niagara Regional Transportation Council acting as lead agencies. The overall study activities and findings are outlined herein and are summarized below.

The travel survey was conducted for one 24-hour weekday and one 24-hour weekend day at the following international bridges between July 10 and July 29, 2007:

- Peace Bridge
- Queenston-Lewiston Bridge
- Rainbow Bridge
- Whirlpool Bridge

Pertinent Information:
The survey netted a total of 29,214 travel surveys (after cleaning and logic checks), for an overall sample rate of 33.8% of the passenger vehicles crossing the international border during the survey period. The data collected has been used to create a comprehensive database of cross-border travel for the use of participating agencies that need to carry out studies of travel characteristics and transportation requirements in this corridor**.**

General Findings
During the survey period, a total of about 51,000 vehicles passed through the survey area during the weekend time period and represent 59% of the total observed traffic. 16,333 surveys were retained after data cleaning for a sample rate of 32%. 35,480 vehicles were recording during the weekday time period and represent 41% of the total observed traffic. A total of 12,881 surveys were retained after data cleaning for a sample rate of 36.3%. There is a high degree of tourist related travel on the bridges, both during the weekend and weekday survey periods. The bridges serve predominantly local traffic (travel between Niagara and Erie Counties in New York and Niagara Region in Canada) on both the weekend (42%) and during the week (54%), with a higher percentage of intermediate and long distance trips on the weekend.

Vehicle Characteristics

The registered state or province of the license plate of each passenger vehicle entering the survey area was recorded. Ontario and New York plates comprised 78.5% of the vehicles on the weekend and 80.4% of the vehicles during the week at the four bridges. United States license jurisdictions accounted for 68.8% of the weekend trips and 55.6% of the weekday trips and Canadian license jurisdictions accounted for 31.2% of the weekend trips and 44.4% of the weekday trips.

Autos (including vans, pickups and sport utility vehicles) accounted for 96% or more of the vehicles crossing the border on both the weekend and weekday. The average vehicle occupancy was found to be 2.52 persons on the weekend and 2.09 persons during the week. It is noted that truck traffic was not included in the survey**.**

Trip Characteristics

The most common activity at the Canadian trip destination for New York-plated vehicles was recreation and entertainment (28.3%) on the weekend and (31.2%) during the week. The most common destination of Ontario-plated vehicles was shopping in the United States during the weekend (27.7%) and during the weekdays (24.2%).

Other trip characteristics of note are:

Tourism related activities account for about 70% of the travel into Ontario on both the weekend and during the week. Tourism related activities include recreation and entertainment, vacation, tourist attraction and casino trip purposes and is similar to the tourism grouping from the 2000 survey. Traditional home and school travel accounts for about 3% of the Ontario bound travel on the weekend and less than 1% during the week.

Work trips account for about 2% of the Ontario bound travel on the weekend and about 8% during the week. Trips into New York for traditional home and school related activities is about 2% of the total trips on the weekend and 3% during the week. Work related trips into New York account for about 7% of the weekend travel and about 23% of the weekday travel across the bridges.

About 13% of the trips made by Ontario-plated vehicles were to visit friend/relatives in New York State on the weekend and about 12% during the weekday. “Other” trips represent about 14% of the travel into New York for Ontario vehicles both on the weekend and during the week, while “Other” trip purposes accounted for only about 3% for New York-plated vehicles entering Ontario on the weekend and 4% during the week.

Spatial Characteristics of Data

Local trips are defined to represent travel between Niagara Region to Erie or Niagara County, New York. Intermediate length trips are defined to represent travel between Niagara Region or Erie and Niagara Counties to/from destinations outside these areas such as The City of Hamilton in

Ontario and Rochester in New York. Long distance trips are defined as having no origin or destination within Niagara Region and Erie and Niagara Counties.

It was generally found that the bridges served a high proportion of local traffic. However the Queenston-Lewiston Bridge has a higher proportion of intermediate/long distance crossings. Local trips (between Niagara Region in Ontario and Erie and Niagara Counties in New York) account for 42% of the weekend crossings and 54% of the weekday crossings.

The Whirlpool Bridge accommodates a large percentage of local trips at 82% (of total trips at this bridge) on the weekend and 88% during the week.

Queenston-Lewiston Bridge serves as the main crossing for long-distance trips at 37% of its total trips on the weekend and 26% of its total weekday trips. Local traffic represents 15% and 28% of the traffic on the weekends and weekdays respectively.

Both the Rainbow Bridge (about 43%) and Peace Bridge (53%) accommodate a significant amount of local traffic on the weekend. During weekdays, local traffic at the Rainbow Bridge increases to 54% while the Peace Bridge local trips increase to 65% of the total at this bridge.

Relevance to Study:
Data from survey considered when constructing travel forecasts model utilized in study.

AECOM

TRANSPORTATION BEYOND TOMORROW 2031

City of Niagara Falls

SUSTAINABLE TRANSPORTATION MASTER PLAN

TRANSPORTATION BEYOND TOMORROW 2031

Population and Employment Projections

June 2010

Niagara Parks

Niagara Region
Building Community. Building Lives.

Ontario

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1. INTRODUCTION

The Niagara Falls Sustainable Transportation Master Plan is a forward looking document that uses projections and models to predict future traffic and transportation. This information is used to determine if roadways are sufficient in the future. It also determines the appropriate locations for transit and a range of alternative transportation modes such as bicycles and pedestrian trails. The basis of this work is the projection of population and employment statistics to represent a future City of Niagara Falls scenario. This technical memo outlines how projections were determined and how they were spatially distributed to multiple traffic zones.

2. GROWTH PROJECTIONS

The Province of Ontario has developed population, household and employment projections for the area of the province that is subject to "Places to Grow". These projections are provided to upper tier municipalities and single tier municipalities within the Greater Golden Horseshoe. The Region of Niagara was provided with projections for the years 2011, 2021 and 2031. The timeframe of this master plan is to 2031.

The Province has requested that all Regional Governments review their projections and distribute the projections to lower tier municipalities such as Niagara Falls. As a part of the Region of Niagara's review of the Provincial projections it became clear that the projections were under-estimated. On this basis, the Region of Niagara established its own projections. The table below provides Provincial Projections and Region of Niagara projections.

Table 1: Niagara Region Population & Employment Forecasts

	Population				Employment			
	2001	**2011**	**2021**	**2031**	**2001**	**2011**	**2021**	**2031**
Provincial	427,000	442,000	474,000	511,000	186,000	201,000	209,000	218,000
Regional	427,000	465,200	510,000	545,400	186,000	207,420	229,410	243,540
Difference	--	23,200	36,100	34,400	--	6,420	20,410	25,540

The Region of Niagara used the data in **Table 1** to develop population and employment forecasts for each lower tier municipality. Furthermore, it has adopted policy through Regional Plan Amendment 2-2009 (ROPA 2-2009) directing local municipalities to use their projections in studies:

> *"In the interim, the Niagara Region figures should be used as the basis for planning for growth and infrastructure in Niagara, including planning studies, transportation master plans and water and waste water servicing master plans and studies."*

The Province has appealed ROPA 2-2009 and there are ongoing discussions between the Province and the Region of Niagara.
Table 2 summarizes the population and employment forecasts for the City of Niagara Falls as included in ROPA 2-2009.

Table 2: City of Niagara Falls Population & Employment Forecasts

Population				Employment			
2006	**2016**	**2026**	**2036**	**2006**	**2016**	**2026**	**2036**
82,200	90,400	99,100	102,700	38,570	44,500	48,070	49,450

The population and employment forecasts shown in **Table 2** as established by Region of Niagara were used as the basis of future projections. The total

projected values for the City of Niagara Falls were divided into forecasts for traffic zones.

City of Niagara Falls planning staff prepared detailed distributions of anticipated population and employment forecasts. Their distributions are attached to this memo.

The basic principles that were used in distributing population estimates were as follows:

- The total number to be distributed were based on the Region's population data;
- Vacant residentially designated land was identified as the future location for population growth to be housed;
- Lands currently vacant and with registered subdivision lots were populated first;
- Lands currently vacant and with draft approved lots were populated second; and
- Lands currently vacant and with no approvals except zoning or Official Plan designations were populated third.

The forecasted population data were distributed to the appropriate traffic zones. The traffic zones were provided to the City of Niagara Falls by the Region. The anticipated increases in population were mapped based on the City's G.I.S. system. Copies of the mapping are attached to this memo.

The basic principles that were used in distributing employment estimates are as follows:

- The total amount of employment to be generated was based on the Region's projections;
- Vacant industrial and tourist commercial lands were utilized as the future location of new jobs (employment);
- Vacant sites with approvals were given first priority for allocation of new employment; and
- Vacant sites with only zoning and/or designation were given a second priority for allocations of new employment.

The forecasted employment data was distributed to the appropriate traffic zones (provided by Region of Niagara). The anticipated traffic zone increases in employment were mapped based on the City's G.I.S. system. Copies of the mapping are attached to this memo.

3. SENSITIVITY ANALYSIS

There was discussion with the Region's planning staff concerning utilizing the Region's projections as compared to Province's projections. It was determined that Region's projections should be used in assessment as the basis of traffic forecasts for the following reasons:

- The City of Niagara Falls is growing faster than the Provincial projections would anticipate;
- The City of Niagara Falls has sufficient vacant residential and employment lands to sustain growth through the planning period; and
- A sensitivity analysis could be performed as a part of the modeling to determine any impacts of using the higher estimates.

Therefore, it was resolved that the Region's projections would be the basis of the traffic forecasting. A sensitivity analysis would be undertaken to determine if there was any significant impact of utilizing the larger estimates and the impacts, if any, would be critically reviewed on a case by case basis.

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TRANSPORTATION BEYOND TOMORROW 2031

City of Niagara Falls

SUSTAINABLE TRANSPORTATION MASTER PLAN

TRANSPORTATION BEYOND TOMORROW 2031

Public Involvement

October 2011

Niagara Parks

Niagara Region
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1. INTRODUCTION

The City of Niagara Falls, through their consultants AECOM and Urban and Environmental Management Inc. (UEM), is undertaking a study to update and replace the existing Transportation Master Plan. A copy of the Notice of Study Commencement is included in **Appendix A**. The City's Sustainable Transportation Master Plan (STMP), Transportation Beyond Tomorrow 2031 (TBT2031) will provide a comprehensive forward-looking strategy of priority improvements and programs required for the City to meet several transportation challenges. TBT2031 will address operational, planning and policy issues for all modes of travel as they relate to tourism, economics, environment and the community.

The purpose of this study is to update the transportation vision for the community in consultation with the public and other stakeholders. Objectives of the study include developing an achievable and sustainable transportation strategy and network to improve the flow and movement of traffic, pedestrians and cyclists in the city. The study will also provide improvement priorities for corridor and transit infrastructure and transit service.

Overall, TBT2031 will provide not only an updated multi-modal transportation plan for the next 20-25 years, but also the necessary policy and decision making framework to allow the City to move forward with its priorities in a progressive and sustainable way. The study will follow the MEA Municipal Class Environmental Assessment (Class EA) planning and design process meeting the requirements of Phases 1 and 2 in the planning process.

Public and agency consultation is an important feature of the Class EA process. Through an effective public consultation program meaningful dialogue can be generated between the proponent and stakeholders (including government agencies and the public), allowing an exchange of ideas and the broadening of the information base, leading to better decision making. A copy of the Call for Public Involvement is included in **Appendix A**. The purpose of this memorandum is to provide a record and summary of the consultation process undertaken in support of the completion on the TBT2031 project.

2. PUBLIC SURVEY

A Public Opinion Survey was completed by Informa Market Research on behalf of the City and the Project Team. The purpose of this activity was to obtain the general public's opinion on a wide variety of issues relating to transportation and growth. A total of 409 interviews were conducted on City of Niagara Falls residents aged 16 and over. Quotas were applied to ensure that the sample was relatively balanced and represented a fair sampling of both men and women and all age groups. Two data collection methods were used – telephone interviews (362 respondents) and electronic online questionnaires (47 respondents). The minimum goal for the survey was 400 responses, which research indicates provides statistically valid results.

Niagara Falls residents identified "roads/traffic" as the leading local issue needing immediate attention without being aware that the survey was being conducted in support of the Sustainable Transportation Master Plan. Complete survey results and discussion can be found in the Informa Report (**Appendix B**, dated September 24th, 2010).

3. VISIONING FOCUS GROUP

3.1. *INTRODUCTION*

The purpose of the Visioning Focus Group (VFG) was to establish the community's perception of the current transportation system, its level of service, cost and problems, during the Project Definition phase. The group's ideas for how this system should look in the future, areas for improvement both now and in the future, as well as the planning principles that should be used to shape this system were sought at the meeting.

A two-hour visioning session was conducted by Informa Market Research, on behalf of the City and Project Team. The session was conducted on Tuesday, January 26, from 6:30 pm to 8:30 pm at City Hall in meeting room 2A.

3.2. *FORMAT*

The facilitator presented the purpose of the focus group session, as indicated, when participants were invited to attend:

> *"to establish a vision or 'big picture' view of transportation methods that best serves the needs of the entire city and its population in the coming decades"* and,
>
> *"identify the key study issues or factors" that should be considered during the course of preparing the Master Plan.*

All participants in the Focus Group were invited to participate and express their opinions and experiences. It was stressed that were no right or wrong answers; individual opinions would be respected.

The discussion was recorded for research purposes only. Comments were not attributed to or linked with those who made them.

4. VISIONING FOCUS GROUP SUMMARY NOTES

A copy of the notes taken from the Focus Group session is included in **Appendix C**.

5. COMMUNITY ADVISORY GROUP

5.1. *BACKGROUND*

On Tuesday, February 16th, 2010 a group of approximately 20 members of the community joined project team members to discuss the STMP and develop a shared vision.

The City's Project Manager, Marzenna Carrick, stressed the importance of receiving input and ideas from various stakeholders. Groups represented on the committee include but are not limited to citizens' at large, cyclists, seniors and youth, businesses, tourism and school board interests.

It was explained to the CAG that the purpose of the study is to update the current Transportation Master Plan (TMP) with a vision for the next 20 to 30 years. The existing TMP was developed in 1998 and then partially updated in 2003. The Province has since passed the "Places to Grow" legislation and the City of Niagara Falls needs to proactively plan for the range of transportation modes needed to improve and support quality of life for citizens.

The following background documents were available at the meeting for reference and for the participants to review:

1. Strategic Planning: An opportunity for reflection and dreaming
2. Project Approach (Flow chart)
3. Community Advisory Group Terms of Reference
4. Visioning Focus Group: Flip Chart Summary Notes
5. Summary of Study Approach
6. CAG Invitation Letter
7. Study Purpose – Transportation Facts
8. CAG Meeting Comment and Evaluation Sheet

5.2. *COMMITTEE MANDATE*

Tracey Ehl, the CAG facilitator retained by the City and Project Team, briefly reviewed the CAG Terms of Reference with the group to seek questions, clarifications and ensure that participants were comfortable with this role. The CAG Terms of Reference is included in **Appendix D**. Clarification was given regarding potential conflicts of interest. CAG members were asked to declare conflicts if they could benefit monetarily from a particular approach. It was however recognized that business participation on the committee was critical, and that the committee role is advisory in nature. The main goal for such a clause is to ensure openness and transparency in the process. Committee members were in general agreement with the CAG mandate and process described in the Terms of Reference (ToR). Members were in agreement that the meetings were a forum for everyone to express opinions, concerns and ideas in a productive manner.

5.3. *ATTENDANCE*

5.3.1. CAG Members

- David Fotheringham
- Navin Shahani
- Al Zappitelli
- Tony Zappitelli
- Dennis Savriga
- Bob Romanuk
- Shane Mitchell
- Jim Bredin
- Carol Stewart-Kirby
- Shane Cooper
- James Woods
- Ateo "Red" Iseppon
- Ross Gillett
- Marilyn Kennedy
- Victor Ferraiuolo

5.3.2. City Of Niagara Falls Staff

- Marzenna Carrick
- John Grubich

5.3.3. Consulting Team

- John Hemmingway, UEM
- Tracey Ehl, facilitator
- Ashley Ryan, Notes
- Rick Bartel

5.4. *STRATEGIC PLANNING DISCUSSION*

Committee members participated in a facilitated discussion about the strengths, weaknesses, opportunities and threats related to all aspects of transportation in the City of Niagara Falls. At a high level, many participants felt that there was great potential for implementation of previously contemplated projects such as the Millennium Trail Project and the Grand Boulevard. Various ways of traveling for business, necessity and leisure functions within the system were highlighted, along with current limitations. Participants felt that safe, efficient and inviting space needs to be created for all modes of transportation.

The following specific input was put forward by CAG members, and is noted as recorded during the meeting:

5.4.1. Strengths In The Existing Niagara Falls Transportation System

- The City has well maintained and well kept infrastructure.
- There are numerous transit systems already in place.
- Due to all of the research and studies done on the transit system, we have been provided with a lot of information.
- The People Mover System has a lot of potential, both for tourism and for local people.
- System expansion is available.

- Tourist operators could shed their private systems/ sell and collaborate for one profitable system (future opportunity).
- You can get around reasonably well if you know the right streets to take if you have lived here for awhile.
- The grid system operates quite well and the city is covered by numerous transit routes.
- Bike lanes on improved roads are a positive addition.
- Hotel shuttles services (need to move the tourists around the city) work well.
- The majority of City buses are under ten years old.
- Numerous roads offer easy access to New York State and Toronto.
- Niagara transit answers their phone, and has strong customer service.
- 10-11 million person visits each year, which is a very large potential ridership.

5.4.2. Weaknesses In The Existing Niagara Falls Transportation System

- Although transportation has been studied previously, nothing has been done.
- Poor taxi services (people might be more inclined to get on a bus instead of spending that money).
- Including bike lanes on roads can be dangerous, especially for younger children. (Note made: bicycles are considered vehicles under the Highway Traffic Act and legally should be on the road.)
- So many transit systems are duplicating the same services, yet vying for the same customers.
- Everyone has to operate on the same roads (commercial, tourism, public etc.).
- No parking availability for larger vehicles to park for deliveries.
- Natural barriers throughout the City (CN rail line, QEW, 400 series highways).
- Perception of riding a bus (boring, no experience) is negative. Make transit desirable/unique experience.
- Government policy issues are a barrier.
- Attitude needs to change towards cyclists and children.
- It is dangerous to put bicycles on sidewalks, as people aren't looking for cyclists on the sidewalks and sometimes bicycles cannot be seen while on the sidewalk

- Sidewalk development is severely lacking in the City. They are not very easy to walk on.
- There are small road allowances which do not allow for expansion because people do not want to give up any of the little amount of property that they have.
- There are roads that don't currently have sidewalks, which should.
- There is poor information and communication for people that are unfamiliar with the system
- There should be more education for younger people (because they don't think it is "cool" to ride the bus).
- No one really wants to spend the money on transportation. They want a new system but as cheap as possible.
- Let someone else build it and pay for it – then we will use it. Instead, we need to get together and do this well.
- Lack of services to hospitals/other municipal facilities in surrounding areas is a large issue, especially for seniors who depend on transit.
- Transit buses are not unique experiences as compared to other Canadian cities with trolley buses.
- Poor/No evening/Sunday City transit.
- Lack of communication among providers.
- Who owns which roads? Some don't have a clear understanding of this. Which are municipal and which are Regional?
- There seems to be no money for transit education.

5.4.3. Opportunities

- Create a Grand Boulevard that contains separate lanes for cyclists, pedestrians, and transit, person moving system. This was a great idea from a previous plan, but time passed and the idea went away.
- Creating transportation opportunities on the Hydro corridors would be a unique idea for tourists and the locals alike.
- Truly integrated affordable system (public, private, schools). For local kids this could mean taking transit instead of a school bus. Note: This does not account for kids from out of town.
- Millennium Trail – To date; only one phase has been completed. There are six phases all together and this should be added in to this Plan.
- Green is in – we have the opportunity now (clean diesel/zero emission/fuel-cell).
- Parking garage downtown (tourists), which would put them into the downtown core where they could utilize different attractions and utilize the transit systems.

- Do it properly/right.
- GO Transit. There is a great opportunity for bringing people out to Niagara. The City needs to provide the right opportunities and welcome once they get off the train.
- Firm action needed on the People Mover.
- Amtrack, VIA, GO, taxi, People Mover, Niagara Falls Transit, bikes need an intermodal transportation hub.
- Dedicated transit ways.
- Government grants are needed for bus purchases/equipment, road improvements and other transit related elements.
- Transit and this plan need to be endorsed by city politicians.
- Dedicated transit lanes should be considered.
- Strike while there is opportunity.
- Widening of sidewalks or adding bike trails (particularly on high volume roads) to create a comfort level for the cyclists who don't want to be on the road due to high traffic is important. Different roads need to be treated differently and will have various solutions.

5.4.4. Threats

- Lack of money.
- Political – election cycle (funding is attached to cycle).
- Not in my backyard mentality (NIMBY).
- Apathy – slow response, loss of initiative which equals negative impacts.
- Slow response can halt the project or stop it altogether.
- We can study this topic to death but not do anything about it. Why is it happening? What can we do about it?
- You only need a handful of objections for a project to be thrown out the window, even if it is a great project.
- We need to understand and account for the actual size of the market. You can't treat every part of the city in the same way. Some level of testing of the ideas need to be applied.
- One size doesn't fit all. Why have all the same size buses? Why send a large bus to an area with few passengers? Utilize that bus in a higher use area.
- Reliance on private transportation.
- Parochial thinking.
- It is not always possible to move the road allowances because heritage areas are right at the edge of the road allowances.

- Being a one business town may pose a challenge.

5.4.5. Priorities

- Grand Boulevard – need to implement the plan.
- Millennium Trail – finish what was started.
- Establish zones (sidewalks, pull in bus stops, cycle paths, bus shelters (not a bench)).
- Get the City to implement its own standards for roads. If you are going to make adjustments, get the money and the proper plans to do it right.
- Look at areas in advance and plan new developments with future needs in mind, instead of just immediate needs.
- The People Mover planning should not stop. In the future, this can be incorporated into the Grand Boulevard.
- Unify the bus systems. The Niagara Parks Commission (NPC) (i.e. tourist) system should be integrated with the City system (i.e. residents) so that there would be a more attractive system to attract public and tourist alike.
- Create an efficient European style transit system.
- Integrated services and provide for efficient movement to hospital facilities.
- Need to make safe spaces for cyclists to ride, pedestrians and other forms of transportation.
- Can't compromise important heritage features.

5.4.6. Additional Feedback

- It was suggested that a walking tour of different areas of the city to look at all of the scenarios would be useful to the CAG.
- Include Chippewa area in the study, as there are opportunities for trails and streetscaping.
- The existing bridge foundation for former train bridge across the Welland River could support new crossing for pedestrian traffic.

5.5. *MEETING EVALUATION*

Two written evaluation forms were submitted, with the following advice.

- Lots of participation.
- Good flow.
- Would like to see the Involvement of staff from Parks, OLG and City Councillors.

- More sections of the community should be represented including visible minorities and youth.
- Better visibility of the flipchart would be helpful.

5.6. *CONCLUSION*

CAG members were thanked for participating and encouraged to continue this dialogue in between meetings by submitting additional comments and questions, and requesting information that would be of use to them. All information and ideas put forward at this meeting will be considered as the consulting team moves forward to develop some transportation system options. Staff indicated that the next meeting would take place when a range of alternatives were being considered, likely in a few months time.
The meeting was adjourned at 8:30 p.m.

5.7. *COMMENTS RECEIVED*

CAG members were encouraged to provide additional comments following the meeting. A copy of input received from the CAG meeting is included in **Appendix D**, and summarized in the table below.

Name	Date Received	Summary of Comment/Response
[redacted]	February 19th, 2010 via CAG Meeting #1 Comment Sheet.	Provided input as to the strengths, weaknesses, opportunities, and threats in regards to the current transportation system. Suggests that priorities should be transit and cycling. Provided a preliminary evaluation of different transportation systems to be considered. A copy of the comment sheet and attachments are included in **Appendix A**.
[redacted]	February 22nd, 2010 – letter addressed to Marzenna Carrick and John Hemingway (UEM)	Provided a summary and understanding of the main issues discussed at the CAG meeting, and included additional input and comment. Also, provided some input into the public consultation process being undertaken as part of the study. A copy of the letter is included in **Appendix A.**
[redacted]	February 22nd, 2010 – letter to John Hemingway; February 22nd, 2010 – meeting minutes; February 26th, 2010 letter from John Hemingway to [redacted]	Following the CAG meeting held on February 16th, 2010 an additional meeting was requested by [redacted] to share additional information regarding the People Mover Project and the Transportation Master Plan. A meeting was held at UEM's Office in Niagara Falls with John Hemingway and Rick Brady of

	[redacted]	UEM and [redacted]. Minutes of the meeting are included in **Appendix A.** A letter was provided by [redacted] regarding comments concerning the People Mover Project, as presented February 12, 2010 to be considered as part of the Transportation Master Plan and People Mover Studies. A copy of the letter is included in **Appendix A.** Additional background materials and studies were also provided. A letter was sent by John Hemingway to [redacted] on February 26th, 2010 indicating that the comments would be forwarded to the People Mover Committee for their information. A copy of the letter is included in **Appendix A.**

6. NEWSLETTERS

Study Newsletters were prepared to provide updates on study progress and to distribute important information throughout the duration of the project. Copies of the Newsletters are included as **Appendix E**.

7. PUBLIC INFORMATION CENTRE NO. 1

A Public Information Centre (PIC) was held to provide stakeholders and members of the public with an opportunity to meet the Project Team, review the study scope, and discuss issues related to the Project, including the project vision, goals, and objectives.

The PIC was held Wednesday September 15, 2010 from 6:00pm to 8:00pm at the MacBain Community Centre – Coronation Room, Niagara Falls, ON. A copy of the Notice of PIC No.1 is included in **Appendix F**.

7.1. *ATTENDANCE*

7.1.1. Project Team

- Doug Allingham – AECOM
- Doug Willoughby – AECOM
- Sheri Harmsworth – AECOM
- Rick Brady – UEM
- Sean Norman – UEM
- Marzenna Carrick – City of Niagara Falls
- John Grubich – City of Niagara Falls
- Karl Dren – City of Niagara Falls
- Mayor Ted Salci – City of Niagara Falls
- Kumar Ranjan – Niagara Region
- Phil Bergen – Niagara Region

7.1.2. Attendees

13 members of the public attended – many of whom are involved in the project (City, Region, CAG, and TAC). The attendance sheet from PIC No. 1 is included in **Appendix F.**

7.2. *FORMAT*

The itinerary for the PIC was planned as follows:

- Doors open 6:00
- Public views boards from 6:00 – 6:30 (A copy of the presentation boards are included in **Appendix F**)
- Presentation 6:30 - 6:50
- Break-out groups with facilitated discussion 6:50 – 7:20
- Groups get back together and present 7:20 – 7:40
- Q & A 7:40 - 8:00
- Doors close 8:00

However, given the attendees present, the format was revised to an open presentation with questions and answers throughout.

7.3. *MINUTES*

Minutes of PIC No. 1 are as follows:

Time	Activity
6:00 pm	Doors Open
6:30 pm – 6:35 pm	Welcome and Introductions by Marzenna Carrick
6:35 pm – 7:00 pm	Start of Presentation by Doug Allingham (DA). (Results of Public Survey)
7:00 pm – 7:05 pm	**Question Period 1** *Q. Was a survey of Tourist done?* A. (DA) Yes, visitor surveys have been done to a significant extent in the past, but not as part of this project. The Transportation Master plan (TMP) will consider the results of the previously completed visitor surveys. *Q(continued). It is important that we seriously consider the needs of visitors.* A. (DA) The TMP will consider the needs of visitors. We already had sufficient information on visitors. The review as a need for additional information on residents, which is why the resident survey was completed as part of the TMP. *Q. Did the survey determine the number of trips per household?* A. (DA) Not sure if this was asked as part of the survey, but if we analyzed the raw data from the survey we should be able to get that information, otherwise that type of information would likely be available from other sources.
7:05 pm – 7:30 pm	Continuation of Presentation by DA. (Goals and Objectives)
7:30 pm – 7:35 pm	**Question Period 2** *Q. Are the goals & objectives prioritized or weighted?* A. (DA). No, none of the goals or objectives take priority over others, and it would take significant additional time to develop a weighting system with little to no benefit. In terms of importance I think that the optimizing of the system is very important. It is important to remember that many of the goals proposed here tonight will take work by the community to achieve. This project is a long-term investment in the community. An overall change in the culture of the community is an important first step.
7:30 pm – 7:40 pm	Continuation of Presentation by DA. (Community Advisory Group)
7:40 pm – 8:00 pm	Informal Discussion
8:00 pm	Doors Close

7.4. *COMMENTS SHEET*

One (1) comment sheet from PIC No. 1 was received via e-mail.

Name : [redacted]
Mailing Address: [redacted]
City/Town : [redacted]
Postal Code : [redacted]
Telephone : [redacted]
Email Address : [redacted]

1. Do you agree with the goals of the Study? Do you think additional goals should be established?
Yes, particularly the shift in emphasis recognizing that we are all pedestrians first.
2. Are the objectives for each goal appropriate? Are there additional objectives that should be considered?
It appears OK.
3. Are there any other issues related to transportation in the City of Niagara Falls that have not been identified through the goals and objectives?
Bicycle tourism is not as prominent as it could be. There is mention of working to extend the duration visitors stay, and providing improved cycling infrastructure will support that initiative.
4. Was the information provided tonight clear, yes or no? Please explain.
Unfortunately I was not there for the beginning, but I had no problem getting questions answered.
5. Did the session meet your expectations, yes or no? Please explain.
Yes
6. Please provide any additional comments you may have about the information presented tonight or the study in general.
I thought this was going to be a fillable form on the website. I had to copy/paste into MS Word and delete the underlined areas to provide my comments.
Could a fillable form be considered for the future?

8. PUBLIC INFORMATION CENTRE NO. 2

Public Information Centre (PIC) No. 2 was held Thursday January 27, 2011 from 6:00pm to 8:00pm at the MacBain Community Centre – Multipurpose Room, Niagara Falls, ON. A copy of the Notice of PIC No. 2 is included in **Appendix F.**

8.1. *ATTENDANCE*

8.1.1. Project Team

- Doug Allingham – AECOM
- Sheri Harmsworth – AECOM
- Kevin Jones – AECOM
- Rick Brady – UEM
- Sean Norman – UEM
- Jeremy Craig – Victor Ford & Associates
- Marzenna Carrick– City of Niagara Falls
- John Grubich – City of Niagara Falls
- Kumar Ranjan – Niagara Region
- Phil Bergen – Niagara Region
- Dave Gillis – Niagara Parks Commission

8.1.2. Attendees

17 members of the public attended. The attendance sheets for PIC No. 2 are included in **Appendix F.**

8.2. *FORMAT*

The Itinerary for the PIC was:

- Doors open - 6:00
- Presentation - 6:15 (Presentation materials are included in **Appendix F**)
- Doors close - 8:00

8.3. *MINUTES*

Minutes of PIC are as follows:

Time	Activity
6:00 pm	Doors Open
6:15 pm	Welcome and Introductions by Marzenna Carrick and Doug Allingham
6:20 pm	Start of Presentation by Doug (Introduction Material)
6:30 pm	**Question Period 1**

	Q. How do external trips versus internal trips in the City of Niagara Falls compare to other communities? A. (DA) The split of internal (51%)/external (49%) varies significantly by community. For example 'bedroom' communities such as Ajax or Whitby will have a high number of external trips, whereas a more isolated community such as Peterborough will have a lower number of external trips and a higher number of internal trips. *Q. How was the forecasted demand determined?* A. (KJ) Forecasted travel demand is based on growth for the City as projected by the Provinces Places-to-Grow Legislation. This was a 'do-nothing' scenario, without transit or TDM.
6:30 pm	Continuation of Presentation by Doug Allingham (Key Recommendations, TDM Strategies, TDM Recommendations)
Note:	Doug mentioned that shower facilities at places of employment was not included in the list of TDM strategies but should be.
6:30 pm	**Question Period 2** *Q. We should provide free transit; studies are being done in other jurisdictions in Canada to look into this.* A. (DA) That is a political decision that would need to be made, and has been shown in other areas to be a tough decision. Buses cost money and need to be supported by fares. The first priority is to provide better service. *Q. When is Niagara Transit going to improve?* A. (DA) A Strategic Study is currently being undertaken for Niagara Transit, with a goal of doubling transit usage City-wide. In Niagara Falls, like many other communities funding for transit continues to be an issue. The Province used to subsidize municipal transit systems; however that funding is no longer available. Change will not be overnight, however the City is working hard to improve the system. Transit is still seen by many as a social service only, and not as a viable means of transportation. *Q. Is there going to be bus service in Chippawa?* A. (MC) There is a trans-cab service in that area. We would have to check with the strategic plan to confirm what the long-term plans are for that area. *Q. Is there going to be bus service to the new Walmart?* A. (MC) One of the existing bus routes has already been altered to serve the new Walmart. *Q. This needs to be better publicized to residents.* *Q. Is there a bus route to the new Gale Centre?* A. Yes *Q. The City's Official Plan says that Transit should focus on the downtown area. However, there a few people there, this should not be the focus of Transit.* A. A recommendation of this study is to update the City's Official Plan. *Q. Timing of transit is hourly, this does not work. Hourly service cannot compete with the use of cars by City residents.* A. (DA) The City is currently looking at some of the major routes, and is adjusting frequency.

	Q. The bus schedule should be the same 7 days a week, it is very confusing to try and take transit on Sundays. A. (DA) It can be a struggle to justify this type of service when ridership is so low. As a community Niagara Falls must realize that transit is an investment. Often decision-makers will see buses which are underutilized and then cut service to save money. In order to have high levels of service taxpayers will have to bear the cost of transit until ridership grows. *Q. What about Regional transit, will it be starting this summer?* A. (KR) No, the service will not start this summer. The Region is currently working towards this in partnership with the area municipalities. A pilot project has been initiated. This service is primarily for commuters. Working towards one fare system between City and Region buses. *Q. We need to stop focusing on tourists. It is time to put the locals first.* A. Comment Acknowledged. *Q. Is there a connection to St. Catharines, and are fares transferable?* A. No *Q. Politicians need to ride transit. They do not care about the local residents.* A. (DA) I do not agree with that.
7:05 pm	Continuation of Presentation by Jeremy Craig (Active Transportation)
7:10 pm	**Question Period 3** *Q. Why put bike facilities on arterial roads as opposed to collector or local roads?* A. (JC) It is about getting from point A to B as fast as possible (i.e. in a straight line) *Q. Has the City considered specialized traffic signals for bikes and pedestrians similar to what they have in Hamilton? (i.e. white diamonds)* A. (JC) That is an option that can be considered. The priority is to first get routes established. *Q. The Millennium Trail – why is it discontinuous?* A. (JC) There were plans to continue to hook up to Whirlpool; we are recommending the path should exist and be completed. *Q. The Millennium Trail is very dangerous trip; it intersects some of the busiest roads in the City.* A. Comment acknowledged *Q. High speed electric and road bikes should not be allowed on bike trails.* A. (JC) That would be a policy issue, speed limits on bike trails were not previously necessary, can be mitigated by trail design. A. (DA) Often this is based on wheel size, policy was previously to allow small-wheel bikes (i.e. kids bikes) onto sidewalk for safety. However many electric bikes have small wheels, this needs to be taken into consideration. *Q. Has there been any evaluation of current bike lanes in Niagara Falls? Trails are used more frequently than bike lanes, trails should be the focus, not bike lanes.* A. (JC) A public survey was done as part of the overall transportation study. The study concluded that residents in the City are cycling primarily for recreation, so yes the trails would be well used.

	Q. T rails can be more expensi ve in terms of the need for new infrastructure and policing compared to bike lanes, also with trail there is a need to add lighting. A. (JC) Ye s the costs o f road w idening ve rsus ne w off ro ad trails i s an important consideration. A. (JC) It is a lso i mportant to cons ider that off road t rails ne ed to be drivable for emergency situations.
7:25 pm	Continuation of Presentation by Jeremy Craig (Case Studies)
7:30 pm	**Question Period 4** *Q. Is it illegal to pile snow from driveways onto sidewalks?* A. No, it is not illegal, there is no by-law *Q. Why is there no by-law in Niagara Falls?* A. Question Acknowledged *Q. Why are bus stops and other transit facilities not cleared of snow, as is done in Hamilton?* A. Question Acknowledged
7:30 pm	Continuation of Presentation by Kevin Jones (Road Improvements)
7:30 pm	**Question Period 5** *Q. When is Transit expected to double (i.e. reach 3.2%) ridership?* A. (KJ) By 2018 *Q. What about the need for road widening?* A. (KJ) Yes that may be the appropriate solution in some areas.
7:35 pm	Continuation of Presentation by Kevin Jones
7:45 pm	**Question Period 6** *Q. What about the issue of railroad crossings in the City, especially as it relates to responding to emergency situations?* A. (KJ) The City is aware of this issue. Raised crossings are a very expensive undertaking. Recommendations on how to ad dress this will be made in the stud y; current analysis suggests that there should be at least 1 free crossing. *Q. Rai l crossi ngs w ere a major i ssued i dentified by t he comm unity advisory group (CAG). Why has this not been addressed by the Study??* A. (KJ) This is something that will be addressed in greater detail in the final report. Addre ssing t he issues of rail crossing f ollows the id entification of road capacity issues. We need to first determine what capacity issues exist before the need for rail crossings can be addressed. *Q. Why are rail lines not on maps?* A. (KJ) W e are at t his meeting to present preliminary findings. It is recognized t hat ra il cross ings do have an impact on t he City's transportation s ystem. First we are anal yzing the are as with re gular capacity issues; we will then address these other issues.
7:50 pm	Continuation of Presentation by Kevin Jones
7:50 pm	**Question Period 7** *Q. Are the recommended road improvements listed in priority (i.e. from 1-18)?* A. (KJ) No, they are not, be can rename them / put t hem in al phabetical order so that this is clear.

	Q. What about hydro corridors in agricultural areas for bike paths? A. (JC) The active transportation system presented here tonight was for the built-up area of the City. *Q. Concerned/not in favour of the active transportation system being extended into agricultural area.* A. Comment acknowledged *Q. How will bike lanes be built?* A. Each project will have to go through its own EA; bike lanes will be coordinated with road construction.
7:55 pm	Continuation of Presentation by Kevin Jones
8:00 pm	Thanks and closing remarks by Doug Allingham

8.4. *COMMENTS SHEET*

Six (6) comment sheets were received at PIC No. 2 and are included in **Appendix F**.

One (1) additional comment sheet was received electronically after the PIC, and is included below.

PUBLIC INFORMATION CENTRE NO. 2 – COMMENT SHEET
Thursday, January 27th, 2011

1. Do you agree with the deficiencies identified by the Study? Do you think that there are any additional deficiencies in the City's transportation system that have not been identified?

Yes, the transit system is too infrequent to be a practical mode of transportation and it does not go everywhere the average resident would like to go. Not all routes run late enough in the evening. If Mass Transit is to function well, we need to make it a priority and an investment.

If we need more QEW and HWY 420 crossings, they should be put in the already developed sections of the city, not in the environmentally sensitive Oldfield Road area. Consultants discussed the need to build with mass transit in mind and at the same time proposed putting the heaviest road improvements in the areas not already developed.

2. Transportation Demand Management (TDM) is an important component of the development of a sustainable transportation system for the City. Do you agree with the TDM strategies that have been recommended by the Study?

The goal of reducing auto trips by 10% is way too low. The integrated network of trails, sidewalks and bike lanes is good. A TDM co-coordinator could help see that the recommendations are carried out. Public transit could eventually help pay for itself by lessening demand for road construction and by reducing pollution. It needs to be fairly heavily subsidized to be successful. The road are built and maintained by tax dollars so cars are also subsidized. Education and travel incentives will be important.

3. Can you provide any input on potential strategies that can be implemented to further encourage active transportation (cycling, walking, etc.)?
Bike lanes need to be continuous, safe and separated from cars and pedestrians. We might consider making them wide enough for adult tricycles so that older adults could use the lanes when they shop. I agree lanes should be extended into new developments at the time of development. I like the idea of walking paths in residential areas. Stores and businesses are often built now in ways that make it very difficult to get to stores from public walkways. Sidewalks in the city are sometimes ice-covered.
4. Was the information provided tonight clear, yes or no? Please explain.
Yes, the explanations were clear and questions were answered.
5. Did the session meet your expectations, yes or no? Please explain. **yes**
6. Please provide any additional comments you may have about the information presented tonight or the study in general.
We will not get people out of their cars until public transit is made more attractive and convenient and cheaper than driving. In places where public transit is successful and widely used, people can take transit to shop, and to spend an evening out without worrying that they will miss the last bus. We need a substantial initial investment.
Name: [redacted]
Mailing Address: [redacted]

9. PUBLIC INFORMATION CENTRE NO. 3

Public Information Centre (PIC) No. 3 was held Wednesday, September 21, 2011, from 6:00pm to 8:00pm at the Gale Centre Arena – Memorial Room, Niagara Falls, ON. A copy of the Notice of PIC No. 3 as well as advertisements for PIC No. 3 is included in **Appendix F**.

9.1. *ATTENDANCE*

9.1.1. Project Team

- Doug Allingham – AECOM
- Sheri Harmsworth – AECOM
- Sean Norman – UEM
- Jeremy Craig – Victor Ford & Associates
- Marzenna Carrick– City of Niagara Falls
- John Grubich – City of Niagara Falls
- Karl Dren – City of Niagara Falls
- Kumar Ranjan – Niagara Region
- Phil Bergen – Niagara Region
- Dave Gillis – Niagara Parks Commission

9.1.2. Attendees

25 members of the public attended. The attendance sheets for PIC No. 3 are included in **Appendix F.**

9.2. *FORMAT*

The Itinerary for the PIC was:

- Doors open - 6:00
- Presentation - 6:15 (Presentation materials are included in **Appendix F**)
- Doors close - 8:00

9.3. *MINUTES*

Minutes of PIC 3 are as follows:

Time	Activity
6:00 pm	Doors Open
6:30 pm	Welcome and Introductions by Marzenna Carrick and Doug Allingham
6:35 pm	Start of Presentation by Doug (Introduction, Overview, Definitions, Goals & Objectives, Study Process, Overview of Public Input, STMP Recommendations)

6:55 pm	**Question Period 1** *Q. There is a need to get people of the QEW and the 420; there is a need to get the People Mover System moving.* A. (DA) Correct that is what this Transportation Master Plan is all about. Getting people to where they need to go more efficiently.
7:00 pm	Continuation of Presentation (Signing and Wayfinding)
7:05 pm	Jeremy Craig – Victor Ford & Associates (Active Transportation – Recommended Principles, Proposed Off-Road Network, On Road Projects)
7:10 pm	**Question Period 2** *Q. Why are bike stands recommended in new areas/new development only? What about older areas of the City?* A. (JC) Good question, bike stands should be implemented in all areas, especially in destination areas. Bike stands in new areas should be put onto private property. In older areas, bike stands would have to be put onto public property. *Q. Who do crossing guards allow bikes to cross roads at crossings walks? This is an $85 fine.* A. (JC) They shouldn't be. This supports the need for a wide- scale education program in the City; crossing guards included. Cycling is growing in the City and will continue to grow. Education needs to grow and continue to grow as active transportation plays a greater role in the City's Transportation System.
7:15 pm	Continuation of Presentation by Doug Allingham (Transit and TDM)
7:20 pm	**Question Period 3** *Q. Has the City considered roundabouts?* A. (DA) No, not at this level. Facilities such as roundabouts would be at the implementation and detailed design stage. The Master Plan however does recommend that the City review Road Design Standards including roundabouts. *Q. What about rail crossings on Dorchester/Morrison? I do not see them on the map of recommended road improvements?* A. (DA). This is not one of the recommendations of the Transportation Master Plan. We will be discussing this in more detail later in the presentation. *Q. In the case of the Morrison St. flyover, will Kent Ave. have to be closed?* A. (DA). There will likely be many changes in that area by the time the flyover would be required, it is anticipated that the QEW would be widened by this time, etc. The specific design of the flyover is not being considered at this point. At this time the most important consideration is to protect the corridor so that it would be available for future use.
7:30 pm	Continuation of Presentation by Doug Allingham (Rail Crossings) - There is an issue with rail crossings in some areas of the City, however the costs of grade separated crossings is very high. The benefits achieved from these crossings would not necessarily justify the cost. The cost of these types of crossings would utilize a large portion of the City's capital

10. OTHER PUBLIC INPUT RECEIVED

A copy of public input received, outside of public information centre's (PIC's) is included in **Appendix G.**

Name	Date Received	Summary of Comment/Response
[redacted]	September 30th, 2010 (e-mail)	Requests that the Model Municipal Bicycle Policies revised recently by the Regional Niagara Bicycling Committee be included as part of the Sustainable Transportation Master Plan Study
[redacted]	October 2nd, 2010 (e-mail)	Concern that the Niagara Regions Bikeways Master Plan is being referenced in the Study although it is 10 years old. Cities in North America are doing an about face with regard to cycling. Designers have realized that attitude surveys didn't work because they were based on riders experiences with poor or no facilities. Further people don't regularly commute in Niagara so have no experience. They have no idea about distance and time. Since the AECOM has suggested that McLeod Rd will be an increasingly congested arterial route a bikeway there is a non starter. Do what other cities are doing. Make radical changes for sustainable transportation within the city first. Build the incoming traffic plan around that. [redacted]
[redacted]	October 8th, 2010 (e-mail)	Interested in the Study and would like to be kept informed. Would like to join a committee. Has experience with public transit and cycling. A response was sent to [redacted] by Marzenna Carrick via e-mail on October 8th, 2010 requesting his contact information so that he may be kept informed on the study process.

	budget for road works and transportation initiatives over the next 20 years.
7:35 pm	**Question Period 4** *Q. How do we decide between bringing the GO Train to the City and improving inter-city transit?* A. (DA) The answer to this is you do both. Each of these modes serves a different and important purpose. One serves the residents of the City and the other provides an efficient means to commute in and out of the City.
7:40 pm	Continuation of Presentation by Doug Allingham (Other Recommendations)
7:45 pm	**Question Period 5** *Q. Why is the City widening sidewalks along Queen Street?* A. (Karl Dren) The City is not widening sidewalks. The work being done along Queen Street is to create well defined parking, and to allow for special events, sidewalk cafes, etc.
7:50 pm	Completion of Presentation by Doug Allingham (Next Steps – Stay Involved)
8:00 pm	Doors Close

9.3.1. Comment Sheets

Four (4) comment sheets were received at PIC No. 3 and are included in **Appendix F**.

One (1) additional comment was received after the PIC, and is included as part of **Appendix G**.

TRANSPORTATION BEYOND TOMORROW 2031

Appendix A

STUDY INITIATION

- Notice of Study Commencement
- Call for Public Involvement

CITY OF NIAGARA FALLS

Niagara Falls Sustainable Transportation Study and Master Plan
CLASS ENVIRONMENTAL ASSESSMENT
NOTICE OF STUDY COMMENCEMENT

The City of Niagara Falls, through their consultant AECOM, has initiated a study to update and replace the existing Transportation Master Plan. The City's Sustainable Transportation Master Plan (STMP) will provide a comprehensive forward-looking strategy of priority improvements and programs required for the City to meet several transportation challenges. The plan will address operational, planning and policy issues for all modes in the context of tourism, economics, environment and the community.

The purpose of this study is to update the transportation vision for the community in consultation with the public and other stakeholders, while building a consensus for a reasonable and achievable sustainable strategy. Objectives of the study include developing a strategy and network to improve the flow and movement of traffic, pedestrians and cyclists in the city. The study will also provide improvement priorities for corridor and transit infrastructure and transit service.

Overall, the STMP will provide not only an updated multi-modal transportation plan for the next 20-25 years, but also the necessary policy and decision making framework to allow the City to move forward with its priorities in a progressive and sustainable way. It will follow the Class Environmental Assessment planning process meeting the requirements of Phases 1 and 2 in the planning process.

You are encouraged to forward any comments or concerns you may have to one of the following Project Team members:

Mr. Doug Allingham, P. Eng.,
Project Manager
AECOM
300 Water Street
Whitby, ON
L1N 9J2
Telephone: 905-668-4021 x2231
Facsimile: 905-668-0221
Email: doug.allingham@aecom.com

Ms. Marzenna Carrick, C.E.T.
Manager of Transportation Engineering
City of Niagara Falls
4310 Queen Street, P. O. Box 1023
Niagara Falls, ON
L2E 6X5
Telephone: 905-356-7521 x5204
Facsimile: 905-356-0651
Email: mcarrick@niagarafalls.ca

TRANSPORTATION BEYOND TOMORROW 2031

NIAGARA FALLS

Sustainable Transportation Study and Master Plan

CLASS ENVIRONMENTAL ASSESSMENT

CALL FOR PUBLIC INVOLVEMENT

The City of Niagara Falls, through their consultant, AECOM has initiated a study to update the existing Transportation Master Plan. The Niagara Falls Sustainable Transportation Master Plan (NFSTMP) will provide a comprehensive, forward-looking strategy of priority improvements, initiatives and policies designed for the City to meet current and future transportation challenges. The plan will address operational, planning and policy issues for all modes in the context of tourism, economics, environment and the community.

An updated transportation vision and planning principles are to be produced in the study through an extensive community consultation. Public input to the study is to be obtained through a variety of means including a public opinion survey, public open houses, a visioning focus group, stakeholder group meetings, and through a community advisory group consisting of residents, business persons, special interests, project team members and local agencies who will provide advice and comments on specific issues.

The project team assembled for this study is now organizing the Community Advisory Group to assist with identifying and updating the transportation vision and planning principles for the future transportation system for Niagara Falls. The City is seeking applications from interested persons wishing to contribute to this group. Interested persons can gain more information concerning the study at http://niagarafallssustainabletransportation.com/ or by contacting either of the following persons:

Marzenna Carrick, CET
Manager of Transportation Engineering
City of Niagara Falls
4310 Queen Street, PO Box 1023
Niagara Falls, ON L2E 6X5
Tel: (905) 356-7521 x 5204
Fax: (905) 356-0651
Email: mcarrick@niagarafalls.ca

Mr. Doug Allingham, P. Eng.,
Project Manager
AECOM
300 Water Street
Whitby, ON L1N 9J2
Telephone: 905-668-4021 x2231
Facsimile: 905-668-0221
Email: doug.allingham@aecom.com

Please include a brief description of who you are, why you wish to be considered for membership to the Community Advisory Group, and any organizations you belong too (if applicable). All applications must be received at the City by November 6th, 2009. The initial meeting will be held as part of a Joint Visioning Workshop in early December, 2009.

Appendix B

PUBLIC SURVEY

- Results of Public Survey, Information Market Research, September 24, 2010

NIAGARA FALLS SUSTAINABLE TRANSPORTATION STUDY –

Transportation Beyond Tomorrow 2031

September 24, 2010

INFORMA

Table of Contents

Executive Overview

Introduction

A total of 409 interviews were conducted among City of Niagara Falls residents aged 16 and over. Quotas were applied to ensure that the sample was relatively balanced and represented a fair sampling of both men and women and adults of all age groups. Two data collection methods were used to capture a wide range of ages – telephone interviews (362 respondents) and electronic online questionnaires (47 respondents). The following is based on an analysis of the total 409 interviews.

Major Local Issues

Roads/transit (39%) followed at some distance by the economy/jobs (22%) are the two major issues that residents suggested their local government should pay most attention to now. Taxes/tax increases and tourism were also leading items that were mentioned in this open-ended question.

Vehicle Use/Access

Nine in ten Niagara Falls adult residents (91%) either own or have access to at least one motor vehicle; the same penetration was reported for having a valid driver's license. On average, Niagara Falls households own 1.9 cars/vehicles.

Travel Patterns – All Regular Travel

Two-thirds (65%) of Niagara Falls residents 16 years and over regularly commute from home to work; 15% travel for educational purposes (half attend local schools and most of the remainder travel beyond the City limits). It should be noted that these two segments are not mutually exclusive. Over one in four residents (28%) do not commute and are not engaged in the labour force or enrolled in an educational institution.

Home-based businesses and telecommuting are uncommon – only 2% of residents work from home, but 19% of those who are employed have the option to work from home. However, given the option, 41% of the workforce would prefer to work from home.

Most work-related commuters travel by car (88%) – of these, 94% drive and only 6% are passengers. Although students are less likely to travel by car, 63% do regardless of the location of the educational institution. Only 16% of Niagara Falls high school students walk,7% take local transit and 7% go by school bus. Two-thirds (64%) of employed Niagara Falls residents work locally; most of the remainder commute to points in the Region, with only 9% of total working residents travelling outside of the Region.

Other Travel Patterns

Most Niagara Falls residents frequently makes short trips from home for shopping, visiting friends/family, recreation and appointments. The bulk of these trips are made by car – for instance, 91% drive to the mall or local stores. Households with children (34% of total households) always travel

by car, whereas the remainder are slightly more inclined to walk, take local transit or grab a taxi. The incidence of cycling for errands is very low.

Road Traffic in the Past 3 Years

Half of the adult population (51%) indicated that road traffic has deteriorated in the past three years – 34% say it's become 'somewhat worse' and 15% peg it at 'a lot worse.' This dim view is particularly strong with older people, long-term residents and people who are locally employed.

Driving Patterns in the Past 10 Years

Over four in ten drivers (44%) admit that they are driving more now than 10 years ago; this is particularly evident among people under 46 years of age/younger and middle-age residents. Conversely, only one in five (20%) claim that they are driving less, and the remaining one-third indicate they are driving about the same amount now as in the past.

Assessment of Local Travel Conditions in the Past 5 Years

The experience of simply getting around the City has 'stayed the same' according to half (48%) of residents, but 34% say it has gotten worse. Only 18% think that it has improved. Older residents, women and people engaged in professional/managerial occupations are particularly critical. A number of factors were linked with the deterioration: road conditions, construction, insufficient road capacity, tourists and freight train blockages.

Seasonal Driving

Three-quarters of residents report that it takes more time to get around the City in the summer period; commuters were particularly affected by summer traffic loads and road congestion.

Mass Transit Use in Past Month

A small segment (12%) of adult residents travelled by Niagara Falls transit in the past month; users tend to skew younger (under 46 years). Very few residents have used GO Transit/GO bus (5%), Coach Canada (3%) or VIA Rail (3%). Only between 1% and 2% took the People Mover, the Falls Shuttle, and Niagara Falls Chair-A-Van, Greyhound Bus or a taxi.

Likelihood of Taking Niagara Falls Transit

Only 13% of residents indicated that they either were 'very likely' or 'somewhat likely' to take Niagara Falls Transit in the next month. Conversely, the vast majority (81%) were 'very unlikely' to travel using this mode. The leading reason for opting for their car tends to be a preference for driving rather than an outright rejection of mass transit. Local/mass transit was rejected on a number of grounds including inconvenient scheduling and route gaps. Over four in ten (43%) said that nothing could be done to induce them to take local transit.

Niagara Falls Transportation Master Plan

One-third of residents claimed that they were aware that the City is undertaking a Transportation Master Plan. Suggestions for improving local transportation were led by mass transit, both local systems

and providing linkage with regional options. Existing roads need to be maintained, and a minority wanted some arteries to be widened from two to four lanes. Also, local travel would move more smoothly with the addition of stoplights and a railway overpass. A small number hoped that cyclists would be better served with more bike paths and bike lanes.

A strong majority gave the green light to a variety of suggested measures including: investing in road maintenance, ensuring easy service access for persons with disabilities and seniors, planning with a view to reducing pollution and greenhouse gases (GHG), linking local and regional transit systems, creating compact live/work/shop/recreation communities, prioritizing transit and investing in public education to expand walking and active transportation. Two-thirds agreed that walking should have higher priority than that given to cars, but fewer endorsed putting bicycles ahead of motor vehicles.

Recreation/Active Transportation

Six in ten Niagara Falls adult residents have recently used the recreational trail. Users tend to skew younger and have more education than non-users. They also tend to own and use bicycles. A strong minority (39%) are satisfied with the trail as it is, while the remainder suggested improvements. This included expanding the trail, stepping up maintenance, adding amenities (lighting and water stations), enhancing safety and promoting usage.

Walking suits only a minority of adult residents; more than two-thirds said there was nothing that could be done to encourage them to walk. Men and longer-term residents were particularly resistant to walking. But the one-third who were willing to consider it as an option urged that more attention be paid to sidewalks – both the condition of existing ones and adding new ones – and that future development planning should be geared to facilitate walking between home, work and shopping. They also thought monetary and motivational rewards could help spur more people to take up walking.

Bicycle Penetration and Usage

Six in ten Niagara Falls households (62%) own at least one bicycle that is in working condition, and two-thirds of owners have cycled in the past month, which translates into one-third of the total adult population. Cyclists skew male, younger (under 46 years), well educated and have children. Most of their outings are for recreational purposes; only 21% use bicycles for shopping/errands. Cyclists encouraged more investment in bicycling lanes and/or paths.

Transportation Needs of Tourists

About two-thirds (64%) of Niagara Falls residents believe that the transportation needs of tourists receive sufficient attention. Only one in five (20%) felt this sector's needs were being neglected, while the remainder (17%) were unable to assess this situation. Remedies suggested included more timely and extensive mass transit linking tourists with major visitor destinations and hotels. Parking related factors included more enforcement, more capacity and more reasonable rates.

Conclusions

Niagara Falls residents spontaneously identified “roads/traffic “as the leading local issue needing immediate attention; public transit barriers and availability was the secondary related point. This squares with results showing that the vast majority of local trips, whether taken on a regular/daily basis to work or school or for shopping, visiting, recreation, etc. are done by car/vehicle. Even though two thirds of those who are employed work in the City and half of students attend local institutions they still opt to drive and are the sole vehicle occupant.

Given the car-dominant nature of travel in and around Niagara Falls, it follows that use of mass transit options and active transportation (non-recreational cycling and walking) are very low. Although, students attending both local and regional schools/colleges/universities are slightly more inclined to use mass transit, and to a lesser extent take school buses or walk.

Cycling is popular; about one third of adults recently went for a ride but mostly for recreational purposes and likely on the trail system. Users skew younger, male and well educated, the same group that are heavily reliant on their vehicles/cars to get around the City. They don’t use their bikes to run errands; it’s for fun and fitness. The same thing applies to walking with only one third of the adult population willing to consider walking more. Despite common knowledge that walking is good for personal health and fitness and is good for the environment, two thirds reject the notion of walking.

Niagara Falls residents are well equipped to drive averaging 1.9 vehicles per household. Also, most adult residents hold a valid driver’s license. Driving is second nature for both short and longer trips. Indeed just under half of residents (44%) admit that they are driving more than in the past, especially noted among younger adults. This segment is out and about while older residents are more likely to stay at home; overall 31% of adults are either retired, involved with home duties or are unemployed. Yet this non-commuting population segment also reported that local road traffic has gotten worse in the last few years.

Niagara Falls commuters report a mixed picture about condition of roadway traffic in their area. Within the past three years just over half indicate that it has gotten worse. It is interesting to compare these findings with those of a 20 city Commuter Pain Study conducted by IBM; the following table shows results for Niagara Falls commuters alongside those from Toronto and Montreal. As indicated below Niagara Falls roadway traffic has experienced less deterioration than reported by Toronto commuters but has deteriorated more than noted by Montreal commuters.

[1]Roadway traffic	Montreal %	Toronto %	Niagara Falls %
Improved substantially	5	1	3
Improved somewhat	14	7	7
Remained the same	44	28	39
Becoming somewhat worse	23	40	34
Becoming a lot worse	14	24	18

People persist in driving; most report that the task of getting around locally has either improved or stayed the same in the past five years. Yet given the option to comment and offer suggestions the focus was on improving existing local road conditions rather than widening roadways.

Mass transit draws about one in ten (12%) of residents – most of these users take Niagara Falls Transit with much fewer people opting to take longer haul buses or trains. Local transit users are moderately satisfied with the system and the service they receive, yet there is considerable room for improving bus frequency, scheduling and routing.

A combination of habituated use of private vehicles and negative perceptions about public transit means that most residents have no intention of switching to local transit in the near future. As far as the vast majority (87%) is concerned transit doesn't meet their needs. Yet taking the longer view many residents envisage a seamless mass transit system that links local services to those radiating out to Regional and provincial destinations. Their vision also includes altering the local bus routes to ease connections between home and popular local destinations; ideally passengers would have very short wait times and could access services daily and over extended hours. They imagine a system that is suited for high density, compact communities and have not come to terms with the constraints posed by Niagara Falls' low densities and sprawl and small population.

Tourism is both a major employer and provider of entertainment options geared to residents. However, the peak tourist season brings both rewards and added challenges for local drivers and residents. Downtown and arterial roads are more heavily trafficked; parking lots may be more congested. (It is not possible to define 'downtown' further; this is a term used by respondents.) Visitors may unwittingly or not break local driving and parking regulations. While most residents believe that tourists needs are being sufficiently addressed there is room for improvement. This includes measures that would make local transit more convenient for tourists and residents plus stepping up local destination promotions and marketing.

Most Niagara Falls residents strongly endorse Smart Growth principals: planning local transit to reduce greenhouse gases and pollution, facilitating walking by building commercial and residential in close proximity, encouraging healthier lifestyle practices such as walking and cycling and investing more in

[1] IBM Global Commuter Pain Study - http://www-03.ibm.com/press/us/en/pressrelease/32017.wss

local transportation. They also support the concept of equal transit service access for seniors and people with disabilities. However, as the data demonstrates there is a huge gap between current practices and people's vision of the future. There is no reason to assume that survey participants were providing politically correct answers. This has many consequences for Niagara Falls Sustainable Transportation Plan 2031.

At the same time a significant minority draw the line on what they are willing to support including resistance to granting equal priority to cars and bicycles/cyclists and driving less even when/if gas prices skyrocket. Opposition to change is most marked among men and particularly those who are older. And while women are more amenable to suggested directions they are also mindful that aging brings physical limitations. The fact is that Niagara Falls follows the rest of Canada with a growing proportion of aging residents. Residents of all ages must have their needs met but at the same time Niagara Falls must take steps towards creating economically and environmentally sustainable transportation systems that promote health and fitness.

Preliminary Recommended Courses of Action

Connecting the dots between transportation sustainability, resident's current transportation behaviour and their endorsement of related principals is a long term program. Based on many successful social marketing programs twenty years is a reasonable length of time to achieve the attitudinal and behavioural shifts required to move people from being car-oriented to reshaping their lives to incorporate active transportation and mass transit usage.

It will necessarily include a wide spectrum of programs and initiatives that will involve public, private and non profit organizations working short and long term. The support and involvement of local elected officials, community leaders and the media is essential in making these fundamental changes part of the fabric of life in Niagara Falls going forward. This means that elected officials would be expected to lead by example, endorsing and practicing sustainability measures. Also, local government practices and policies should be applied to all departments aligning sustainability measures identified in the Niagara Falls Transportation Sustainability – Transportation Beyond Tomorrow 2031 Plan.

Some suggestions follow:

- Launch Niagara Falls Sustainable Transportation 2031 initiatives with a high profile community event, featuring a wide cross section of community sectors and activists.
- Walk to school programs for students from K to Grade 12 through organizer Active and Safe Routes to School, working with teachers, parents, local police and planners to create walking friendly neighbourhoods.

- At the city level, programs need to be aligned to provide a strategic, visible and a well connected city wide cycling and walking network that is supported by a parallel mass transit system. These programs can act as catalysts to community, local business regeneration initiatives. Connecting communities, reducing severance and boosting the tourism trade. 'Active Transport plans' must be provided on a holistic intermodal platform, using performance indicators such as the economy, environment and community cohesion.

- Promote mass transit as the smarter, healthier way to travel locally and regionally. A critical review on routing, scheduling, accessibility, interchange, connectivity and a pricing strategy that is based upon public consultation.

- 'Green Transport Plans' encourage and guide employers to provide staff incentives for green modes of travel such as 'cycle to work' or taking public transportation.

- Create community/neighbourhood walkabouts to help identify barriers to walking such as sidewalks needing repairs, missing pedestrian facilities including cross walk and stop lights, signage, etc.

- 'Fitness for life' programs to be delivered through local organizations, health providers, and local fitness trainers and seniors groups.

- "Smart Commuter Initiatives" encourages all sectors of the industry to reduce the dependency of the car as the preferred mode.

- Encourage area employers to consider introducing flex hours and telecommuting were practical.

- Hold workshops for community planning introducing 'smart growth' principles and inviting ways that existing residential communities can plan for sustainability.

- Continue promoting and enhancing Niagara Trail System; broaden range of activities and work with local groups to monitor conditions and safety.

- Endorse built and natural heritage groups and promote their initiatives – link them with sustainability planning.

- Other directions to follow based on discussions with the project team.

Study Background

The City of Niagara Falls, through their consultant AECOM, has initiated a study to update and replace the existing Transportation Master Plan. The City's Sustainable Transportation Master Plan - Transportation Beyond Tomorrow 2031 will provide a comprehensive forward-looking strategy of priority improvements and programs required for the City to meet several transportation challenges. The plan will address operational, planning and policy issues for all modes in the context of tourism, economics, environment and the community.

The purpose of this study is to update the transportation vision for the community in consultation with the public and other stakeholders, while building a consensus for a reasonable and achievable sustainable strategy. Objectives of the study include developing a strategy and network to improve the flow and movement of traffic, pedestrians and cyclists in the city. The study will also provide improvement priorities for corridor and transit infrastructure and transit service.

Overall, the STMP will provide not only an updated multi-modal transportation plan for the next 20-25 years, but also the necessary policy and decision making framework to allow the City to move forward with its priorities in a progressive and sustainable way. It will follow the Class Environmental Assessment planning process meeting the requirements of Phases 1 and 2 in the planning process.

Initially, public input was gathered using a Visioning Focus Group (VFG); the purpose was to discuss Plan-related ideas and issues, understanding that transportation is complex and touches on many interconnected elements. What factors are seen to be significant in shaping a new transportation master plan for Niagara Falls? What language do VFG participants use to describe the issues and points to be considered in designing the sustainable transportation plan? What are the most important issues that address the interests of a wide cross section of City transportation? The VFG also aimed to provide the Study Team with insights into priority directions among different population sectors and interest groups. See Appendix 1 for Summary of Key Points.

Study Method

Directions provided by the VFG, CAG and the Visioning Workshop were captured in a draft questionnaire aimed at the general public, residents of Niagara Falls. A range of question types was used: open and closed ended questions, multiple choice and rating scales. Approximately 20 questions were planned for an estimated interview length of 15 – 20 minutes. The questionnaire was then piloted and revised, as needed.

A total sample of 409 interviews was completed among the general population. The profile of the sample was finalized in consultation with the Study Team.

Two fieldwork options were employed: telephone or electronic/online panel. Due to the broad range of ages of the target population (adults 16 years and over) and the significant role of electronic technology both interviewing approaches were used. This option was pursued, and the sample of 409 was divided into two matching segments – 362 telephone interviews and 47 online interviews. The databases from both surveys were merged in the final tables, but were also examined separately. The margin of error for a sample of 409 interviews is +/- 5%, 95 times out of 100 cases.

The consultant then analyzed the computer tabulations, including cross-tabulations examining responses based on major demographic, behavioural and attitudinal factors. The detailed report incorporates summary tables and charts and detailed text.

Note to Readers:

- The words cars or vehicles are both used to apply to all types of motor vehicles owned by residents.
- Column totals may be lower than or exceed 100% due to rounding of percentage points.

Sample Profile

Which of the following age groups applies to you?	Total %
16 to 25	5
24 to 35	15
36 to 45	20
46 to 55	29
56 to 65	16
66 to 75	10
Over 75	4
Average	47.9
Gender:	
Female	57
Male	43
Highest level of education:	
Public school	1
Some high school	5
Graduated high school	28
Community college	38
University	21
Post graduate studies	7
Occupation:	
Professional	27
Manager/ business owner	7
Sales/ clerical	11
Skilled/ trades	15
Unskilled	4
Farmer	-
Homemaker	4
Retired	21
Student	3
Unemployed	7
Lived in your community:	
1 to 4 years	11
5 to 9 years	12
10 or more years	49
All my life	29

Number of people in the household:	Total %
1	14
2	34
3	21
4	21
5	7
6+	3
Average	2.9
Number of Adults in the household:	
1	17
2	54
3	20
4	6
5	3
6+	1
Average	2.3
Number of children in the household:	
None	66
1	15
2	16
3	2
4	1
5	1
6+	-
Average	0.6
Own or Rent residence:	
Own	85
Rent	15
Number of interviews conducted:	
Telephone	362
Online	47

DETAILED FINDINGS

Important Local Issues

At the outset of the interview, before focusing on transportation, respondents were asked: "What major issues, if any, should your local government pay most attention to now?" Two items dominated – roads/transit (39%) followed at some distance by the economy/jobs (22%).

- **Roads/transit** related matters included, first and foremost, road conditions – about two-thirds of those who mentioned roads/transit focused on this point. Then a much smaller number referred to public transportation availability and specific challenges of getting to and from a destination such as the new hospital in St. Catharines. A small number of people mentioned traffic congestion, and also the sited barriers such as cyclists who use sidewalks and the traffic snarls ensuing from the railway crossings.

- **The economy/job s**ituation was also selected as a high-priority item, the brunt of concern being low paying tourist sector jobs replacing the higher value manufacturing jobs. Development initiatives are need to create a more diversified local economy. Also, a smaller number focused on the failure of small local businesses.

- **Taxes/tax increases** were mentioned by 13% of residents; it was of particular concern among those who had lived ten or more years in Niagara Falls.

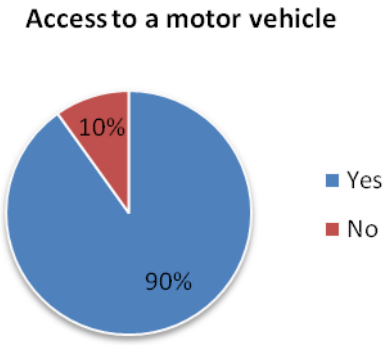
- **Tourism (**9%) was evidently seen to be lagging as some residents believe that tourism needs a boost; a healthy tourist sector translates into more local jobs.

- Other issues included infrastructure projects (sewage system, City beautification), healthcare funding (7%), hospital/bed shortages (4%), over-emphasis on tourism to the detriment of residents (4%), government dishonesty (3%), waste disposal/recycling (3%), social services e.g., seniors housing (3%), increasing utility costs (2%), policing (2%), crime/youth crime (2%), education (2%), development/overdevelopment (2%), revitalizing the downtown core (2%), and the environment (2%). Another 11% of mentions covered numerous topics, and 14% either did not know of any issues that required immediate attention or thought there were none in particular.

What are the major issues, if any, should your local government pay most attention to now?	Most Important %	Total Mentions %
Road/ transit	**26**	**39**
Road conditions	19	29
Economy	**18**	**22**
Employment	14	17
Taxes/ tax increases	8	13
Public transportation	6	9
Tourism (increase tourists, desirable place to visit)	5	9
Infrastructure	4	8
Healthcare/ health funding	4	7
Business	2	4
Too much tourism	3	4
Hospitals	2	4
Transportation Paths	-	3
Social services	2	3
Government	2	3
Waste (landfill/ recycling)	1	3
Traffic congestion	1	2
Economic development	2	2
Cost of utilities	1	2
Revitalize downtown core	1	2
Development	-	2
Crime/ youth crime/ drugs	1	2
Education	1	2
Activities for youth	-	2
Policing	1	2
Homelessness/ housing shortage	-	1
Gas/ oil/fuel price	-	1
Poverty/ child poverty	-	1
Environment	1	1
Other	6	11
None	4	4
Don't know	10	10

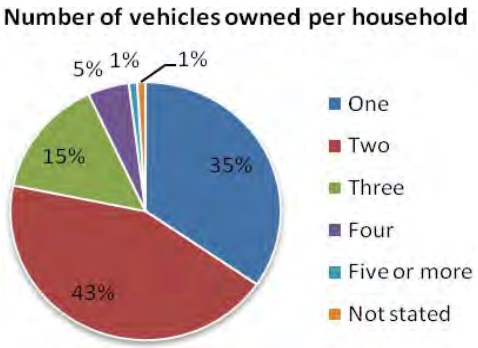
Vehicle Use/Access

Access – Nine in ten Niagara Falls residents (91%) aged 16 and over either own or have regular access to at least one motor vehicle. This incidence was highest among those who had attended university – the same respondents who are unlikely to use the Niagara Falls transit system. It was also more pronounced among those who use the recreational trails but do not necessarily use a bicycle.

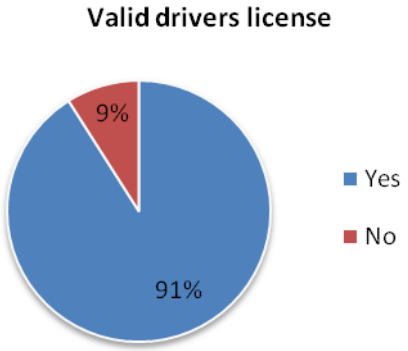


P2

Number of vehicles owned – On average, Niagara Falls households own 1.9 cars/vehicles. Looking more closely, only one in three households (35%) have just one vehicle; residents are more likely to own two (44%). Another 20% own three or more cars. The number is directly related to the household size and number of adult occupants – those with three or more adults own on average 2.5 vehicles. Not surprisingly, people living in households with more vehicles are also less likely to take local transit than those with more limited car access.



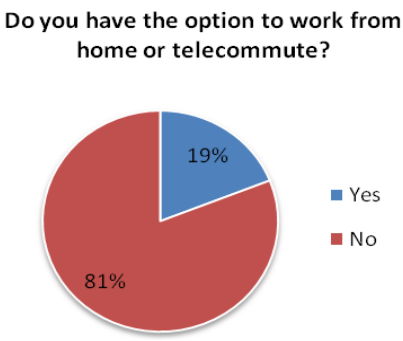
Licensed Drivers - The majority of respondents (91%) have a valid driver's license. This is highest among those with university education and lower for those who had only attended high school. Also, penetration was almost universal (99%) for those working outside of Niagara Falls.

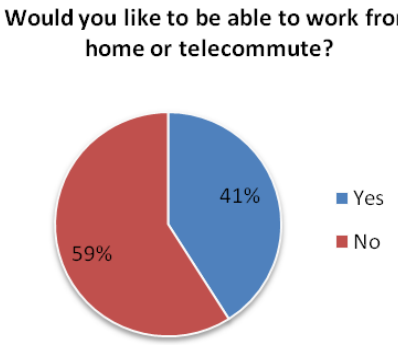


Travel Patterns – All Regular Travel

The first task was to examine major travel patterns related primarily to employment and education.

- Two-thirds (65%) of respondents regularly travel from home to their place of employment. Not surprisingly, this large segment tends to be younger (under the age of 46) and skews towards households that have at least one child.
- Only 2% of those who are employed work from home and another one in five (19%) of those who travel to their workplace have the option to telecommute. It is most prevalent among younger aged workers, men, those with post secondary education and professionals/managers. However a large minority (41%) of Niagara Falls workers would prefer to telecommute/work from home. Again, the desire to telecommute is more prevalent among younger workers and men.





- Over one in four respondents (28%) do not travel from home regularly – they could be retired, unemployed or engaged in household duties. This sector skews older, and is most likely to be long-term residents and those who live in smaller size adult-only households.
- Over one in six (15%) of Niagara Falls residents aged 16 and over regularly travel from home for educational purposes. Again, this group skews younger and living in a household with three or more occupants. They also tend to be driving more but are also more likely than others to indicate that they will take public transit in the future.
- Another 12% of residents indicated that they travel from home regularly to do a myriad of different things including shopping, recreation, visiting family/friends, and going to medical appointments.

Travel Patterns – Employment Related

Workplace Location – about two-thirds (64%) of employed Niagara Falls residents are employed locally; only one-third are forced to travel beyond the City to other regional destinations. About one in ten (9%) commute outside of the Niagara Region. Gender features as a major variable on the issue of workplace location with women being more likely to hold local jobs while men tend to have longer commutes either in the Region or outside of it. Average travel time to work varies, with local workers experiencing shorter times and those moving further afield travelling longer than average. Also, people who work locally are more likely to use Niagara Falls transit than those who travel outside of the area.

Commuting to Work – Most employed residents (88%) travel from home to work by private vehicle. Naturally those who work outside of Niagara Falls are more likely to do so than those who work locally. Conversely, those who work in the City may walk (8%), take Niagara Falls transit (4%) or cycle there (2%), although 84% of them go by private vehicle/car. Carpooling is rare. Only 1% use this option and even fewer avail themselves of GO Transit. Those with post secondary education and engaged in the managerial or professional positions have the highest prevalence of travelling to work by car, while those with less education or working in other occupational categories are more inclined to seek other ways of getting to and from work.

Most of those who travel to work by car are driving the vehicle (94%) – only 6% are passengers. People who work locally are slightly more likely to be commuting with others, whereas those who must drive further afield are more inclined to be driving the vehicle.

Length of commute time – On average, Niagara Falls commuters, regardless of travel mode, take 20.1 minutes per trip. Looking closer, some noteworthy patterns emerge:

The average travel time for locally employed residents is about half that of those who must commute outside of the City – 14.3 minutes versus 30.9 minutes.

The commute time for men is longer on average than that for women – 22.7 minutes versus 18.1 minutes.

Two-thirds (65%) of employed residents require 19 minutes or less to travel from home to work and another 20% take 20 to 29 minutes. A minority (14%) require half an hour or more to commute to work. At the high end, only 6% drive one hour or more each way – these residents are also much more likely than others to report that local traffic has gotten worse in the past five years.

Travel Patterns – Education Related

As noted, 15% of Niagara Falls residents aged 16 or over regularly travel from their home to an educational institution. Travel is almost evenly divided between those who attend local schools (50%) and those who travel beyond the City (46%). The majority (36%) of this latter group indicate that they are attending school in the Niagara Region while the remainder (11%) travel further afield. Another 5% are pursuing education elsewhere, likely in other provinces or in the United States.

Fewer students travel to school by car than those who commute to jobs – 63% versus 88%. However, this dictated to some extent by the location of the high school, community college or university. Those who go to school in Niagara Falls still have a heavy reliance on getting there by car, while 16% walk, 7% take local transit and 7% take a school bus. Those who are required to travel further afield drive or take mass transit (Niagara Falls transit, Brock University or Niagara College bus or GO Transit/GO Bus).

Most residents (95%) who regularly travel from their home by car for educational purposes are drivers of the vehicle – very few are passengers (5%).

The average length of the commute from home to school is 22.0 minutes which is marginally longer than those who travel to their place of work (20.1 minutes on average). It follows that students at Niagara Falls schools have the shortest commute (average 15.0 minutes). Half of these students report that it takes them less than 10 minutes and another third of those who are in City schools take between 10 to 19 minutes. In comparison, those who are attending college or university outside of the City take an average 29.0 minutes to reach their destination. One in ten students reported that it takes them one hour or more to travel from their home.

Travel Patterns – 'Other' Purposes

A fraction (12%) of residents indicated that they regularly travel from home for a variety of purposes that are not related to employment or education. This could include shopping, visiting friends/family, health related, etc. Three-quarters (78%) of these 'other' trips are to locations in the City of Niagara Falls, but can include trips to spots in the Region and beyond.

Almost nine out of ten (88%) of these trips are made by car. Only 6% take Niagara Falls transit and 2% take Niagara Falls Chair-a-Van. Another 2% carpool for these 'other' trips. Most of the respondents (95%) report that they are driving the vehicle.

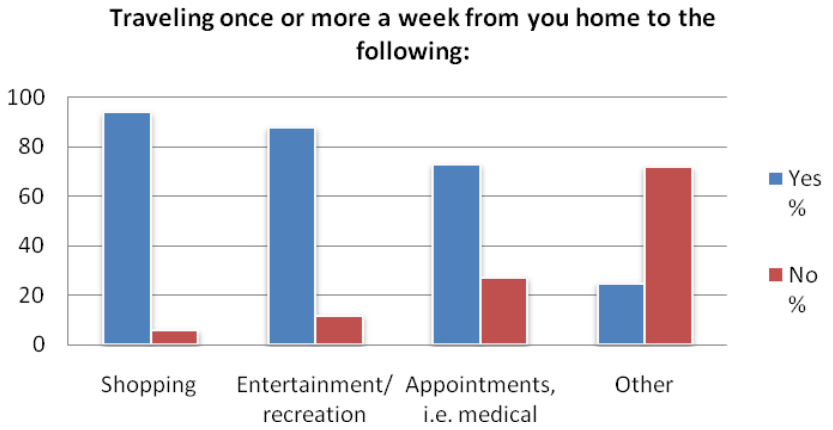
The average length of these trips is longer than those commuting to work or school at 25.2 minutes.

	Work %	School %	Other %
Where you regularly travel from your home:	65	15	12
Location of:			
Located in the City of Niagara Falls	64	50	78
Located Outside of Niagara Falls but in the Niagara Region	32	36	25
Located outside the Niagara Region	9	11	25
Other	1	5	2
Commute by:			
Car/ vehicle	88	63	88
City bus/ Niagara Falls transit bus	3	7	6
GO Transit/ GO bus	-	3	
Niagara Falls Specialized Transit/ Niagara Falls Chair-A-Van	-	-	2
Brock University and Niagara College bus	-	5	-
Combination of car/ bus/ train	-	3	-
Walk	5	8	-
Bicycle	2	-	-
Carpool	1	2	2
School bus	1	3	-
Other	1	3	2
No pattern	-	2	-
Are you:			
Driver	94	95	95
Passenger	6	5	5
Length of commute time:			
Less than 10 minutes	28	29	27
10 -19 min	37	36	37
20 - 29 min	20	16	6
30 - 39 min	7	8	12
40 - 49 min	2	2	4
50 - 59 min	1	-	2
One hour or more	6	10	12
Average	20.1	22	25.2

Regular Trips – Shopping, Recreation, Etc.

Trip Purpose

As would be expected, most Niagara Falls residents regularly (once a week or more frequently) venture from their homes for a variety of purposes including shopping (94%), entertainment/recreation/visiting friends and family (88%), appointments e.g., medical (73%) and other tasks (25%).



Bar 10

As noted, shopping is the leading reason for going out and is particularly pronounced among those who might be more affluent – that is, those who are occupied in the professions or are in managerial positions. Educational background is also a predictor of how often they go out for entertainment purposes. At least nine in ten of those who have attended college or university report that they leave home at least once a week or more, while almost two in ten of those who have high school education only do not go out for pleasure or visiting purposes every week.

Weekly or high frequency trips for appointments such as medical, hairdressers, etc. are more evident among women than men. The same can be said for those who are employed in professions or as managers – they tend to have more appointments than those in other occupations.

One in four Niagara Falls residents indicated that they travel from home at least once a week or more for 'other' purposes excluding shopping, appointments, work or education. There are a variety of reasons that this smaller segment site, including simply taking a drive or going to the cottage, helping family members or friends, sports/fitness, and attending church.

Travel Mode

Most of these trips are made by car/vehicle – 91% use the car to go shopping. The incidence is even higher if there are children in the household; in this case 99% take the car compared to people who have no children (87%). This latter group is more likely to take the City bus or to walk to the local shops. A similar pattern is observed for regular trips that are geared to entertainment, visiting friends/family or

appointments. People residing in adult-only households are more inclined to leave the car at home and to walk, take Niagara Falls Transit, take a taxi, etc.

Driver/Passenger

While the car figures in the great majority of these regular trips away from home, the likelihood that the respondent is driving drops marginally depending on the purpose of the outing. It would appear that, for shopping trips and appointments, they likely are the sole vehicle occupant, whereas trips for entertainment or visiting friends/family tend to be more of a shared experience. In this case, men are more likely to be the driver and more women are passengers.

Which mode of travel do you use most often to travel from your home for the purpose of:	Shopping %	Entertainment/ Recreation %	Appointments %	Other %
Car/ vehicle	91	91	92	-
City bus/ Niagara Falls Transit bus	3	2	3	-
Niagara Falls Specialized Transit/ Niagara Falls Chair-A-Van	-	-	1	-
Walk	3	2	2	-
Bicycle	1	1	-	-
Carpool	1	2	-	-
Taxi	1	1	2	-
Other	1	2	3	-
On these outings, are you the:				
Driver	90	83	88	85
Passenger	11	18	12	15

Road Traffic Changes in the Past 3 Years

City residents were asked to consider road traffic – has it changed in the past three years? Has it improved substantially or somewhat, remained the same or become worse (somewhat or a whole lot)?

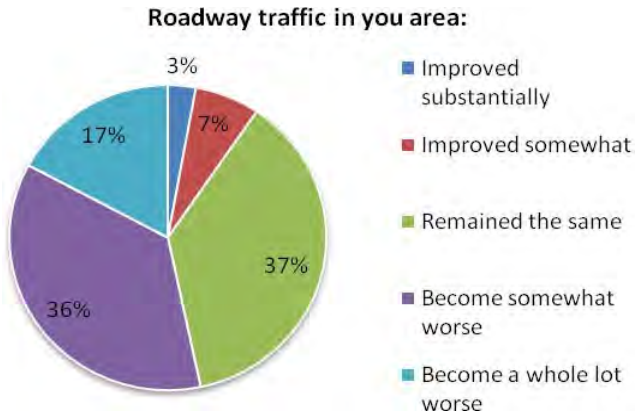
The single biggest segment (51%) assessed the traffic situation as one that has deteriorated – 34% thought it had 'become somewhat worse' and another 18% indicated that it had 'become a whole lot worse.' Another 40% thought that it had remained the same, and only 10% concluded that it had improved. Opinion differs on this key point depending on age and the length of time they have lived in the City:

- Older residents are much more likely than their younger counterparts to find that road traffic in Niagara Falls has gotten either 'somewhat worse" or 'a whole lot worse' in the past three years – 62% versus 42%.

- Longer term residents who have lived in the City 10 or more years view the traffic situation more negatively than those who have taken up residence more recently – 57% of the former group say it has gotten worse (somewhat or a whole lot) compared to 34% of the former segment.

- Also, residents who are employed locally tend to be more critical than those who commute longer distances – 21% said it had gotten a 'whole lot worse' contrasted to 11% for the other group.

- It is noteworthy that the perspectives of residents who commute to work or school are similar to the overall average assessment.



Driving Patterns in the Past 10 Years

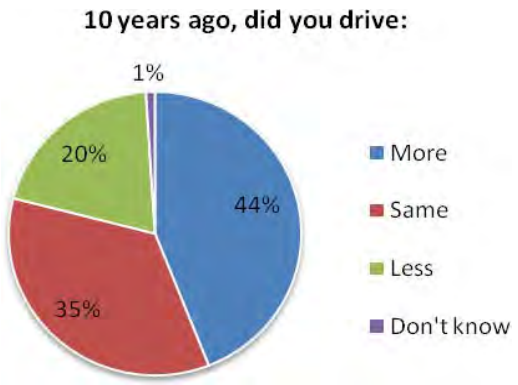
Drivers were asked to reflect on their driving habits: "Would you say you are driving more, less or the same amount as you did 10 years ago?"

It is telling that the majority of Niagara Falls residents are either driving more or about the same amount today as they did a decade ago. While this may be simply a guestimate in many cases, some respondents may be tracking annual mileage and thus have a more accurate perspective on the issue.

- The single largest segment of drivers (44%) indicated that they are driving more now; it is particularly noted among those who are under 46 years of age. The reason for the increase could be related to the location of their workplace, but is also likely a function of accessing shopping and services located in the rapidly expanding perimeter of Niagara Falls.

- One-third (35%) of Niagara Falls residents report that they are driving about the same number of miles today as 10 years ago. These respondents tend to skew older.

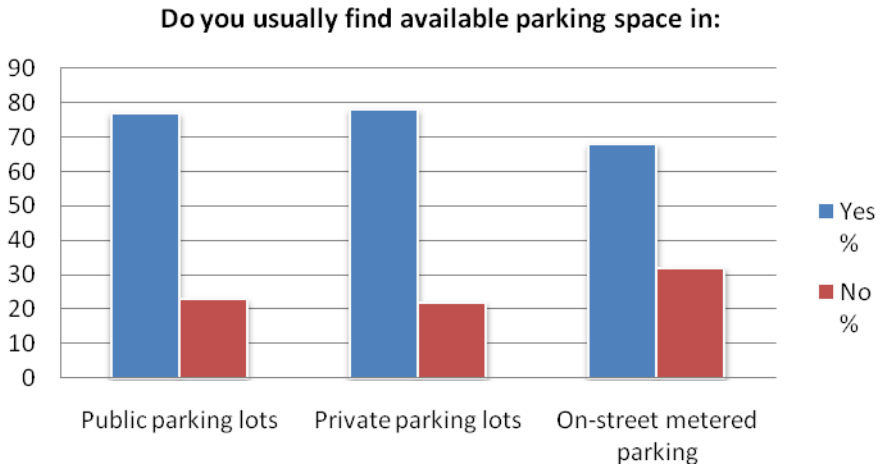
- Only one in five (20%) claim that they are driving less now than in the past. This segment is stronger among men than with women.



Parking Availability

The issue of parking availability was explored among drivers who represented the majority of the sample. Do they usually find that there is available parking space at public and private parking lots and on-street meter parking?

In all three cases, a strong majority reported that they are usually able to find a spot. Drivers were slightly more likely to find parking in either the public or privately owned lots – at least three in four reported that was the case. Whereas it may be slightly more difficult to find metered parking; one third of drivers said they experienced this situation. However, there was little indication elsewhere in this study that access to parking is a major and recurring problem in the City of Niagara Falls.



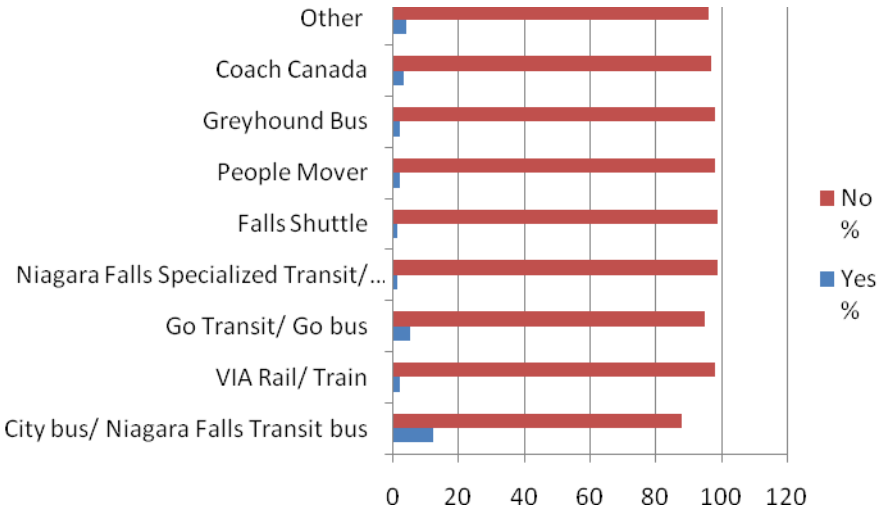
Mass Transit Use in Past Month

As noted throughout this report, private cars/vehicles are the dominant travel mode in Niagara Falls for both local and longer distance trips, regardless of the trip's purpose. However, mass transit does play a role, albeit much smaller. Here is the relative significance of mass transit usage based on the locally available options:

- Slightly over one in ten (12%) of adult residents reported that they have taken Niagara Falls Transit in the past month. Usage is more prevalent among people under 46 years of age and those who have moved to the City within the past 10 years. Students who use the City Bus to travel to school are also more likely than others to use this service generally than other Niagara Falls residents.

- One in twenty residents (5%) indicated that they have taken GO Transit/GO bus in the past month, 3% travelled by Coach Canada and another smaller group (3%) travelled by VIA Rail.

- Smaller numbers (between 1% and 2%) have used one of the following in the past month: the People Mover, Falls Shuttle, Niagara Falls Chair-A-Van, Greyhound Bus and/or a taxi.



Rating Mass Transit Service

Users of mass transit were invited to rate their overall level of satisfaction based on their last trip using a scale of one to ten where ten was the highest score. Given the small number of residents that had recent experience using one or more mass transit modes, the only rating that has validity is for Niagara Falls Transit. It received a rating of 7.3 out of a possible 10 which indicates that users are moderately satisfied with the overall service they experienced.

Reasons for Rating: Niagara Falls Transit

Reasons for higher ratings (7 to 10) – Those who assigned satisfaction ratings of between 7 and 10 offered both praise and criticism. On the positive side, some riders are happy with the new, air conditioned buses, travel is "well priced," buses arrive on schedule and routing works for them. Buses are clean and comfortable and the atmosphere is positive. They praised drivers for being friendly and helpful. However, some riders were displeased, as follows: "never on time," routes and connecting points are inconvenient.

Reasons for lower ratings (1 to 6) – Inconvenient times, service gaps (i.e., no Sunday service), tardy buses and scheduling annoyed local transit riders. A few people reported that drivers were rude or passed along wrong information about bus routes/scheduling. A few others complained about the $3.50 fare and one person with disabilities hoped that more buses would be able to accommodate wheelchairs. A few parents felt that the buses were unsafe or too crowded for families with children.

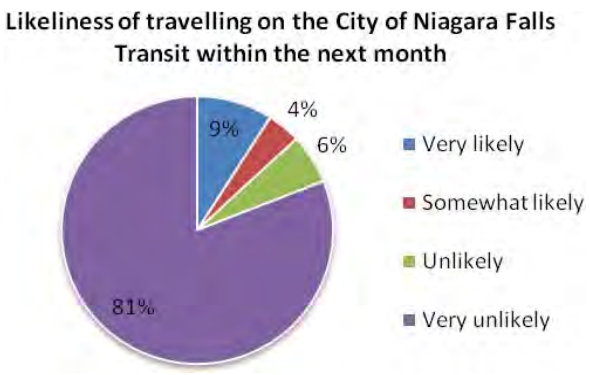
Reasons for rating:	City bus/ NF Transit bus %
Other Positives	41
Positive routes and scheduling	31
Negative routes and scheduling	31
Positive staff	25
Positive Atmosphere	19
Other negatives	13
Negative atmosphere	6
Inaccessible	3

Likelihood of Taking Niagara Falls Transit

All Niagara Falls adult residents were asked about the likelihood of them taking Niagara Falls Transit in the next month – were they 'very likely,' 'somewhat likely,' 'somewhat unlikely' or 'very unlikely' to take it?

Just over one in ten (13%) indicated that they might or would be taking this form of local transit soon. Most of this segment said they were 'very likely' to travel by this mode, while the remainder thought that they might. Younger adults and those who are employed locally are more likely to take the bus than others.

Conversely, 87% of residents have no intention of taking Niagara Falls Transit soon. Most of this large segment were definite about this – 81% were 'very unlikely' to be stepping on the bus.



Reasons for Not Take Niagara Falls Transit

Why do the majority of Niagara Falls residents reject the local mass transit option? It is noteworthy that the rationale for this decision is a preference for taking the car rather than complaints about the Niagara Falls Transit. Men were particularly inclined to say that they preferred to drive compared to women – 62% versus 49%.

A number of reasons were cited by those who did not simply insist that they preferred to travel by car. These comments focused on the following factors:

Service, scheduling and route deficiencies which included a variety of complaints: “don’t go to desired location,” “one transfer is located in front of a strip club,” “have to wait too long,” “lousy schedule.” Bus frequency and timing were key issues, but a small number of people noted that they prefer to walk or to ride their bicycle. Some people noted that the local transit system “served no purpose to me” or that they disliked the bus. A small number claimed that they did not use it due to health/disability problems.

Reasons unlikely to take the Niagara Falls Transit	Total %
Prefer to drive/ take the car	54
Service (Poor service, routes, scheduling)	10
Inconvenient (general)	7
Inconvenient schedule/ infrequent timing)	7
Prefer other means of transportation	3
Unnecessary	3
Poor health	2
Never take it/ dislike bus	2
Doesn't go when I want to go	2
Dangerous	1
Too far from my home/ too far a walk	1
Don't go out often	1
Cost/ too expensive	1
Other	4

Suggestions for Improving Transit Service

All Niagara Falls adult residents were asked "What is the most important thing that could be done that would encourage you to use Niagara Falls Transit/more frequently (for current users)"?

- The single largest segment, 43%, indicated at the outset that there is nothing that can be done to the system to garner their support. This response was most prevalent among men and people over 46 years of age. Also it is worth noting that these sectors of the population are not inclined to cycle or to make use of the local trail system.

- First and foremost people who were willing to consider transit suggested that routes needed to work for them. Here are some of the remarks: "improve buses to run on a grid rather than going all over the place", "more convenient routes", "more accessible for work location", "more bus stops" and "get into areas where there is no bus service".

- Scheduling also needed to be adjusted by increasing the frequency of service; this point was particularly important for students.

- Fares should be reduced; younger adults were most concerned about the cost.

- A small number encouraged the City to improve communications, to ensure that drivers were more courteous and to accommodate persons with disabilities.

What is the most important thing that would encourage you to use Niagara Falls Transit?	Most important %	Total Mentions %
Improve Services	18	17
Better schedules	6	9
Lower prices/ cheaper fare/ discounts	9	8
More frequent buses	10	6
Locate a stop closer to my home	5	4
Unnecessary	3	1
Improve Communication	3	1
Better buses/ nicer buses	1	1
Friendlier/ more courteous drivers	1	1
Access/ accommodate persons with disabilities	-	1
Environmentally friendly (i.e. Go Green)	1	-
Nothing	43	49
Other	2	2

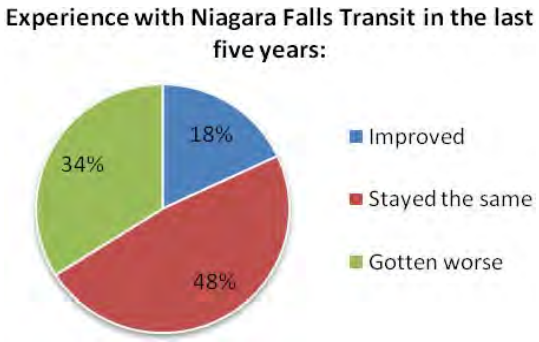
Assessment of Moving Around the City in Last 5 Years

All respondents were asked to reflect on their experiences "getting from your home to other local places in the City of Niagara Falls in the past five years" – had it 'improved,' 'stayed the same' or 'gotten worse'?

Reaction to this question was mixed: slightly less than one in five (18%) concluding that things had improved in the last while, whereas the single biggest segment, about half of residents, thought that there had been no substantive changes in terms of getting about in the City. One-third (34%) had a negative view of the situation – it had gotten worse in the past five years. Response to this question varied depending to some extent on age, gender and occupation, as follows:

Longer term residents, women and those who are in the older age segment (46 years and over) were most negative, as were those who were employed in professional/managerial occupations.

- Those who thought things were largely unchanged tended to be evenly distributed across all the demographic segments.
- Men were much more likely than women to think that things had improved – 24% versus 14%.



Reasons for Views: Local Traffic has Gotten Worse

The major complaint was that there was now "too much traffic." Seven in ten (69%) of those who said that it had gotten worse noted that gridlock impedes local traffic flow. This opinion was particularly noted by longer term residents; they view local traffic conditions over more years than those who moved to Niagara Falls more recently.

Other factors that lead to them concluding that the City's traffic flow had deteriorated in the past five years included, in order of mention:

- Road conditions (18%) – "bad roads," "road maintenance," "2nd Road and Stanley Road needs to be redone – it's been like that for the last 15 years."

- Construction (13%) – “construction is increasing” and “construction on tourism sector.”
- “Too few roads” (9%)
- Tourist related traffic (8%) – A small number thought that the tourist trade brought too many people into the City. Others linked gridlock related to hotels and parking lots specifically to tourists.
- Freight trains block major roads (8%)
- Other complaints: “discourteous drivers,” “more traffic lights,” “too many trucks” and “price of fuel.”

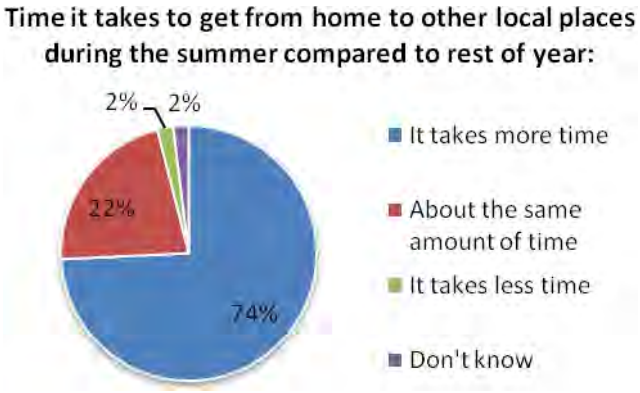
Reasons experience has gotten worse over the last 5 years:	Total %
Too much traffic/ gridlock	60
Road Conditions	18
Construction	13
Too few roads	9
Detours/ road wideness/ commercial traffic	9
Too many tourists	8
Freight train block roads	8
Bad/ discourteous drivers	5
More traffic lights	2
Too many trucks	2
Price of fuel	1
Accessibility	1
Other	15

Seasonal Driving

Residents were asked if they experienced seasonal differences – “thinking about the time it usually takes to get from your house to locations around the City of Niagara Falls during the peak summer period versus the rest of the year.” Did it take “about the same amount of time,” “it takes more time” or “it takes less time”?

- Three-quarters (75%) of Niagara Falls residents reported that it takes them “more time” to get from one place to another in the City during the summer period. This opinion was even more strongly held by those who regularly commute to work or to school. And it was strongest among those who work locally – 89% of these residents say that they experience delays moving around the City during the peak tourist period.

- About one in five (22%) are not aware that their travel is any different from one season to another. This is particularly the case for those who do not commute to work or school; retired persons are least affected.
- Very few residents (2%) concluded that it takes them less time to get from one place to another in the City during the summer months.



Attitudes and Perceptions about the Transportation System

Residents' attitudes and perceptions about the City's transportation needs were probed using a list of statements – did they Agree or Disagree with them?

Highest Agreement: Needs of Tourist Sector Workers, Linking Transit Systems and Railway Barrier

Over eight in ten residents (87%) agreed that the transportation system must work for tourist sector employees, given the major role it plays in the local economy. Women were much more supportive of this proposition than men. Also, more than eight in ten (83%) support improving the links between Niagara Falls Transit and other municipal transit systems. And three-quarters of residents (75%) report that they are often inconvenienced waiting for the freight trains to cross local arteries.

Medium to High Agreement: Transit Should Serve Students and Growing Importance of Public Transit and Cyclists

Seven in ten residents endorse revising Niagara Falls Transit scheduling to accommodate students' needs even though this segment of the population is quite small. And even though the great majority of residents do not take transit, two-thirds (66%) agree that transit is becoming more important. Given the popularity of recreational cycling, the majority (61%) believe that the needs of this sector are not being met.

Medium Agreement: Gas Prices Affect Auto Usage and Needs of Special Needs Sectors not Being Met

Over half of the adult population (56%) indicated there is an direct relationship between the cost of gas and their inclination to drive; higher costs drive usage down. And the majority of those who responded to this statement (26% did not know) agree that seniors and persons with disabilities are finding it harder and harder to get around the city due to the way public transit is organized.

Lowest Agreement: Would Prefer to Take Transit

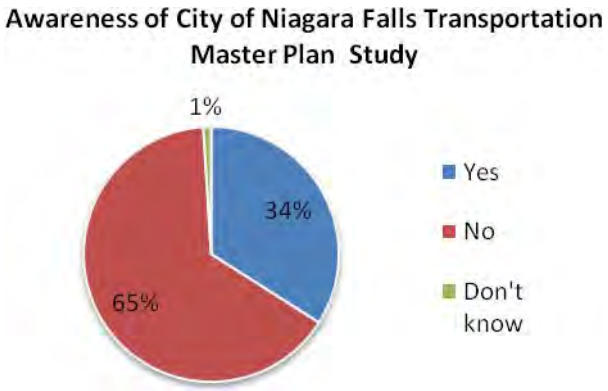
Only one in four (26%) residents agreed that they often would rather take transit but are forced to use their vehicle.

- There is a gender divide on several issues related to Niagara Falls' current transportation system; overall women tended to be more 'transit-aware' and sensitive to users' needs than were their male counterparts.
- Age also is a factor shaping opinion: younger adults (under 46 years) are more inclined to think of taking transit than their older counterparts. Also the younger cohort is less likely to be inconvenienced by road blockages by trains and they are less likely to believe that disabled people may experience barriers to taking public transit.

Niagara Falls Transportation Master Study

Awareness

About one in three (34%) of Niagara Falls adult residents claimed that they are aware that the City is "undertaking a transportation master plan study that will provide recommendations for making transportation more sustainable and to meet the City's future needs." Older residents are more aware than those who are younger, as are those who work locally and those who have recently used the recreational trails.



Suggestions for Improving Local Travel

Residents were asked to think about improvements to local transportation taking a long-term perspective – "Now thinking about living in the City and travelling around it to work, school, shopping and/or all your other needs and how travel could be improved in the future – what three things would you like to see done? The intention of the plan is to look forward for the next 10 or 20 years. "

Here are the key points, presented in order of significance:

- Mass transit was the leading item – 44% of the first mentioned suggestions focused on this issue. In addition, references to transit are scattered throughout the long list of comments, particularly transit options linking Niagara Falls with other destinations in and beyond the Niagara Region. Inter-regional public transit planning is needed to link local with regional systems and to provide service between Niagara Falls and St. Catharines and to colleges and universities. Also, the local transit system needs to better serve people's needs. Residents hoped that routes would be altered to link them with key local destinations and be sensitive to seasonal popular spots. Also, bus scheduling needs to be shifted to provide more frequent service/reduce wait times. Expand the schedule to provide more service on Sunday and during the late evening hours. A small number suggested adding bike racks and training drivers to be more courteous and thoughtful of passengers. Other references to mass transit improvements touched on these related issues: funding mass transit so that it would be "affordable," increasing public education/social marketing to encourage transit use.

- References to Niagara Falls roads/road systems attracted less comment and tended to focus on improving current infrastructure. Road maintenance is seen as being neglected, particularly in some sections of the City. A smaller number hope that roads can be widened from two to four lanes, especially in popular tourist areas, or that construction happen quickly.

- Traffic control measures are needed, including adding more stoplights at major intersections. Also, the traffic blockage caused by freight trains caused long delays. In addition, "better access to Hwy. 420."

- A small number of residents hope that cycling will be better accommodated by a number of measures, including more bicycle paths, more bicycle lanes and more parking for bicycles.

- Just under one in five (18%) of Niagara Falls residents did not offer any suggestions. This segment was particularly likely to be retired or older members of the population.

Suggestions for improving transit service:	First suggestion %	Second suggestion %	All suggestions %
Public transportation	44	48	50
Traffic routes	21	25	26
Improve roads	19	14	25
Transit schedule	12	16	18
Other public transportation	9	14	17
Traffic control	7	10	11
Affordable public transportation	3	6	9
Road accessibility	4	7	8
More accessible public transportation	3	5	5
More access for bikes	2	4	4
Road communication	1	1	3
Create awareness for public transportation	-	2	2
Parking	1	3	1
Other lower prices	-	1	1
Other	8	12	14
Nothing/None	12	12	12
Don't know/ Not stated	6	6	6

Reactions to Suggested Local Travel Planning Directions

A series of statements about future possible directions for transportation was presented to respondents – did they Agree or Disagree with each statement?

Most of the suggestions got a green light. To illustrate, the highest levels of support (between 80% and 96%) were for the following:

- Road Maintenance and Special Needs Services - At least nine out of ten residents agreed that investment in road maintenance is needed (96%) and that planners must ensure that seniors and persons with disabilities have easier access to services (94%). Women felt more strongly than men about gearing services to these two population groups.
- GHG Reduction - Also, the same high proportion (91% overall) endorsed planning transportation to reduce pollution and greenhouse gases. Women and younger adults were particularly strong on this latter issue.

- Link Transit Systems - There was strong endorsement (89% overall) to address the current gap between City and region and provincial mass transit systems. Women and people with university education were even more supportive than the average.

- Most people (85%) agreed with the notion of more compact urban development which would provide "a better mix of residential and commercials uses to reduce the need for driving."

At least seven in ten agreed with the following ideas:

- Prioritize Transit - More investment is needed for local public transportation - 78% endorsed it. This priority is particularly appealing to more recently settled residents and to women.

- Behaviour Change Program - Investment in social marketing initiatives to boost more walking/active transportation – 73% agreed with this suggestion.

The issue of placing higher priority on walking than to private vehicles also garnered support – 65% agreed. Women and people who live in larger sized households were more enthusiastic about this proposition than others.

Placing priority on bicycles rather than building more roads for vehicles received mixed support – 46% agreed with this shift but an equal number disagreed.

Recreation/Active Transportation

Niagara Falls residents have access to an extensive trail system as described below:

The Niagara River Recreation Trail is a 56 km paved path running along the Niagara River from Niagara-on-the-Lake to Fort Erie. It forms part of the Greater Niagara Circle Route, a 140-km loop around the Niagara Peninsula. Other components are the Waterfront Trail along Lake Ontario to the north and the Friendship Trail to the south. The Niagara River Recreation Trail is a segment of the Trans Canada Trail.

Six in ten residents (60%) indicated that they have walked and or cycled on the recreational trail system in the past 12 months. Trail users stand out in several ways:

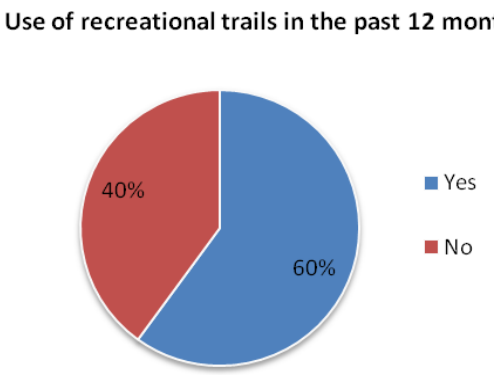
- Younger residents are more likely to have used the trail than their older (over 46 years) counterparts.

- Trail users are more likely to have moved to the City in the last 10 years than longer term residents.

- Trail users tend to be better educated than non-users.

- Trail users tend to be more inclined to think that road traffic has improved in the last three years and also report that they are driving less.

- Trail users are more likely to own and have recently used their bicycle.



Suggestions for Improving the Trail System

What would trail users do to improve the trail system?

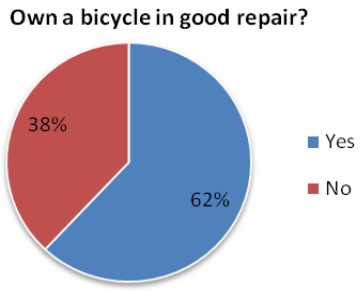
- Four in ten users (39%) indicated that there is nothing required to enhance the current trail system.
- The single strongest direction called for trail expansion – 23% of users would like to have more paths. The specific suggestions for augmenting the system included: "have in more areas of the City so you don't have to drive to them," "one trail ends in the middle of nowhere – expand it," "widen trails for bikes and rollerblades," and "create more paved, accessible trails for bikes."
- Maintenance figured next – 14% made reference to the need for more frequent resurfacing, tree trimming, grass cutting, litter removal, more litter bins, and 'poop and scoop' for dog owners.
- The trails would benefit from the addition of amenities (10% mentioned this) such as more lighting for evening and winter months and water stations/fountains.
- Safety is an issue for some trail locations such as in the Gorge and safe passage for walkers who compete against cyclists, people rollerblading and users of ATVs and snow mobiles.
- Promote the trails and encourage residents to use them by enhancing signage and providing trail maps.
- Create more links in the City with the trails – the trails should be interconnected.
- Add more access points for bicycles.

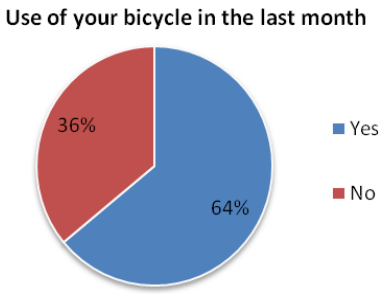
Improvements that could be made to trail systems:	Total %
Nothing	39
Expansion	23
Maintenance	14
Amenities	10
Safety	7
Awareness	6
Other	6
Don't know/ Not stated	5
Increased Interconnections of Trails	4
Increased accessibility	3
Finish trail	2

Bicycle Penetration and Usage

The penetration of bicycles in good working order is high: over six in ten (62%) of Niagara Falls households have at least one. While the ownership of bicycles is widespread, it is particularly strong in these sectors: younger adults, men, university graduates, families/households with children and people who commute to workplace locations outside of Niagara Falls. Conversely, these sectors are less likely to own a bicycle: older adults, women, people with high school or community college education, people who work locally, members of adult-only households and retired persons.

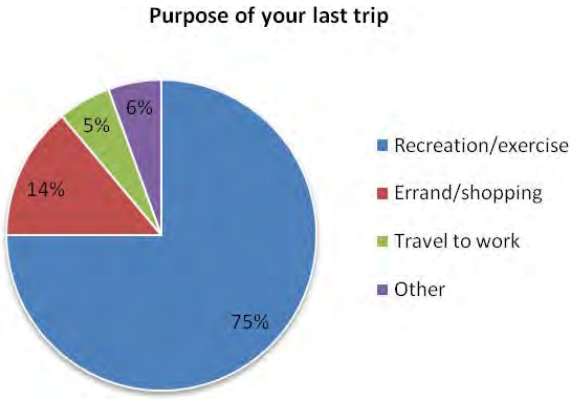
More important is usage – How many of those who own bicycles used them recently? Almost two-thirds (64%) of owners indicated that they took their bicycle out for a spin in the past month. Usage was most prevalent among younger/middle aged adults. Bicycle users are also more inclined to work in the Niagara Falls area, to use the recreational trails and intend to take local transit in the future.





Cycling Trip Purpose

Most bicycle outings are for recreational purposes – 81% indicated this was the intent of their last trip. Only one in five (21%) used their bicycle for shopping/ errands or, less likely, to travel to work.



Inducements to Cycle More

Half of cyclists offered ideas for stimulating bicycle usage, while the remaining half had no suggestions. Ideas included investment in cycling infrastructure − 25% want more bike lanes and another 15% asked for more bike paths. Women and students were particularly keen on adding bike paths.

A small number of cyclists mentioned safer lanes/roads and sensitizing car drivers to bicycle riders/share the road initiatives, in addition to more bicycle parking facilities.

Things that would encourage the use of your bicycle more often:	Most Important %	Other %	All Mentions %
Bike lanes/ more bike lanes	25	12	31
Bike paths/ more bike paths	15	7	20
More courteous/ aware car drivers	2	7	7
Bike parking/ more bicycle parking	1	4	4
Places to lock/ park bike	1	3	3
Access to bike/ more affordable	1	1	2
Health	2	1	2
More time	-	1	2
Proximity to important places	2	-	2
Incentive	1	3	2
Better weather	1	1	1
Public education on bikes	-	1	1
Safer lanes/ roads	4	-	-
Walking trails	-	-	-
Other	6	5	8
Nothing	38	61	38

Active Transportation/Walking

There is very limited inclination to walk to local destinations. The question is – "What is the one thing that could be done to encourage you (Niagara Falls residents) to walk more often?"

More than two-thirds of residents (68%) retorted that "nothing" would induce them to adopt walking as an alternative to relying on private vehicles or other energy intensive forms of transportation. While walking is rejected as a desirable alternative by people in all demographic segments, it is particularly marked in longer term residents, men and people who graduated from community colleges.

The remaining one-third who were willing to consider the proposition of walking offered some remedial suggestions scattered among a short list of options:

- Sidewalks lead the way – existing ones need to be improved and new sidewalks with conveniently located crosswalks should be added. More stop lights are needed.
- Urban sprawl means that residents are spatially disconnected from major destinations such as schools and shopping malls. Planning should focus on creating communities that are designed to locate shopping, recreation and services in close proximity.

- Both monetary and motivational rewards are needed to promote active transportation, specifically walking and cycling. Public education could help promote these healthier alternatives; drivers need to be educated to respect cyclists. Traffic free trails would make cycling and walking less dangerous.

- Sidewalks and bicycle paths need to be kept clean, litter-free and cleared in the winter.

Things which could encourage more walking:	Most Important %	Other %	All Mentions %
Improve the sidewalks	6	2	6
Proximity to important places	5	2	6
Add more sidewalks	3	4	4
Health	3	1	3
Incentive	2	4	2
Walking trails	2	2	2
Keep area clean	1	2	2
More crosswalks	1	2	2
Public education/ encourage people to walk	1	2	2
Shovel/ remove the snow	1	6	2
Better weather	1	1	1
Better signage	-	2	1
Safer lanes/ roads	1	2	1
Other (more traffic lights, educate drivers, more time)	7	10	9
Nothing	68	66	68

Transportation Needs of Tourists

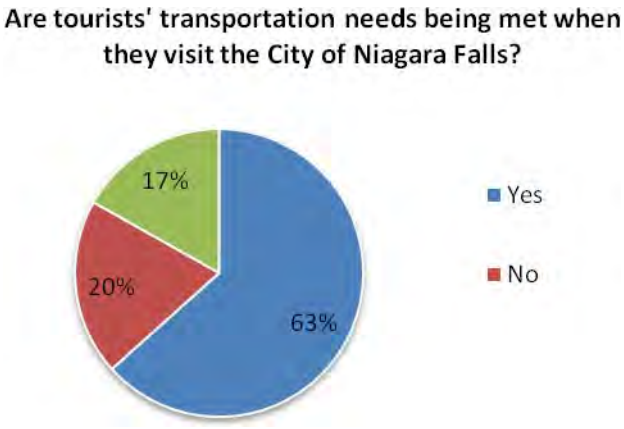
The tourism industry is a major factor in the City of Niagara Falls; residents are well aware of its significance to the local economy. Residents share the roads, parking and other local infrastructure with visitors, hence the rationale for asking: "As far as you can tell, is sufficient attention currently being paid to the transportation needs of tourists when they visit the City of Niagara Falls?"

Just under two-thirds (64%) believe that tourists' needs are being addressed compared to only one in five (20%) who think that this important sector is not getting sufficient attention. The remaining minority, about one in seven residents (17%), was unable to answer this question. Looking more closely:

- The majority who felt that tourists' transportation needs were being adequately accommodated crossed all demographic groups but was particularly noted among these segments:

younger/middle age adults (under 46 years), high school and college graduates, adults with children, students and those who are employed in the local area. Also included are those residents who report that the time it takes to travel to local destinations has either improved or stayed the same in the past five years.

- While only one in five residents believe that tourists are not getting enough attention, this opinion was particularly pronounced among university graduates and those who identified roads/transportation issues as a major concern requiring immediate attention.
- Inability to comment on this issue was especially evident among older residents, those who are unlikely to take local transit in the future, people who do not cycle and those who report that getting around the city has deteriorated in the past five years.



Local Transportation Barriers Experienced by Tourists

The prime deficiency was seen to lay with the transit system; a variety of factors were cited including:

- Tourists needed timely, more efficient transit to move them to hotels and to local destinations. Not only were there insufficient numbers of buses, but the routes were not designed to move visitors to key local spots. Some people suggested that local hotels should provide guests with free bus service. It is noteworthy that residents who are not transit-friendly strongly support enhancing local public transit options for visitors.
- Parking issues lead to problems for both tourists and residents; regulations are not enforced and double parking clogs major downtown streets. (It is not possible to define 'downtown' further; this is a term used by respondents.) Some residents feel that there is either insufficient capacity or that prices are too steep.
- Communications need to be improved linking tourists with local attractions – "not marketed properly, more directions on where to go."
- Road and highway systems are confusing and signage is inadequate.

- The flow of traffic in the downtown core areas is impeded by narrow roads, illegally parked cars and incompetent drivers. Some residents suggested that increasing the availability of mass transit options from major tourist feeder locations would help relieve local congestion.

Reasons not enough attention being paid to transportation needs of tourist	Total %
Better transportation	25
Not enough buses	19
Transportation to more place	16
Parking	14
Communication	11
Confusing road/ highway system	9
Poor/ not enough signs	7
Too little parking	7
Expensive parking	7
Traffic	7
More buses	4
Other	11
Nothing	1

Final Suggestions for Sustainable Transportation Systems

Just prior to the end of the interview, respondents were given a second opportunity to provide ideas for helping shape a sustainable transportation system for Niagara Falls. About half of City residents believe that nothing can be done to improve the sustainability of the local transportation system. Long term residents and people who live in adult only households were most likely to hold this opinion.

The ideas put forward echoed those advanced when this question was asked earlier in the interview. Essentially the primary path to sustainable transportation systems involves taking steps to correct perceived weaknesses to the current public transit system, followed by other ideas:

- Alter the destination points to conform to would-be users' needs, i.e. "public buses going from local residences to hospitals", "get people to where they need to go". Also more routes needed to be added to the system and connections were essential between the different buses – "have the buses meeting in the centre area". And hours needed to be extended to accommodate later riders.
- Bus frequency was an issue: "more frequent schedule, e.g. more frequent stops, buses every 5 minutes, smaller buses that come more frequently, every 15 minutes, more frequent service-at least one per hour".
- Lower the fares – "keep the costs down".
- More enviro-friendly buses – "go green, don't allow vehicles in bad repair on the road because of exhaust, more buses on the road to be more eco-friendly, use of alternative fuels and propane and natural gas".
- More bicycle access – "more bike locks, bicycle lanes, bike trails, encourage more people to ride their bikes, more attention to bike ways for biking".
- Better roads, including maintain existing roads and widen roads.
- Reduce congestion, particularly in the tourist-heavy areas.
- Spend money on public transportation geared to residents instead of tourists.
- Communication – more advertising promoting availability of transit services, including distributing a map showing bus routes.
- Pay more attention to walking – encourage more people to walk. Also, upgrade sidewalks that are broken and cracked.

Suggestions for making transportation in Niagara Falls more sustainable:	Total %
Public transportation	27
Routes	13
Road conditions	12
Other public transportation	8
Scheduling	6
Lower cost	4
More environmentally friendly	2
Bikes	2
More attention to locals	2
Communication	2
More buses	1
Smaller buses	1
Encourage walking	-
Other	7
Nothing/ None	49
Don't know	4

APPENDICES

Appendix 1 – Visioning Focus Group Summary

Individual Interests/Positions

I'm strictly with transportation. One little thing I put together there, and not just the city, because we've got – like I said, we have five different systems here:

when we look at transportation, we may want to think outside of the box or see whether or not there are ideas outside of the box that may seem feasible. And I'm saying that mainly because I think the Falls has got to be a tourist magnet. That's the number one business from what I'm seeing, and transportation's going to be a key thing, not only for the tourists, but making sure that they get here. And, as was mentioned by Jim, there's lots of talk right now about regional transit and everything like that, so I think we have to have a comprehensive package.

I take the public transit a lot, so I came to voice my opinion

I'm also interested in seniors and their ability to get from one spot to the other without so much difficulty that they're having now. Environment, too, I'm very concerned about and how all that's going to – if something big comes up, how all that's going to work in without destroying everything that we do have now.

Heritage Committee in case there were any issues that were raised here that would affect the city's heritage.

I'm here as an advocate for Niagara Falls Transit. (volunteer. Not employed by City or NFT)

any study of transportation has to begin with the recognition of pedestrians, that the starting point is always that transportation is something that everybody does, and we all walk. So you have to have that as a starting point.

Niagara Falls Is…givens

There's probably about 1.3 cars per person? So it's a driving culture.

Tourism is the major industry – need to develop systems for visitors and people who work in the tourism industry. Large venues provide private transit for workers unaffordable to smaller operators. Remote parking lots reduce traffic near the Falls but means that visitors require a transit link from satellite lots to downtown locations.

The flow of city traffic is disrupted by a rail line that effectively divides the city in half. Trains coming along Dorchester Road create an impasse, blocking off Drummond and basically slicing the city in half. This means major problems for the delivery of important emergency services (e.g., fire department).

Long freight trains linking with the United States….*the impasse they have when the trains come along Dorchester Road and can block off Drummond and basically slice the city in half with a long train…. They fight over that because they want to build one at Dorchester, but if they build one at Dorchester and not one at Morrison, that doesn't help anybody. There used to be one at Portage Road. There used to be one at Drummond. There was one there for quite a while. (inaudible) At least we can go one way or the other from there, but that didn't help much for the city; that helped us. So it was kind of a selfish…*

GO and VIA rail run on the same rail corridor, serve passengers and do not impede the flow of vehicular travel (sounds like this is a new service, not clear if new one is GO or VIA – talk of stopping GO at St.Catharines). Rail service can be interrupted for up to an hour when the bridge lifts to allow ships access to the canal. There was a question about the appropriateness of giving priority to boats. Rail and train have more urgent "delivery is now," while boat scheduling is more flexible. There are four bridges, and instead of each opening as needed, now one person is in control of all four and opens all four at the same time which means that a train can wait for up to an hour. This unpredictable scheduling poses a major barrier to potential commuters, but is less urgent (although inconvenient) for tourists.

Major arterial roads used by tourists are in very bad condition.

Jurisdictional issue – regional roads and city sidewalks

The Current System

The People Mover – fee-based transit for tourists visiting popular destinations; limits the need to drive from one location to another. May discourage residents from using it and possibly the route does not touch on some of the major destination points that would attract more residents. Possibly there would be positive benefits of having tourists and service workers share the same transit system – facilitate information flow to help guide tourists who are searching for places to visit and things to do.

Red Line

Public transit – is there enough? Is there a efficiency problem? Six routes radiate in and out from the centre of the city, while major streets run east- west. Hence the routing doesn't fit where people might want to go. Also, the hours of operation are restricted and don't accommodate evening needs. Users should have only a short walk to access transit but that's not the way it works.

Major residential areas not serviced (McLeod, Drummond/Murray).

Yeah. I'm not quite sure if there's not enough of it. I don't think it's set out where it's most efficient.

Niagara Falls is basically square. It should work.

Cycling – due to lack of cycling lanes, cyclists use the sidewalks, making it dangerous for pedestrians. Walkers are competing with cyclists for sidewalks. Cycling lanes are sporadic, broken up and pose a danger for cyclists. Regret that the Canal Trail did not come to pass.

Appendix 2 - Questionnaire

NIAGARA FALLS SUSTAINABLE TRANSPORTATION STUDY – Transportation Beyond Tomorrow 2031

FINAL QUESTIONNAIRE – JULY 9TH

NOTICE TO READER: INTERVIEWER AND PROGRAMMING INSTRUCTIONS IN CAPITALS

INTRODUCTION: Today we are conducting a survey among City of Niagara Falls residents on behalf of the City. It is about community issues and should take about 15 minutes to complete. All your comments will be treated with confidence.

SCREENING QUESTIONS

1a.Do you or any members of your household work in the following sectors: DISCONTINUE IF ANY

Advertising/Marketing	1
Media	2
Market research	3
Transportation industry	4
Local/regional government	5
None of the above	6

Ib. How long have you lived in your community? DO NOT READ

Less than 1 year	1	DISCONTINUE
1 to 4 years	2	
5 to 9 years	3	
10 or more years	4	
All my life	5	

1c. In order to help us meet our sample quotas would you please tell me, which of the following age groups applies to you? READ BELOW

Under 16 years	1	DISCONTINUE
16 to 25	2	
24 to 35	3	
36 to 45	4	
46 to 55	5	
56 to 65	6	
66 to 75	7	

Over 75 8
REFUSED DISCONTINUE

1d. GENDER – DO NOT ASK/WATCH QUOTAS
Female 1
male 2

2. Now thinking about the City of Niagara Falls, what are the major issues, if any, should your local government pay most attention to now? Are there any others? RECORD/DO NOT READ – FIRST AND OTHERS – PRECODED LIST TO BE INSERTED

	A	B
Air pollution		
Climate change/global warming		
Crime/drugs		
Development/over-development		
Education/school funding		
Energy/energy conservation		
Gas/oil/fuel prices		
Healthcare/health funding		
Hospitals/bed shortages		
Homelessness/housing shortage		
Landfill/garbage disposal		
Poverty/child poverty		
Recycling/waste disposal		
Road conditions		
Taxes/tax increases		
Traffic congestion		
Youth crime/vandalism		
Air quality		
Other: (PLEASE SPECIFY)		
None		
Don't know		

VEHICLE ACCESS/USE

3a. Do you own and have regular access to a motor vehicle?
Yes 1 No 2

3b. How many vehicles do you and/or other members of your household own and use?
None 1 One 2

Two	3	Three	4
Four	5		
Five or more	6		

3c. ASK ALL: Do you have a valid driving license?

Yes 1
No 2

LOCAL TRAVEL

4a.Do you regularly travel from your home to: READ ALL/RECORD

Yes, (work/place of employment)	1	ASK 4b
Yes, (School/educational institution)	2	SKIP TO Q5A
Yes, other (PLEASE SPECIFY)	3	SKIP TO Q.6
No, I work from home	4	SKIP TO Q.6
No (unemployed, retired, homemaker)	5	SKIP TO Q.6

4b. Do you have the option of working from home or telecommuting on occasion?

Yes 1
No 2

4c. Would you prefer to do all or most of your work from home or to telecommute rather than travelling from your home to work?

Yes 1
No 2

FOR EACH ABOVE ASK:

5a.Is your workplace (school/educational institution/Other) located in: READ AND RECORD

City of Niagara Falls	1
Outside of City of Niagara Falls but in the Niagara Region	2
Outside of the Niagara Region	3
OTHER (PLEASE SPECIFY) _____	

5b. How do you usually travel to your workplace (school/educational institution)? DO NOT READ

Car/vehicle	1	ASK 5c
City bus/Niagara Falls Transit bus	2	
GO Transit/GO bus	3	
VIA Rail/Train	4	
Niagara Falls Specialized Transit/Niagara Falls Chair-A-Van	5	
Brock University & Niagara College bus	6	
Combination of car/bus/train	7	
Walk	8	

Bicycle 9
Carpool 10
No pattern 11
OTHER (PLEASE SPECIFY) _____

5c. Are you the driver of this vehicle or are you a passenger?
Driver of vehicle 1
Passenger 2

5d. Approximately, how long does it usually take you to travel from your home to your destination (WORK OR SCHOOL))? DO NOT READ/RECORD BELOW
Less than 10 minutes 1
10 – 19 minutes 2
20 – 29 minutes 3
30 – 39 minutes 4
40 – 49 minutes 5
50 – 59 minutes 6
One hour or more 7

5d1. In the past three years, has roadway traffic in your area: READ BELOW/RECORD ONE ONLY
Improved substantially 1
Improved somewhat 2
Remained the same 3
Become somewhat worse 4
Become a whole lot worse 5

ASK DRIVERS ONLY:
5e.Overall, would you say you are driving more, less or the same amount as you 10 years ago?
More 1
The same 2
Less 3
DON'T KNOW 4

ASK DRIVERS ONLY:
Based on your experience do you usually find that there is available parking space in: READ BELOW

	Yes, available	No
Public parking lots	1	1
Private parking lots	2	2
On-street metered parking	3	3

6a. Do you regularly travel, at least once or more a week, from your home for any of the following purposes: READ/RECORD BELOW

	Yes ASK Q.6b	No	DON'T KNOW
Shopping	1	2	3
Entertainment/recreation/visit friends or family	1	2	3
Appointments, i.e. medical	1	2	3
Other (please specify)			

6b. which mode of travel do you use most often to travel from your home for the purpose of:

IF NO IMMEDIATE RESPONSE, READ LIST. FOR EACH READ/RECORD PN: ASK FOR EACH YES IN Q6A.

	Shopping	Entertainment/ recreation/visit friends or family	Appointments
Car/vehicle	1 ASK 6C	ASK 6C 2	3 ASK 6C
City bus/Niagara Falls Transit bus	1	2	3
VIA Rail/Train	1	2	3
GO Transit/GO bus	1	2	3
Niagara Falls Specialized Transit/Niagara Falls Chair-A-Van	1	2	3
Combination of car/bus/train	1	2	3
Brock University & Niagara College bus	1	2	3
Walk	1	2	3
Bicycle	1	2	3
Carpool	1	2	3
No pattern	1	2	3
OTHER (PLEASE SPECIFY)			

PN ASK IF CODE I, 2 OR 3 FOR CAR/VEHICLE.

6c. Are you usually driving the vehicle or are you a passenger?

Driver of vehicle 1

Passenger 2

PUBLIC TRANSPORTATION

7a. Now thinking about public transportation including buses and trains, have you travelled on any of the following within the last month? READ EACH BELOW/RECORD

	Yes ASK 7B	No SKIP TO 7C	DON'T KNOW
City Bus/Niagara Falls Transit	1	2	3
VIA Rail/Train	1	2	3
GO Transit/GO bus	1	2	3
Niagara Falls Specialized Transit/Niagara Falls Chair-A-Van	1	2	3
Falls Shuttle			
People Mover	1	2	3
Greyhound Bus			
Canada Coach	1	2	3
OTHER (SPECIFY)			

7b. FOR EACH ABOVE ASK: Now thinking of <u>your last trip</u> on the (NAME TRANSIT MODE) please rate your overall level of satisfaction with the service you experienced using a scale of 1 to 10 where one is the lowest score and 10 in the highest score. REPEAT IF HESITATION/RECORD BELOW PN ASK FOR EACH YES IN Q7A

	Satisfaction Rating 1 TO 10
City Bus/Niagara Falls Transit	
VIA Rail/Train	
GO Transit/GO bus	
Niagara Falls Specialized Transit/Niagara Falls Chair-A-Van	
Falls Shuttle	
People Mover	
Greyhound Bus	
Canada Coach	
OTHER (SPECIFY)	

PN FOR EACH RATED IN Q 7B, ASK

7C. Would you please explain? PROBE

7D**. ASK ALL**: How likely are you to travel on the City of Niagara Falls Transit within the next month? READ BELOW/RECORD

Very likely	1	SKIP TO 7F
Somewhat likely	2	SKIP TO 7F
Somewhat unlikely	3	ASK 7E
Very unlikely	4	ASK 7E
DON'T KNOW	5	SKIP TO 7F

7E. Why is that? Would you please explain? DO NOT READ BELOW/RECORD BELOW

Never take it/dislike bus	1
Inconvenient (general)	2
Inconvenient schedule/infrequent timing	3
Too far from my home/too far to walk	4
Doesn't go where I want to go	5
Crowded/too many passengers	6
Cost/too expensive	7
Prefer to drive/take the car	8

OTHER (PLEASE SPECIFY) _____

7F**. ASK ALL** What is the most important thing that could be done that would encourage you to use Niagara Falls Transit (more frequently FOR USERS)? DO NOT READ/RECORD BELOW

More frequent buses	1
Better schedule	2
Locate a stop closer to my home	3
Lower prices/cheaper fare	4
Better buses/nicer buses	5
Friendlier/more courteous drivers	6
Access/accommodate persons with disabilities	7

OTHER (PLEASE SPECIFY) _____

7f1. And, are there any other things that could be done that would encourage you to use Niagara Falls Transit (more frequently FOR USERS)? DO NOT READ/RECORD BELOW

More frequent buses	1
Better schedule	2
Locate a stop closer to my home	3
Lower prices/cheaper fare	4
Better buses/nicer buses	5
Friendlier/more courteous drivers	6
Access/accommodate persons with disabilities	7

OTHER (PLEASE SPECIFY) _____

LAST FIVE YEARS

8a. Now thinking about the last five years and your experiences generally in getting from your home to other local places in the City of Niagara Falls, overall in the last five years would you say it has: READ BELOW/RECORD

Improved	1	SKIP TO 9
Stayed the same	2	SKIP TO 9
Gotten worse	3	ASK 8b.

8b. Why do you say that? Please explain? PRE-CODED LIST/DO NOT READ/RECORD BELOW

Too much traffic/gridlock	1
Too few roads	2
Bad/discourteous drivers	3
Trucks/too many trucks	4
Tourists/too many tourists	5
Gas is expensive/price of fuel	6
Trains/freight train blocks roads	7
Better signs	8
More traffic lights	9
Accessibility	10

8c. Now thinking about the time it usually takes to get from your house to locations around the City of Niagara Falls during the peak summer period versus the rest of the year, would you say: READ BELOW/RECORD ONE ONLY

It takes about the same amount of time	1
It takes more time	2
It takes less time	3
DON'T KNOW	4

8c. I am going to read you a list of statements that have been made about the City of Niagara Falls' residents about the City's current transportation system, including roads, public transit and getting around in the City. For each would you please tell me if you Agree or Disagree. READ BELOW/RECORD

	Agree	Disagree	DON'T KNOW
I think public transit has become more important than it was in the past.	**1**	**2**	**3**
Given that tourism is the major employer, I think the transportation needs of people who work in the tourist industry should be improved.	**1**	**2**	**3**
From what I can tell, it is getting harder and harder for seniors and persons with disabilities to get around the city due to the way public transit is organized.	**1**	**2**	**3**
I am often inconvenienced by having to wait in the traffic so that trains can cross major roadways.	**1**	**2**	**3**
From my own experience, I feel that cyclists' needs are not being met.	**1**	**2**	**3**
I am often forced to take my car when I would rather travel by Niagara Falls Transit.	**1**	**2**	**3**
If the price of gas continues to increase I would consider not driving as much.	**1**	**2**	**3**
The Niagara Falls Transit schedule should be revised to better meet the needs of students.	**1**	**2**	**3**
As far as I know, better connections are needed linking Niagara Falls transit to other municipal transportation systems.	**1**	**2**	**3**

PLANNING FOR THE FUTURE

9a.Are you aware that the City of Niagara Falls is undertaking a transportation master plan study now that will provide recommendations for making transportation more sustainable and to meet the City's future needs?

Yes 1
No 2
DON'T KNOW 3

9b. Now thinking about living in the City and travelling around it for work, school, shopping and/or all your other needs and how travel could be improved in the future – what three things would you like to see done? The intention of the plan is to look forward for the next 10 or 20 years. REPEAT IF HESITATION/PROBE

First Suggestion_____

Second Suggestion_____

Third Suggestion:_____

OTHER SUGGESTIONS:_____

9c. As just mentioned, the City of Niagara Falls is examining ways of making local travel work efficiently and sustainably in the future for residents, business and visitors. Here is a list of statements about possible directions that could be taken. For each would you please tell me if you Agree or Disagree.

	Agree	Disagree	DON'T KNOW
I think it is important to invest more in our local public transportation system.	**1**	**2**	**3**
I would like to see more money spent to encourage people to walk instead of being dependent on cars.	**1**	**2**	**3**
The City should plan our local transportation system so that greenhouse gases and pollution are reduced.	**1**	**2**	**3**
The City needs to invest in maintaining roads.	**1**	**2**	**3**
I think that the needs of pedestrians have to be given priority over cars.	**1**	**2**	**3**
I think that travelling by bicycles should have priority over building more roads for cars and trucks.	**1**	**2**	**3**
More effort is needed to connect local public transit with surrounding municipal and provincial systems.	**1**	**2**	**3**
I think new development areas should be designed to provide a better mix of residential and commercial uses to reduce the need for driving.	**1**	**2**	**3**
The municipality should be encouraging a healthier community by investing more in walking and cycling.	**1**	**2**	**3**
More planning is needed to ensure that seniors and persons with disabilities will have easier access to services.	**1**	**2**	**3**
Major consideration should be given to the natural environment and heritage and culture neighbourhoods including heritage buildings when planning transportation systems.	**1**	**2**	**3**
I think the City needs to widen existing roads or build new roads.	**1**	**2**	**3**

RECREATION/ACTIVE TRANSPORTATION

10a.Have you used the recreational trail system in the past 12 months for cycling or walking?

Yes 1 ASK 10B.

No 2 SKIP TO 10c

10B. What, if anything, could be done to improve the recreational trails? PROBE

10c. Do you own a bicycle that is in good repair?

Yes 1

No 2 SKIP TO Q. 10

10d. IF YES, Have you used your bicycle in the past month?

Yes 1 No 2

10e.IF YES: What was the purpose of the last trip you took on your bicycle? READ BELOW/RECORD ALL THAT APPLY

Recreation/exercise 1
Errand/shopping 2
Travel to work 3
Travel to school 4
Other (please specify)

10e. What is the one thing that could be done to encourage you to use your bicycle more often? DO NOT READ/RECORD BELOW

Bike paths/more bike paths 1
Bike lanes/more bike lanes 2
More courteous/aware car drivers 3
Bike parking/More bicycle parking 4
Showers/change rooms 5
Nothing 6
OTHER (PLEASE SPECIFY)

10ei. And, what if anything else, could be done to encourage you to use your bicycle more often? DO NOT READ/RECORD BELOW

Bike paths/more bike paths 1
Bike lanes/more bike lanes 2
More courteous/aware car drivers 3
Bike parking/More bicycle parking 4
Showers/change rooms 5
Nothing 6
OTHER (PLEASE SPECIFY)

10f. What is the one thing that could be done to encourage you to walk more often? DO NOT READ/RECORD BELOW

Improve the sidewalks 1
Add more sidewalks 2
Shovel/remove the snow 3

Better signage	4
More crosswalks	5
More traffic lights	6
Public education/encourage people to walk	7
Educate drivers/more driver awareness	8
OTHER (PLEASE SPECIFY)	9

TOURISM/VISITORS

10f1. And, what if anything else could be done to encourage you to walk more often? DO NOT READ/RECORD BELOW

Improve the sidewalks	1
Add more sidewalks	2
Shovel/remove the snow	3
Better signage	4
More crosswalks	5
More traffic lights	6
Public education/encourage people to walk	7
Educate drivers/more driver awareness	8
OTHER (PLEASE SPECIFY)	9

11a As far as you can tell, is sufficient attention currently being paid to the transportation needs of tourists when they visit the City of Niagara Falls?

Yes	1
No	2
DON'T KNOW	3

11b.IF NO, ASK: Would you please tell me about this? What needs attention? PROBE/DO NOT READ BELOW/MULTI-RESPONSE

Confusing road/highway systems	1
Poor/not enough signs	2
Too little parking	3
Expensive parking	4
Not enough buses	5
Other ...	

12a. Now in conclusion, do you have any suggestions for making transportation in the City of Niagara Falls more sustainable and work better for you in the future? PROBE/RECORD BELOW

BASIC DATA

Please help us classify our information by answering the following questions:

A. What is the highest level of education that you have completed? READ LIST

Public school	1
Some high school	2
Graduated high school	3
Community college	4
University	5
Post graduate studies	6

B. How would you classify your occupation? READ LIST

Professional	1
Manager/business owner	2
Sales/clerical	3
Skilled/trades	4
Unskilled	5
Farmer	6
Homemaker	7
Retired	8
Student	9
Unemployed	10

C. How many people live in your household? _____

D. How many adults over the age of 18 would that be? _____

E. How many children under 18 years would that be?_____

F. Do you own or rent your residence? Own 1 Rent 2

ENTER POSTAL CODE _____

Thank you very much for participating in the survey today! You have been a great help.

NAME: _____ TELEPHONE: _____

INTERVIEWER: _____ DATE: _____

Contact person in the event of further questions about the study or the City of Niagara Falls transportation master plan study:

PROVIDE RESPONDENT WITH WEBSITE AND PHONE NUMBER TO ACCESS MORE INFORMATION ABOUT THE SUSTAINABLE TRANSPORTATION PROCESS AND OPPORTUNITIES TO PROVIDE FURTHER INPUT

TRANSPORTATION BEYOND TOMORROW 2031

Appendix C

VISIONING FOCUS GROUP

- Visioning Focus Group Summary Notes

Niagara Falls Sustainable Transportation Master Plan

Visioning Focus Group: Flip Chart Summary Notes

Starting Points

- Lots of cars – no. per capita?
- People Mover – transit for tourists
- Tourist workers no option but to drive (except for large operations)
- Public transit – question routing efficiency
- Bicycles – "share" sidewalks, needs lands
- Pedestrians

What Works/Doesn't Work

- Buses – new and in good condition
- Freight rail blocks roads
- VIA train/ GO train
- Road network – adequate capacity
- "Catch 22" – transit growth versus demand
- Competition of free parking/lots of it
- School buses moving high school students – why not public transit?
- Several bus systems, private and public, on the same routes (Niagara Falls Transit, schools, City Red Line for tourists, People Mover, regional for disabled persons, commercial (Greyhound and Canada Coach), private buses for tourist venues)
- Grid layout is a positive
- Bicycles – barriers
- Bus scheduling needs modification
- Bike trails but constraints
- Tourism opportunity – VIA's bike train

- Factors
  Government jurisdiction
  Priority of one mode over another
  Low cost of operating a vehicle/car

New Ideas

- Peddle power – plan for cyclists
- Use hydro corridors (pedestrians, bikes for local and visitors)
- Overhead rail (gondola approach)
- 30 minute transit service on main routes (currently 60 minute frequency)
- Transfer points – Niagara Square, Main Street
- Design transit access for seniors (service seniors housing)
- Bus needed to get to …St.Catherines, Welland, etc.
- Aging population – transit dependant
- Zoning modification to encourage more bike facilities "user friendly"/bike racks. Retailers nor serving cyclists.
- Enforcement need to require sidewalks to be cleared – walkers, 2 and 4 wheel scooters, mopeds

Key Priorities

- Transit – rationalize many overlapping systems
- Bicycles – utilitarian, leisure, all uses
- User friendly transit geared to all population groups…students, seniors
- Identify current travel barriers looking at grid network
- "Development" sensitive to heritage properties and landscapes
- Tourism – design with them in mind i.e. illuminated street signs
- Integrate cans with transit i.e. senior transport – provide transit on demand
- Impact of trucks – lower concentration

Appendix D

COMMUNITY ADVISORY GROUP (CAG)

- CAG Terms of reference
- Completed CAG Comment Sheets

Community Advisory Group Terms of Reference (DRAFT)

1.0 Purpose of the Terms of Reference

The purpose of this document is to outline the process for the establishment and operation of the Community Advisory Group (CAG) for the City of Niagara Falls Sustainable Transportation Master Plan (NFSTMP) Study. Upon its approval, this document will serve to guide the CAG for the entire duration of the study. Amendments may be made as required throughout the ongoing completion of the project.

2.0 Mandate

The CAG is an advisory body that meets and provides ongoing advice to the Project Team. The primary goal of the CAG is to represent the community and provide input towards the successful completion of the project. Specifically towards the completion of this goal, the CAG will:

- Develop a Project Charter and Work Plan
- Act as a working group where the Project Team can test ideas and findings
- Provide an open and equitable forum for discussion
- Provide advice, input, and suggestions on project ideas, study findings and data
- Review and provide comments on draft documents produced throughout the study process
- Represent the concerns of the broader community and provide input on how these concerns can be adequately addressed
- Monitor and articulate community reaction to the project
- Provide a direct channel of communication between residents and community groups and the Project Team
- Identify and discuss potential issues, challenges and opportunities and assist the Project Team in developing mechanisms to identify satisfactory outcomes

3.0 Membership

Membership in the CAG is based upon:

- The spectrum of stakeholder groups with a interest in the project
- The diversity of neighbourhoods within the study area

Additionally, membership in the CAG will be reflective of the multi-disciplinary planning approach required for a project of this magnitude. All individuals currently residing in the study area or having a stake in the outcome of the project are eligible for membership in the CAG. The application process will be conducted in a transparent and defensible manner. Application to the CAG does not necessarily guarantee membership.

4.0 Formation

The following process shall be followed towards the formation of the CAG for the NFSTMP Study.

1. Invitation – Advertisements will be placed in local media inviting local citizen and stakeholders to reply if they wish to be considered for the Community Advisory Group (CAG). Applicants will be instructed to include a brief description of their position/involvement in the community, the reason they want to be a part of the project, and what they feel they can contribute to the successful completion of the project. A sample invitation for public involvement is attached to these Terms of Reference.
2. Pre-screening – Applicants will be pre-screened to consider their reasons for joining and suitability for involvement in the CAG.
3. Participants – Based on the spectrum of stakeholder groups, the diversity of neighbourhood groups in the City of Niagara Falls, logistics, and group dynamics the number of participants in the CAG will be limited to 50 participants. Final selection of applicants will be based on obtaining the best cross section of the community using the matrix shown in **Appendix 1**.
4. Questionnaire – Selected applicants will be informed of the selection to the CAG and requested to complete a more in-depth questionnaire.
5. Initial Meeting – An initial CAG Meeting will be set once the committee has been finalized.

5.0 Terms of Membership

Membership in the CAG is for the duration of the project.

6.0 Meetings and Attendance

The effectiveness of the CAG is based on the diversity of advice, input, and suggestions received from its members. Members of the CAG should strive to attend all meetings and other CAG-related activities. Members must advise the Project Team if they anticipate an attendance issue. If attendance from any member of the CAG becomes a problem, a suitable replacement may be recommended.

7.0 Decision Making

The purpose of the CAG is to provide input, advice, and suggestions the Project Team. The CAG is not a decision-making body. However, members of the CAG are encouraged to provide input, advice, and suggestions towards any and all aspect of the project with the expectation that the Project Team will consider this information in the overall decision-making process.

The CAG is not expected to share a single view point in regards to each individual aspect of the project. The CAG however is encouraged to appropriately discuss and debate ideas towards the generation of a consensus decision. If after a period of time, no consensus can be reached, differences will be noted and provided to the Project Team with rationales.

8.0 Roles and Responsibilities

Community Advisory Group (CAG) Members

- Adhere to the relevant aspects of the CAG terms of reference
- Behave in a manner which facilitates an environment of open and equitable discussion and communication
- Be courteous and respectful of all other members of the CAG and Project Team
- Be open-minded and considerate of different viewpoints
- Provide input, advice, and suggestions to the Project Team in a manner which promotes discussion and creative thinking
- Ask questions of other members of the CAG or Project Team where necessary to clarify understanding of an issue
- Communicate openly with the organization you represent (if applicable) and bring forward all input, advice, and suggestions
- Note distinction between organizational and personal opinions (if applicable)
- Bring a unique perspective to the project
- Be prepared for all meetings and other CAG-related events
- Attend all meetings
- Declare any conflicts of interest (if applicable) for matters under consideration

Project Team

- Adhere to the relevant aspects of the CAG terms of reference
- Keep CAG members up-to-date with study progress in accessible, easy-to-understand format and language
- Avoid the use of jargon and define technical terms where necessary
- As needed, invite technical experts or other specialist to offer input at CAG meetings
- Offer advice towards CAG discussions
- Provide study material well in advance of CAG meeting or other CAG-related events as required
- Treat all questions posed with respect, and provide clear and straightforward answers
- Provide a clear understanding on how input, advice, and suggestions will be used by the Project Team
- Balance input from different viewpoints to ensure the completion of a comprehensive study

Independent Facilitator

- Adhere to the relevant aspects of the CAG terms of reference
- Provide secretariat function: prepare and distribute agendas prior to meetings, manage communications between the CAG and Project Team, record all inputs, advice, and suggestions, prepare minutes including action items
- Facilitate CAG meetings: keep sessions on-time and on-track, ensure openness and equality, and balance participation between all members
- Record all information exactly as it was expressed. If summarization is required clarify with participants that the message has been interpreted correctly

9.0 Work Plan

The following are the proposed points of engagement with the CAG:

1. **Questionnaire** – After being selected to the CAG and prior to the initial meeting, CAG members will be requested to complete a questionnaire.
2. **Commencement / Visioning workshop** – The initial meeting of the CAG will coincide with the visioning workshop held jointly with the Project Team and the Technical Advisory Group. The objectives of this half-day workshop are to disseminate relevant information regarding long-term growth perspectives, stimulate and facilitate discussion, and arrive at a shared vision of future growth and transportation. The Visioning Workshop is held after the tabulation of results from the separate Visioning Focus Group session.
3. **Findings from the Study** – At this point the Project Team will present the findings from the Transportation Study including issues, transportation vision, future travel demands and network deficiencies to the CAG. The objective of this point of engagement is to obtain the input of the CAG, satisfy statutory requirements, and confirm/establish project direction.
4. **Assess Transit, TDM and TSM Strategies** – The Project Team will engage the CAG in a discussion surrounding the future Transportation Demand Management (TDM) and Transportation System Management (TSM) potential in the City. The objective is to disseminate information of relevance regarding TDM, TSM, and Transit to stimulate and facilitate a discussion that arrives at a shared methodology, a range of potentials, and a vision for the City.
5. **Presentation of the Recommended Improvement Priority Plan** – The Project Team will engage the CAG to seek input, satisfy statutory requirements, and confirm/establish project direction.

The above-noted points of engagement do not represent an inclusive list, rather the points of engagement initially proposed by the Project Team. Additional points of engagement may be determined and scheduled at the discretion of the Project Team with the approval of the members of the CAG.

10.0 Freedom of Information and Protection of Privacy

All personal information provided will form part of the public record, as per the *Freedom of Information and Protection of Privacy Act*, and will not be protected from disclosure.

BXED.D

NiagaraFalls CANADA

Community Advisory Group Meeting #1
Comment Sheet

Your Name: JIM BREED

What do you consider to be the strength(s) of the existing transportation network? Why?

see attached

What do you consider to be the weakness(es) of the existing transportation network? Why?

Are there any opportunities that should be explored during the development of this Plan?

Are there any threats that could compromise the success of the Plan?

What are your priorities?

- public transit - city / region / prov.
- bike (hydro) corridors

Other comments, questions or information needs?

Evaluation Form

(Please return this form to a project team member)

Today's meeting was the first of the Community Advisory Group meetings for the Niagara Falls Transportation Study and Master Plan. We would appreciate any comments you have that could help to improve future meetings to help ensure productive public dialogue.

What is the best time for you to attend meetings? Please circle all times of day and weekday(s) that would work for you.

Morning Afternoon Evening M (T) (W) Th F

What did you like most about today?

☑ informal / comfortable
good participation

What should we improve?

☒ continue use of "Flip chart summary notes" - forward to group members.

Do you have any other ideas about this process?

keep information corridors open

Thank you for your thoughts!

J.Bredin CAG – Transportation #4 February 10, 2010

Strategic Planning using the SWOT Matrix to identify priorities:

Strengths:

- numerous transit systems already in place including equipment, personnel, infrastructure and expertise
- established ridership (1.1 million riders – Niagara Transit)
- captive ridership (tourism workers, students)
- potential ridership (6 million annual visitors)
- system expansion available (GO Trans, Regional Trans, Brock Rapid etc.)
- tourist operators would be glad to shed private transit systems & subsidize a public system
- poor taxi services

Weaknesses:

- too many transit systems duplicating service and vying for customers
- present Niagara Transit does not meet the needs of the public – better coverage, convenience, routes etc. needed
- public reluctance to utilize public transport
- poor information/communication for people unfamiliar with services available

Opportunities:

- "Green" is in! Public transportation is wanted by both public and various govenments – funding is available
- Niagara Transit growth is wanted & GO Transit and Regional Transit are both at embryonic stage ready to grow with us.
- funds for public education and promotion of systems are available
- Do it Properly, and Ridership will Come

Threats:

- Apathy – the status quo is not an option
- a slow response to this opportunity may result in Regional or Provincial Goverments taking charge and calling the tune
- TTC poor publicity and taxpayer revolt over costs and lack of service

J. Bredin CAG – Transportation #3 January 3, 2010

Five different Transportation Systems to be considered:

a) Municipal Transit System

b) Municipal Tourist / Tourist Worker Transit System

c) People Mover Tourist Transit System

d) Regional Inter-City Transit System (incl. Brock U. & Niagara Coll. sites)

e) Go –Train, Provincial Inter-City, & NYC Rapid (proposed)

All Transportation Systems share common goals:

a) must be user friendly and effective
   - maximum areas of coverage and popular destinations
   - effective scheduling
   - incorporate use of tokens & transfers, monthly/annual passes
   - vehicle size to reflect ridership (feeder system)
   - accommodating to disabled wherever practicable

b) must be economical – for both the riders and the taxpayers
   - transit systems are expensive but must make economic sense
   - taxpayers will supplement the systems if they are effective

c) must compliment each other
   - common prices, tokens, transfers etc for seamless transportation
   - complimentary scheduling to maintain effectiveness

d) must be able to grow in both size and effectiveness in stages
   - plan ahead; as the public becomes better educated and acquainted with the systems and more comfortable and trusting of the service, a planned order of expansion must be utilized

a) Municipal Transit System

- grid and feeder system
- compliments Tourist / Tourist Worker System
- access to People Mover
- access to Inter-City / Brock U / Niagara College System
- all our Secondary High Schools are either on or near a main corridor - can the Municipal Transit System supplement the School Bus System for these older students?

b) Municipal Tourist / Tourist Worker Transit System

- moving tourists from outlying accommodation areas to tourist destinations, and attractions (presently known as "Red Line")
- compliment Municipal Transit System to carry tourism workers from home or assembly areas and carry them to employment destinations within our tourist areas – this will relieve traffic congestion and reduce need for off-site parking for employees
- this could be an excellent remedy for smaller employers who do not presently transport their employees to work (casinos, hotels etc)
- interaction between tourists and tourism workers would promote increased tourist information and goodwill

c) People Mover Tourist Transit System

- co-operation between City and Niagara Parks Commission
- common token / transfers between systems

d) Regional Inter-City Transit System

- a great deal of market research must be carried out with regards to scheduling and identifying assembly and destination areas
- can we expand this system to increase the use by Brock University students throughout the Region as well as initiate a transit system to include the different campuses of Niagara College?
- can we incorporate the expertise and equipment of our present provincial carriers (Greyhound, Canada Coach) including subsidies that may be economically advantages to both parties?
- Waterloo Region has an "express" bus that services the cities of Waterloo, Kitchener and Cambridge. Apparently it uses a common token and transfer system that conveniently allows a customer to board a Waterloo city bus, transfer to the "express", and then transfer again to a Cambridge city bus to ride to his or her final destination in a seamless system. Perhaps a look at this system would be time well spent.

e) Go- Trains, Provincial Inter- City, & NYC Rapid (proposed)

- as public transit improves and grows, we must facilitate its effectiveness by ensuring that the people of our towns, cities, and region can access these larger transit systems in an efficient and convenient way so as to promote increased ridership
- priority over Seaway (consultations)

Ross J W Gillett **O.N.**

Traffic Operations Specialist (ret)

5962 Brookfield Avenue Niagara Falls Ontario 905-356-5218 rgillett@becon.org

February 22th 2010

Marzenna Carrick CET
Manager of Transportation Engineering
City of Niagara Falls
4310 Queen Street PO Box 1023
Niagara Falls ON L2G 6X5

John Hemingway P Eng PTOE
Assistant Project Manager
Urban & Environmental Management Inc
4701 St Clair Avenue Suite 301
Niagara Falls ON L2G 3S9

Greetings

Participation in the Community Advisory Group is certainly a privilege and much appreciated. The primary purposes of the Group is; as I understand it, an advisory function, with the goal of reviewing the present situation and looking forward twenty years into the future. It would appear desirable that we have a detailed discussion of the Group's Terms of Reference.

Although I have scanned the material provided, I still felt unfamiliar with some aspects without having seen many of the essential reports and documents developed over the last several years pertaining to transportation in our City. I can not solely rely on the reporting in the news media to become as familiar with the situation as our assignment may require.

The following notes summarize my understanding of the subjects we recently discussed, and include my comments where I feel they are applicable. I would be pleased to meet with you at your convenience and/or to answer any questions that may arise.

Preliminary Visioning Results

A. *Lots of cars - what is the number per capita?*
Yes, there are lots of cars in Niagara Falls; some additional because the transit system does not meet most peoples needs, more because of 24-hour work schedules at tourist venues; and still more when folks work outside our City! Unfortunately, some people seem to think that traffic congestion equates to increased business, but the opposite is true - people in cars can not be actually shopping. The number of cars per capita might only be relevant if one starts comparing municipal ratios of the cars per capita to the kilometers of roads, but it's not conclusive, and is only indicative of many factors.

B. *People Mover - transit for tourists*
This has been widely hinted at and discussed for several years, but the details are not well understood. We should be provided with an outline of this proposal to guide us in our considerations.

C. *Tourist workers have no option but to drive*
This statement confirms my observation in note 1 above.

D. *Public Transit - questions about routing efficiency*
Expanding on 1 above, even a cursory review of the transit routes leads one to conclude the routes are not designed for the convenience of most potential riders in the wider community.

It appears there was a conscious effort to force people into or through the downtown. Most of the routes go to the downtown area, even though obviously few people want to go there, particularly in the peak hours. The routes should not be designed to primarily serve any one commercial interest or area. They should focus on the needs of the wider community, providing riders with the most direct trips possible from their origins to their destinations. New east/west and north/south routes over the existing arterial grid system, with transfers at intersecting route points (without the time and inconvenience of travel into downtown) would be more attractive to many folks going from home, to and from work or school. (St Catharines has the same problem but progressive communities have no such situation.)

E. *Bicycles - "share" sidewalks, need lanes*

There is no doubt that bicycles and pedestrians don't mix well. Yet, many cyclists are forced to use the sidewalks where traffic lanes are insufficient in either number or width. In many cities of Europe, there is a distinct difference between the roadways for motor vehicles, the paved boulevards for bicycles, and the sidewalks for pedestrians. This is obviously the most effective solution for optimum safety and ease of movement by all citizens.

F. *Pedestrians can't be forgotten*

Sidewalks are an important feature of every community, both for safety and convenience. Many major streets in our community lack continuous sidewalks, even to and in front of some schools! Indeed, pedestrians seem to have been largely forgotten in this community for several decades. Standards need to specify that every arterial and collector street should have sidewalks on both sides, particularly when widened to four lanes, and without assessing costs to the adjacent property owners. All other streets should have a sidewalk on at least one side.

Sidewalks should never be constructed in a curb-face location; a boulevard is essential for snow storage to avoid folks having to walk on the roadway in the winter. It is recognized that many widenings of Regional roads have occurred where the provision of adjacent sidewalks was a City responsibility, but this need can not be simply ignored because it is not initially a City project. Where widening of the road allowance is required to provide a proper sidewalk, such action is essential. The fact that some existing sidewalks have of necessity been maintained with too narrow a width and/or without boulevards (to avoid buildings) is no excuse for not applying a proper standard now wherever physically possible.

What works / What Doesn't Work

1. *Buses new and in good condition*

Obviously, our buses are relatively new, and appear well maintained, quite clean and in good condition. Our transit people are to be commended for their foresight and good operations.

2. *Grid layout is positive*

It is assumed this applies to the arterial street system. While partially true, many of our arteries are discontinued at natural boundaries such as Morrison westbound at the QEW, Mountain e'bd at Portage, Mountain w'bd at Taylor, Stanley n'bd at Thoroldstone, and Stanley s'bd at Lyon's Creek. Others are reasonably through in character - Thoroldstone w'bd, Lundy's Lane w'bd, McLeod w'bd, Montrose s'bd and Kalar n'/s'bd. However, these discontinuances will haunt us in the future, so significant widenings and realignments need to be done to balance vehicle movements and enable more direct transit circulation.

3. *Tourism opportunity - VIA's bike train*

This proposal has been insufficiently publicized to enable knowing comments by most people.

4. *VIA train / GO train*

Fortunately, the entire concept has been recognized and is now undergoing a thorough study.

5. *Freight rail blocks roads*

There are a significant number of level crossings in our community. Unfortunately, the railways were there first, so the roadways are subservient - most of the expense for grade separations must be born by the road authorities. Worse still, the railways aggravate the situation with their poor maintenance of trackage practices.

We never see a railway having to raise an overpass to accommodate a higher mainline track. However, they regularly raise tracks at level crossings, thereby requiring the road authorities to add height and length to the sloped roadway approaches. For example, the top of Clifton Hill is at least a meter higher now than it was as shown in photos about 75 years ago! This constant raising forces road agencies to built underpasses - usually more expensive than overpasses. Railways should be forced by federal statute to maintain or normalize grades with the roadways at level crossings, and replace the normal grade when lines are removed.

6. *Road network - adequate capacity*

- not hardly! When one looks around the community, we often see traffic congestion. Motorists are significantly delayed even at vehicle-actuated traffic signals - having to start and stop several times before being able to pass through the intersection. Sometimes, this condition lasts for the entire day on some holiday weekends! This may be due to high volumes; other times its due to left turns occurring where there is no left turn lane. These situations are indicative of an existing lack of vehicle capacity in many locations now, without even considering twenty years into the future. Admittedly, no community can afford to widen all streets sufficient to provide for the very peak conditions in all locations, but realistic improvement is essential.

7. *“Catch 22" - transit growth versus demand*

Without knowing the circumstances when this observation was made, it is difficult to understand the intent or to comment.

8. *Competition of free parking - lots of it*

There may be lots of free parking in some areas, but very little - free or paid - is in locations where people want to walk around; this availability is what makes shopping malls so successful! It should be recognized that where both free and pay parking are available, the free may be in competition with the pay parking; rate uniformity is desirable in each area.

9. *School buses moving high school students - why not use public transit?*

At the end of the day, school authorities are primarily interested in getting students off both school property and the adjacent streets as quickly as possible; only school buses can meet this peak demand. In any event, our present public transit does not go directly to the students’ destinations or in a reasonable time period - as outlined in D above.

10. *Several bus systems, private and public, on the same routes - etc.*

One would expect buses and others catering primarily to seasonal tourists to be on the arterial streets, traveling from any outlying accommodations to the tourist attractions. Our public transit system does not address this demand. Local buses for the disabled are used mostly for local trips; the Regional Specialized buses cater mostly to out-of-town trips - there is no conflict. Intra-municipal or out-of-city buses operate infrequently, to very limited stop locations. Each of these services is rather specialized and seemingly unable to grasp any broader concept. An integrated inter-municipal service has been needed for 30 years; it would improve the economy in the peninsula, reduce vehicle density on roads and defer some widenings.

11. *Bicycles - barriers*

I'm uncertain just how this subject was intended. Certainly there are obstacles to the increased usage of bicycles in this community - a lack of adequate lanes or pathways free of either vehicular traffic or young and senior pedestrians. Otherwise, there are relatively few physical barriers or severe grades. Many years ago, some bicycle routes were created in our City on non-major streets to attract recreational cycling; these proved unwarranted and ineffective.

12. *Bus scheduling needs modification*

The scheduling of buses is a by-product of route design. Better routing will generate demand, which will establish the scheduling. It must be remembered that very few municipal transit services anywhere are ever directly profitable; they are a necessary municipal service to meet the needs of all citizens; they also minimize road construction needs and maintenance costs.

13. *Bike trails and constraints*

This was addressed in 11 above.

Conclusions

I recognize that when transportation consultants are contracted by a municipality, the people need to be consulted too. The reason is not readily apparent, but too often the public is involved before they have acquired the much needed background information. Citizens need to be basically informed as to where they are now, what are the current measurements of the situation, and the existing studies and reports with realistic recommendations as either needed solutions or future requirements. Asking the public for observations and conclusions without them being adequately informed has proven repeatedly to be a waste of time, and results in ridiculous and unrealistic conclusions, suggestions and demands (ie - the Dorchester Rd study).

Informing people of the current realities involves some initial public education by the consultants toward achieving some familiarity with the matters to be considered. For example, our Group should be aware of the present Official Plan fundamentals; we should be familiar with the existing arterial and collector street designations; we should review the present volume/capacity ratios of the arterial streets; and we should peruse reports such as the recent Grade Crossings Study. Only then can we knowingly start our visioning, assessing what we feel are positive aspects of the present situation, and the perceived negatives or problems. The SWOT management model can then be applied as we then go on to discuss logical solutions and alternatives for the future twenty years.

Respectfully submitted,

Ross J W Gillett O.N.

Meeting Minutes

Transportation Beyond Tomorrow 2031
Sustainable Transportation Study and Master Plan

Subject:	**Comments from Romzap Ltd. concerning the Community Advisory Group meeting held on February 16, 2010.**
Date/Time:	Monday, February 22, 2010, 2:00 pm.
Location:	UEM Boardroom
Present:	Tony Zappitelli Romzap Ltd. Rick Brady UEM John Hemingway UEM
Distribution:	All present M. Carrick City

The following summarizes the discussion at the meeting and action items arising from the meeting:

No.	Agenda Item	Action by
1.	Romzap provided copies of a letter regarding comments concerning the People Mover Project, as presented February 12, 2010 to be considered as part of the Master Plan and People Mover Studies.	INFO
2.	Background materials including a binder with previous feasibility studies for the People Mover system and a copy of Ontario's Niagara Parks Planning for the Second Century (Moriyama & Teshima Planners Limited, October, 1988) were left with UEM for review and consideration in the study. These materials to be returned to Romzap.	UEM

Meeting adjourned at 2:45 pm.

These minutes were prepared by John Hemingway and are based on an interpretation of the items discussed during the meeting. If there are any errors or omissions, please contact John at jhemingway@uemconsulting.com to clarify.

URBAN & ENVIRONMENTAL MANAGEMENT INC.

John Hemingway, P. Eng., PTOE

ROMZAP LTD.
LORETTO CENTRE FALLSVIEW
6881 Stanley Avenue, Niagara Falls, ON L2G 7B6

February 22, 2010

John Hemingway, P. Eng., PTOE
Urban & Environmental Management Inc.
4701 St. Clair Avenue, Suite 301
Niagara Falls, ON L2E 3S9

Re: People Mover Project as presented February 12, 2010

Mr. Hemingway:

Due to the global economic downturn and the opening of the Niagara Convention and Civic Centre scheduled opening on May 20, 2011, the need for a people moving system is essential. I am very disappointed that the ultimate people mover system has not happened by now but I am still optimistic that a lot may be learned by having a rubber tire system now and applying the knowledge and experience for the future system to be operated on the "Grand Boulevard" as was originally proposed.

The proposed funding of $55,000,000 from the provincial and federal governments and the casino would mike it feasible to get started as these funds will not require repayment.

Operating Fund

The operating fund must be a private/public partnership. The request for $1,855,000 in operating funds from the B.I.A.s is not reasonable. I feel this would be an onerous burden on them as some of the B.I.A.s have prior financial commitments to the NCCC. Other partners need to come to the table, i.e., The City of Niagara Falls and the Niagara Parks Commission.

The City has been collecting from developers a 2% park dedication and a bonusing fee for buildings above the 30-story level. Some of these funds should be used for the operation of the people mover.

Niagara Parks Commission is in need of replacing their existing fleet which operates at a deficit. The cost of capital replacement and their costs toward operating their own system could be a major base for the operation of the proposed people moving system. Consideration should be given to the operation of a dedicated loop within the park between Rapids View and the Maid of the Mist because this is the area of highest demand. Perhaps their motor coaches could avail themselves of this service. Other areas such as (but not limited to) Casino Niagara, Victoria Avenue, Fallsview Casino, the Fallsview Area, the Convention Centre and Marineland could feed into this loop.

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Yearly ridership of 1,000,000 riders at $4.75 per person would produce a gross revenue of $4,750,000.

I am providing a binder consisting of information and studies that you may already have. Some additional information may be of a confidential nature. My hope is that this will assist you in your endeavor to establish a private/public partnership with the City of Niagara Falls, the Niagara Parks Commission, the Casinos and the stakeholders. This system should service our visitors with the ultimate experience at one cost (fare) to them.

Maintenance Facility
My suggestions would be as follows:

1) The existing Niagara Parks Facility
2) Louie Walter's yard, formerly Niagara Strategic Udy located at Stanley Avenue and Marineland Parkway next to Thundering Waters Golf Club
3) Washington Mills, Ramsey Road at Kister Road which is owned by Thundering Waters Development Inc.

Hopefully you will find this of assistance.

Respectfully,

Tony Zappitelli, President
Romzap Ltd.

Document: {PEOP-MOV-HEMINGWAY.doc}

February 26, 2010

Romzap Ltd.
Loretto Centre Fallsview
6881 Stanley Avenue
Niagara Falls, ON L2G 7B6

Attention: Mr. Tony Zappitelli
President

Dear Sir:

RE: Transportation Beyond Tomorrow 2031 – Sustainable Transportation Study and Master Plan

This is in response to our meeting on Monday, February 22, 2010 which you requested further to our Community Advisory Group meeting held February 16, 2010. You identified that you had additional information you wished to discuss and share regarding the People Mover System and its role in the Transportation Beyond Tomorrow 2031 Master Plan study currently underway.

The Transportation Beyond Tomorrow 2031 Sustainable Transportation Study and Master Plan is examining at a strategic level, a number of transportation issues and alternatives that will provide a framework for the development and implementation of a future transportation network in our community, one component of which is the People Mover System.

Although the People Mover system is one component of the overall transportation system it is currently the subject of an on-going study separate from the Transportation Master Plan study. While the Transportation Beyond Tomorrow 2031 plan is a strategic plan, the People Mover study is a more detailed study that will address operational and maintenance issues. A high degree of coordination is being provided between these studies to ensure that the policies and recommendations of each study are integrated appropriately. However, as your comments deal with specific operational and maintenance issues, it would be best if they were submitted to the People Mover committee for their information. Therefore, a copy of your correspondence will be forwarded to Serge Felicetti.

…/2

We thank you again for your input and will see that the background materials you provided are made available to the People Mover study group and subsequently returned to you. We look forward to your continued involvement in the Transportation Master Plan Study.

Yours very truly,

John Hemingway, P. Eng, PTOE
Assistant Project Manager

cc. M. Carrick, City
Serge Felicetti, City
T. Ehl, Ehl Harrison

JMH/mmi

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Appendix E

NEWSLETTERS

- Newsletter No. 1
- Newsletter No. 2
- Newsletter No. 3

NIAGARA FALLS

Sustainable Transportation Study and Master Plan

Study Commencement

The City of Niagara Falls, in partnership with the Regional Municipality of Niagara, the Ministry of Transportation of Ontario (MTO), and the Niagara Parks Commission (NPC), have initiated a study to update and replace the existing Transportation Master Plan developed in 1998, which was subsequently updated (in part) in 2003 but never formally adopted by council. AECOM (formerly Totten Sims Hubicki Associates Ltd.) will be the prime consultant for this study.

The City's Sustainable Transportation Master Plan (STMP) will provide a comprehensive forward-looking strategy of priority improvements and programs required for the City to meet several transportation challenges. The plan will address operational, planning and policy issues for all modes in the context of tourism, economics, environment and the community.

The STMP for the City should be proactive and promote sustainability practices such as integrated land use and transportation planning, and cross-modal planning. The plan must represent a realistic and implementable series of strategies addressing all modes of transportation.

Overall, the STMP will provide not only an updated multi-modal transportation plan for the next 20-25 years, but also the necessary policy and decision making framework to allow the City to move forward with its priorities in a progressive and sustainable way.

STMP Objectives

The purpose of this study is to update the transportation vision for the community in consultation with the public and other stakeholders, while building a consensus for a reasonable and achievable sustainable strategy. It will also provide a further opportunity to integrate transportation and planning policies and to build upon the critical relationship between these two disciplines. The STMP will develop and address the following:

- Summarize changes and achievements and outstanding issues arising since the previous TMP
- Update the transportation vision for the community
- Examine how certain societal trends have changed the public's focus on transportation
- Develop a set of "guiding principles" that will be followed during the study
- Take a "transit first" approach to updating the STMP that is consistent with the policies and visions embodied in the provincial Growth Plan and other federal, local and regional policy documents
- Integrate with the City's ongoing Transit Strategy Plan and Ridership Growth Strategy
- Address the case for implementation of the People Mover System in the Tourist Area
- Continue to recognize that the City is a unique and vitally independent economic centre with unique transportation challenges
- Reflect the City's rural and urban character
- Identify supporting policies, principles and programs needed to implement the transportation vision
- Evaluate potential infrastructure and mobility requirements from a "triple bottom line" perspective
- Provide a risk assessment relative to impacts of not achieving certain transportation related assumptions
- Provide a basis for the Development Charges Update
- Provide a transportation framework for the establishment of an economically sustainable and environmentally respectful growth strategy
- Provide improvement priorities for corridor and transit infrastructure and transit service to 2031
- Create more continuous and visible facilities that the public will use for recreational, utilitarian or commuting purposes

NIAGARA FALLS

Sustainable Transportation Study and Master Plan

Newsletter 2: Goals, Principles & Objectives and Modeling Update

TBT 2031 is the City of Niagara Falls Sustainable Transportation Study and Master Plan (STMP). The purpose of this study is to update the transportation vision for the community in consultation with the public and other stakeholders, while building a consensus for a reasonable, achievable and sustainable strategy.

Goals, Principles & Objectives

Through a review of background information and an extensive consultation program including a visioning focus group, community advisory group, and public survey; goals, principles, and objectives for the study have been established. The goals and principles are below, for more details and to see the objectives for each, visit the project website www.tbt2031.com

1	Goal:	Optimize the Transportation System
	Principle:	Make the most of what exists; preserve and maximize the use of facilities and services—avoid or defer the need for new infrastructure that does not support other goals
2	Goal:	Promote Transportation Choice
	Principle:	Provide and maintain a sustainable transportation system that offers competitive choices for moving all people and goods in an integrated and seamless manner while minimizing single occupancy vehicle trips
3	Goal:	Foster a Strong Economy
	Principle:	Provide a transportation system that supports the retention of existing businesses and attraction of sustainable economic activity.
4	Goal:	Support Sustainable Development and Growth
	Principle:	Provide and maintain a transportation system, in both new and existing areas of the community, which supports sustainable growth and green initiatives.

Public Information Centre (PIC) No. 1

PIC No. 1 was held September 15, 2010 at the MacBain Community Centre. Stay tuned for the Notice of PIC No. 2 scheduled for January 27th, 2011

Public Survey

Important to establishing goals, principles, & objectives for the project was to understand residents behaviour and perceptions of the current transportation system. A survey was conducted by Informa Market Research on behalf of the project team.

Results:

- 409 interviews conducted (City Residents)
- 1.9 cars/household (Region-wide in 2006—1.6)
- 65% commute between work and home
- 88% of work-related commuters travel by car
- Seasonal congestion issues
- 12% of residents have used Niagara Falls Transit in the past month
- 60% recently used recreational trails in the City
- 1 in 5 said that tourists do not get enough attention

Conclusions:

- "Roads/Traffic" is a leading local issue
- Use of mass transit and active transportation is very low
- Cycling is a popular recreational activity; not generally a commuter travel mode
- Driving is second nature for short and long trips

Modeling Update

As part of the STMP, an assessment of future travel demand growth and road network capacity is required. Travel demand forecasting and the assessment of transportation system performance is undertaken using computerized transportation models. The two modelling tools used in this project include Niagara Region Travel Demand Forecasting Model (TransCad software) and City of Niagara Falls Paramics Model. Preliminary assessment results indicate that a focus on Active Transportation modes (walking and cycling) will reduce auto trips beyond the reduction achieved by transit alone.

NIAGARA FALLS

Sustainable Transportation Study and Master Plan

Newsletter 3: Future Travel Patterns, Travel Demand Management (TDM), Active Transportation Strategies, and Identification of Road Improvements

Transportation Beyond Tomorrow 2031 (TBT 2031) is the City of Niagara Falls Sustainable Transportation Study and Master Plan (STMP). The purpose of this study is to update the transportation vision for the community in consultation with the public and other stakeholders, while building a consensus for a reasonable, achievable and sustainable strategy.

Future Travel Patterns in Niagara Falls

By 2031, weekday auto trips are forecast to increase by 39% from 2006 levels. Over 37,000 auto trips will be made to/from the City in the afternoon peak hour, split fairly evenly between internal trips and those from external areas. In summer, nearly 20% of these trips will be made by tourists. Corresponding truck demands will also increase by 18% to over 14,000 trips, the majority of which will be internal to the City.

Currently, transit accounts for just 1.4% of trips and the total non-auto mode share is 8%. The City's Transit Business Plan aims to more than double the share of transit to 3.2% by 2018, while the implementation of Travel Demand Management (TDM) initiatives is expected to reduce auto demands by a further 10%. This will mainly be attributable to an increase in walking and cycling for shorter-distance trips, as well as a longer-term desire to better integrate land use and transportation.

It is forecast that the City will achieve an 18% non-auto mode share by 2031. This will reduce city-wide delays by almost 900 vehicle-hours per day, equating to an estimated $7.5m annual benefit to residents in terms of travel time savings.

Bike Lanes on Kalar Road

Olympic Torch Run Legacy Trail

Travel Demand Management (TDM)

TBT 2031 identifies a range of alternatives to reduce peak hour travel demand, encourage the use of non-auto modes, and improve the use of local transit. TDM strategies are grouped into four action areas:

- *Education, Promotion and Outreach* – including the appointment of a City TDM co-ordinator, tailored marketing of initiatives to target groups (e.g. tourism sector), and increased travel information for local communities.
- *Travel Incentives* – including the development of employer-led initiatives, exploring the feasibility of a 'smart card' system, and expanding carpooling opportunities.
- *Land Use and Transportation Integration* – including enhanced transit, cycling and pedestrian accessibility at key destinations, and policy initiatives to encourage more sustainable development patterns.
- *Transportation Supply* – including targeted infrastructure improvements to develop a fully integrated transportation system and address gaps and deficiencies.

Active Transportation

There is also a growing culture of engagement with active transportation and TBT 2031 recognizes that walking and cycling are central to a comprehensive and forward-looking transportation strategy. In order to encourage the development and use of these modes, four guiding principles are recommended to promote more healthy lifestyles:

- *Continuity of facilities* – walking and cycling infrastructure must be well-connected in an integrated 'whole route' approach.
- *Visibility* – facilities must be easily navigable by the user, as well as providing a safe means of travel.
- *Complete range of facility types* – a set of design standards to provide consistency across a range of on-road and off-road facilities.
- *Co-operation* – with municipalities to ensure compliance with their plans, and with developers to ensure that active transportation is a key consideration of new developments.

Evaluation Criteria & Identification of Improvements

Even with an increased level of non-auto mode use, a number of key locations on the road network were identified as future areas of congestion that may require road or other improvements. Issues relating to the efficiency of rail crossings were also identified.

A number of potential road improvements were developed and subsequently evaluated to ensure that each of the recommended improvements adhered to the principles of sustainability, the Class EA requirements, and the goals and objectives developed for TBT 2031. Four criteria groups were established for the evaluation of the potential improvements:

- *Transportation System* – change in congestion levels, network travel times, support for transit, and use of existing infrastructure.
- *Social/Cultural* – support for active transportation and the potential impacts on noise, cultural heritage, and residential areas.
- *Natural Environment* – impacts on air quality, environmentally sensitive areas and other natural areas, and land requirements.
- *Economic Environment* – total capital cost, allocation of funding to sustainable modes, support for growth areas, tourism and goods movement, and impacts on local businesses.

Multiple alternative improvements were proposed and evaluated against each other using comparison factors within each criteria group, resulting in a recommended alternative. Following this process, over 20 improvements were recommended and presented for comment at the Public Information Meeting held on January 27th, 2011. These were:

- New Highway 405/Concession Road 6 Interchange
- Mewburn Road Reconstruction (Mountain Road to York Road)
- Mountain Road Widening (Kalar Road to Olden Avenue)
- Stanley Avenue Widening (Church's Lane to Thorold Stone Road)
- Thorold Stone Road Extension (Stanley Avenue to Bridge Street)
- Stanley Avenue Widening (Hamilton Street to Valley Way)
- Dorchester Road Widening (Thorold Stone Road to Pinedale)
- Dorchester Road Widening (Frederica Street to McLeod Road)
- Highway 420/Montrose Road Improvements (Widening Ramps and Improving Intersection)
- Drummond Road/Highway 420 Bridge Widening (Valley Way to Frederica Street)
- Drummond Road Widening (Lundy's Lane to McLeod Road)
- Kalar Road Widening (Beaverdams Road to Lundy's Lane)
- McLeod Road Widening (Pin Oak Drive to Parkside Road)
- New Hydro Canal Crossing (Dorchester to Oakwood)
- New QEW Crossing (Oakwood to Montrose)
- Stanley Avenue/Marineland Parkway Intersection (Jog Elimination or Intersection Improvement)
- Portage Road Widening (Marineland Parkway to Upper Rapids Boulevard)
- Allendale Avenue Widening (Forsythe Street to South of Dunn Street)
- Allendale Avenue New Connections to Stanley Avenue (Dixon Street to Stanley Avenue & Ferry Street to Forsythe)
- Buchanan/Fallsview Widening (Roberts to Livingston Street)
- Livingston Street/Fallsview Connection to Portage Road

The status of and need for improvements to the existing rail crossings is still under review.

Next Steps

The next steps of the study will include the prioritization of recommendations and the finalization of an implementation plan for the City of Niagara Falls. For more information on this study, please visit the project website at www.tbt2031.com

Niagara Region
Building Community. Building Lives.

Ontario

Niagara Parks

Appendix F

PUBLIC INFORMATION CENTRES

- PIC No. 1 – September 15, 2010
- PIC No. 2 – January 27, 2011
- PIC No. 3 – September 21, 2011

NIAGARA FALLS

Sustainable Transportation Study and Master Plan

CLASS ENVIRONMENTAL ASSESSMENT

NOTICE OF PUBLIC INFORMATION MEETING

The City of Niagara Falls, through their consultant AECOM, has initiated a study to update and replace the existing Transportation Master Plan. The City's Sustainable Transportation Master Plan (STMP) will provide a comprehensive forward-looking strategy of priority improvements and programs required for the City to meet several transportation challenges. The STMP will address operational, planning and policy issues for all modes of travel as they relate to tourism, economics, environment and the community.

The purpose of this study is to update the transportation vision for the community in consultation with the public and other stakeholders. Objectives of the study include developing an achievable and sustainable transportation strategy and network to improve the flow and movement of traffic, pedestrians and cyclists in the city. The study will also provide improvement priorities for corridor and transit infrastructure and transit service. Additional study information can be located on the project website at the following link: www.tbt2031.com.

Overall, the STMP will provide not only an updated multi-modal transportation plan for the next 20-25 years, but also the necessary policy and decision making framework to allow the City to move forward with its priorities in a progressive and sustainable way. The STMP Study will follow the Class Environmental Assessment planning process meeting the requirements of Phases 1 and 2 in the planning process.

A key component of the study process involves consultation with interested stakeholders (public and affected agencies). A Public Information Meeting is being held that will provide stakeholders and members of the public with an opportunity to meet the Project Team, review the study scope, and discuss issues related to the Project, including the project vision, goals, and objectives.

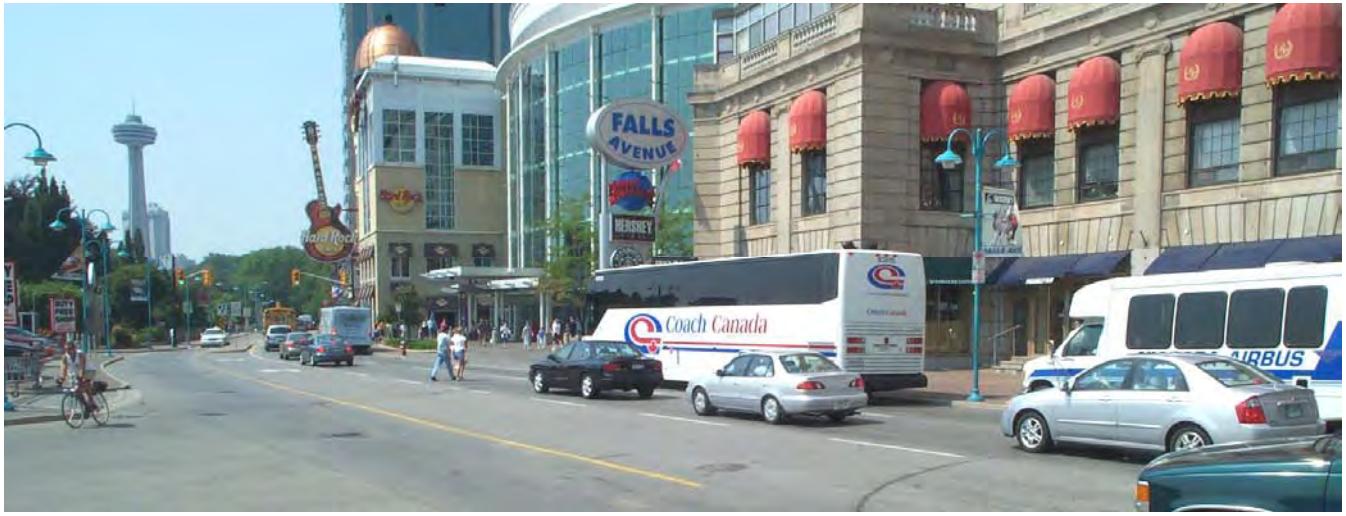
Date:	Wednesday, September 15th, 2010
Time:	6:00 pm to 8:00 pm; 6:30 Presentation
Location:	The MacBain Community Centre, **Coronation Room** 7150 Montrose Road, Niagara Falls, ON

Anyone with an interest in the study is invited to attend and participate. If you cannot attend the Public Information Meeting and would like to provide comments, please forward them by September 30th to either of the following individuals:

Mr. Doug Willoughby, P.Eng Project Manager AECOM 300-300 Town Centre Boulevard Markham, ON, L3R 5Z6 Telephone: (905) 477-8400 x 574 Facsimile: (905) 477-1456 Email: doug.willoughby@aecom.com	**Ms. Marzenna Carrick, C.E.T.** Manager of Transportation Engineering City of Niagara Falls 4310 Queen Street, P. O. Box 1023 Niagara Falls, ON, L2E 6X5 Telephone: (905) 356-7521 x 5204 Facsimile: (905) 353-0651 Email: mcarrick@niagarafalls.ca

TRANSPORTATION BEYOND TOMORROW 2031

Sustainable Transportation Master Plan



PIC #1

- **PIC Meeting Itinerary:**
  - **Doors open – 6:00**
  - **Public views boards from 6:00 – 6:30**
  - **Presentation 6:30-6:50**
  - **Break-out groups with facilitated discussion 6:50 – 7:20**
  - **Groups get back together and present 7:20 – 7:40**
  - **Q & A 7:40 – 8:00**
  - **Doors close 8:00**

Study Participants

- City of Niagara Falls
- Niagara Region
- Ministry of Transportation
- Niagara Parks Commission

Consulting Team

- AECOM
- Urban & Environmental Management

Sustainability and Issues

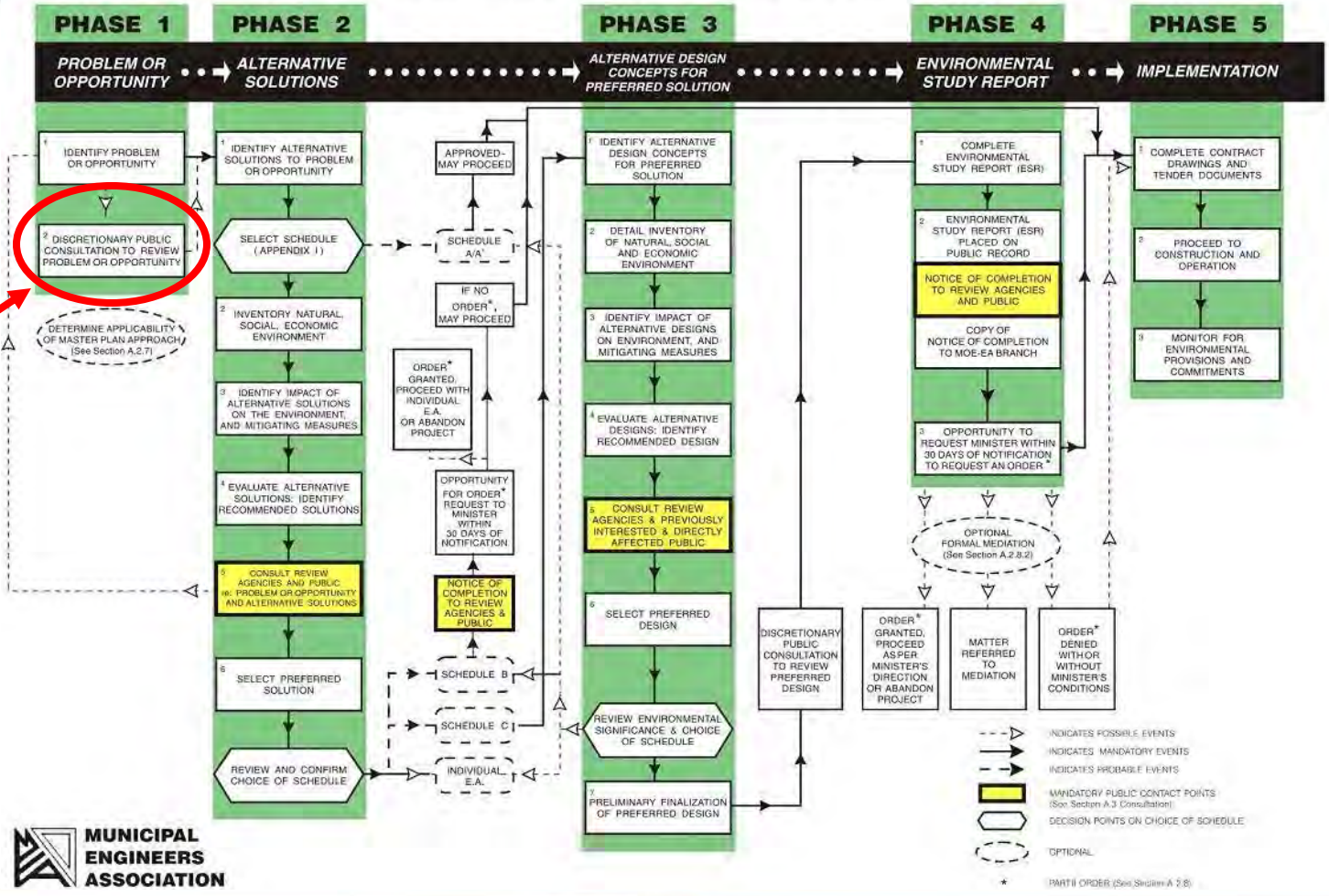
- **The purpose of the Sustainable Transportation Study and Master Plan (STSMP) is to update and replace the existing Transportation Master Plan developed in 1998 and updated (in part) in 2003.**

The goal of the STSMP is:

- **To provide a vision for a multi-modal transportation system that ensures the future growth in the City is sustainable, in the context of the *Smart Growth Policies*.**
- **To address operational, planning and policy issues for all modes in the context of tourism, economics, environment and the community.**

Class EA Process

We are Here



Goals, Principles & Objectives

GOAL:	Optimize the Transportation System
Principle:	Make the most of what exists; preserve and maximize the use of facilities and services — avoid or defer the need for new infrastructure that does not support the other goals.
Objectives:	1. Improve the way that the components of the transportation network, including signage and traffic signals, roundabouts, pedestrian/cycling facilities, transit priority systems, traffic management, intelligent transportation systems (ITS), and intersection improvements, etc., work together to reduce delays and best use available capacity. 2. Enhance the existing transit system to efficiently move local residents throughout the network, and effectively move visitors throughout the visitor area. 3. Use transportation demand management (TDM) measures to improve the efficiency of the transportation system. 4. Fill the gaps —add connections and linkages within the existing transportation system to minimize the need for more infrastructure. 5. Invest in integrated public transportation services to manage high levels of travel demand: • for local residents • for visitors to the community • within the City and between Regional economic centres. 6. Optimize roads to accommodate all modes of travel, and expand roadways only when necessary.

Goals, Principles & Objectives

GOAL:	Promote Transportation Choice
Principle:	Provide and maintain a sustainable transportation system that offers competitive choices for moving all people and goods in an integrated and seamless manner while minimizing single occupancy vehicle trips.
Objectives:	1. Think ahead — embrace a comprehensive, long-term transportation planning approach that considers all modes and sets a priority for each mode related to the others. 2. Ensure that public transit services are planned and operated to be accessible, convenient, reliable , and comparable with other modes, including the automobile. 3. Develop safe, convenient and well-integrated bicycle and pedestrian networks and facilities that link key activity nodes within the region. 4. Continue to support new and innovative approaches to improve upon the existing transit system, and bicycling and pedestrian networks.

Goals, Principles & Objectives

GOAL:	Foster a Strong Economy
Principle:	Provide a transportation system that supports the retention of existing businesses and attraction of sustainable economic activity.
Objectives:	1. Support the planning, design, delivery, and ongoing maintenance of a fully integrated transportation system composed of roads, walkways, bikeways, transit, and railways. 2. Implement a transit system that effectively moves visitors and related service providers throughout the visitor area to capitalize on tourism revenue and lengthen the average visitor stay within the community. 3. Work with the Provincial government and other agencies to upgrade and expand their transportation network and corridors including the provision of improved road, rail (freight), and bus/rail transit linkages/connections to the City. 4. Develop a transportation system that provides exemplary service to existing areas, promoting densification. 5. Foster partnerships between the all levels of government, the private sector, educators and other stakeholders to improve the transportation system. 6. Develop a transportation system that allows for the efficient movement of goods and people and is adaptable to accommodate changing needs.

Goals, Principles & Objectives

GOAL:	Support Sustainable Development and Growth
Principle:	Provide and maintain a transportation system, in both new and existing areas of the community, which supports sustainable growth and green initiatives.
Objectives:	1. Develop initiatives and strategies that reduce the need to travel for both residents and visitors. 2. Ensure that the health and social benefits of an active lifestyle direct transportation planning and design decisions. Generally, priority will be given in the following order: • Walking, • Cycling, • Public transit, • Smart commute strategies, • Single occupant vehicles; however, local context will influence transportation design choices (i.e. Context Sensitive Design and Complete Corridors). 3. Consider urban design, zoning and parking management strategies that support walking, cycling and transit, and minimize land consumed to support automobile travel (e.g. parking lots). 4. Support changes to the transportation system that will result in a reduction in vehicle emissions, minimize energy consumption, and limit environmental impacts (including social and heritage impacts). 5. Ensure that new development and redevelopment support greater levels of walking, cycling and transit, and that transit service is provided at an early stage in new developments. 6. Be a leader in the implementation of greenhouse gas emission and carbon reduction measures to meet the challenge of current and emerging climate change issues. 7. Foster the development of communities that support active transportation such as walking and cycling. 8. Ensure that transportation and land use decisions are consistent with the policies and direction included in the Regional Growth Management Strategy, City Official Plan, and the Provincial Growth Plan.

Public Survey – Results Summary

- 409 interviews conducted (City Residents)
- 1.9 cars/household (Region-wide in 2006 - 1.6)
- 65% commute between work and home
- 88% of work-related commuters travel by car
- Seasonal congestion issues
- 12% of residents have used Niagara Falls Transit in the past month
- 60% recently used recreational trails in the City
- 1 in 5 residents said that tourists do not get enough attention

Public Survey - Conclusions

- "Roads/Traffic" is the leading local issue
- Use of mass transit options and active transportation are very low
- Cycling is a popular recreational activity; not generally a commuter travel mode
- Driving is second nature for short and long trips
- Opinions on roadway conditions are mixed (some positive/some negative comments)

What's Next – Stay Involved

- **Comment Sheets – Let us know what you think!**
- **Continuation of Forecast Modeling**
- **PIC No. 2 – January 2011**
- **Comments, Questions or Concerns? Contact:**
  - Mr. Doug Willoughby, P.Eng, Project Manager, AECOM
  - Ms. Marzenna Carrick, C.E.T., Manager of Transportation Engineering, City of Niagara Falls

TRANSPORTATION BEYOND TOMORROW 2031

PUBLIC INFORMATION CENTRE – COMMENT SHEET

Wednesday, September 15th, 2010

1. Do you agree with the goals of the Study? Do you think additional goals should be established?

_____

_____

_____

_____

2. Are the objectives for each goal appropriate? Are there additional objectives that should be considered?

_____

_____

_____

_____

3. Are there any other issues related to transportation in the City of Niagara Falls that have not been identified through the goals and objectives?

_____

_____

_____

_____

4. Was the information provided tonight clear, yes or no? Please explain.

_____

_____

_____

_____

5. Did the session meet your expectations, yes or no? Please explain.

_____

_____

_____

_____

6. Please provide any additional comments you may have about the information presented tonight or the study in general.

_____

_____

_____

_____

Thank you for your time. If you are unable to respond at this time, please submit your comments by October 1st, 2010 to:

Mr. Doug Willoughby, P.Eng Project Manager AECOM 300-300 Town Centre Boulevard Markham, ON, L3R 5Z6 Telephone: (905) 477-8400 ext 574 Facsimile: (905) 477-1456 Email: doug.willoughby@aecom.com	**Ms. Marzenna Carrick, C.E.T.** Manager of Transportation Engineering City of Niagara Falls 4310 Queen Street, P. O. Box 1023 Niagara Falls, ON, L2E 6X5 Telephone: (905) 356-7521 ext 5204 Facsimile: (905) 353-0651 Email: mcarrick@niagarafalls.ca

Name : _____

Mailing Address : _____

City/Town : _____ Postal Code : _____

Telephone : _____ Email Address : _____

Personal information on this form is collected pursuant to the Planning Act, R.S.O. 1990, c.P.13, the Municipal Act, 2001, S.O. 2001, c.25 and will be used for future contact in relation to the City of Niagara Falls Sustainable Transportation Study and Master Plan. Questions about the collection of your information should be addressed to Ms. Marzenna Carrick, C.E.T. Manager of Transportation Engineering, City of Niagara Falls, 4310 Queen Street, P. O. Box 1023, Niagara Falls, ON, L2E 6X5, Telephone: (905) 356-7521 x5204, Facsimile: (905) 353-0651, Email: mcarrick@niagarafalls.ca

The City of Niagara Falls and AECOM thank you for your involvement in this Study. Comments and information regarding this study are being collected to assist the City of Niagara Falls with meeting the objectives of the Sustainable Transportation Study and Master Plan. With the exception of personal information, all comments will be included in the Environmental Study Report and will become part of the public record.

NiagaraFalls CANADA

TRANSPORTATION BEYOND TOMORROW 2031

PUBLIC INFORMATION CENTRE – ATTENDANCE SHEET

Wednesday, September 15th, 2010

Name (Please Print)	Mailing Address	Telephone or E-Mail	Check to be kept informed
[redacted]			
[redacted]			
[redacted]			✓
[redacted]			✓
[redacted]			✓
[redacted]			✓
[redacted]			✓
[redacted]			✓

Personal information on this form is collected pursuant to the Planning Act, R.S.O. 1990, c.P.13, the Municipal Act, 2001, S.O. 2001, c.25 and will be used for future contact in relation to the City of Niagara Falls Sustainable Transportation Study and Master Plan. Questions about the collection of your information should be addressed to Ms. Marzenna Carrick, C.E.T. Manager of Transportation Engineering, City of Niagara Falls, 4310 Queen Street, P. O Box 1023, Niagara Falls, ON, L2E 6X5, Telephone: (905) 356-7521 x5204, Facsimile: (905) 353-0651, Email: mcarrick@niagarafalls.ca

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TRANSPORTATION BEYOND TOMORROW 2031

PUBLIC INFORMATION CENTRE – ATTENDANCE SHEET

Wednesday, September 15th, 2010

Name (Please Print)	Mailing Address	Telephone or E-Mail	Check to be kept informed
[redacted]			✓
[redacted]			
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Personal information on this form is collected pursuant to the Planning Act, R.S.O. 1990, c.P.13, the Municipal Act, 2001, S.O. 2001, c.25 and will be used for future contact in relation to the City of Niagara Falls Sustainable Transportation Study and Master Plan. Questions about the collection of your information should be addressed to Ms. Marzenna Carrick, C.E.T. Manager of Transportation Engineering, City of Niagara Falls, 4310 Queen Street, P. O Box 1023, Niagara Falls, ON, L2E 6X5, Telephone: (905) 356-7521 x5204, Facsimile: (905) 353-0651, Email: mcarrick@niagarafalls.ca

The City of Niagara Falls and AECOM thank you for your involvement in this Study. Comments and information regarding this study are being collected to assist the City of Niagara Falls with meeting the objectives of the Sustainable Transportation Study and Master Plan. With the exception of personal information, all comments will be included in the Environmental Study Report and will become part of the public record.

TRANSPORTATION BEYOND TOMORROW 2031

CITY OF NIAGARA FALLS

TRANSPORTATION BEYOND TOMORROW 2031

Niagara Falls Sustainable Transportation Study and Master Plan – Class Environmental Assessment

NOTICE OF PUBLIC INFORMATION MEETING

The City of Niagara Falls, through their consultant AECOM, has initiated a study to update and replace the existing Transportation Master Plan. The City's Sustainable Transportation Master Plan (STMP) will provide a comprehensive forward-looking strategy of priority improvements and programs required for the City to meet several transportation challenges. The STMP will address operational, planning and policy issues for all modes of travel as they relate to tourism, economics, environment, sustainability, and the community.

The purpose of this study is to update the transportation vision for the community in consultation with the public and other stakeholders. Objectives of the study include developing an achievable and sustainable transportation strategy and network to improve the flow and movement of traffic, pedestrians and cyclists in the city. The study will also provide improvement priorities for corridor and transit infrastructure and transit service. Additional study information can be located on the project website at the following link: www.tbt2031.com

Overall, the STMP will provide not only an updated multi-modal transportation plan for the next 20-25 years, but also the necessary policy and decision making framework to allow the City to move forward with its priorities in a progressive and sustainable way. The STMP Study will follow the Class Environmental Assessment planning process meeting the requirements of Phases 1 and 2 in the planning process.

A key component of the study process involves consultation with interested stakeholders (public and affected agencies). A Public Information Meeting is being held that will provide stakeholders and members of the public with an opportunity to meet the Project Team, review the study progress to date, and to discuss issues related to the Project. Topics to be discussed at this meeting include transportation modeling efforts to date, identified deficiencies in the system, potential solutions, travel demand management (TDM), and active transportation (walking, cycling, etc.).

Date:	January 27th, 2011
Time:	6:00 pm to 8:00 pm, Presentation Starting at 6:15 pm
Location:	The MacBain Community Centre, **Multipurpose Room** 7150 Montrose Road, Niagara Falls, ON

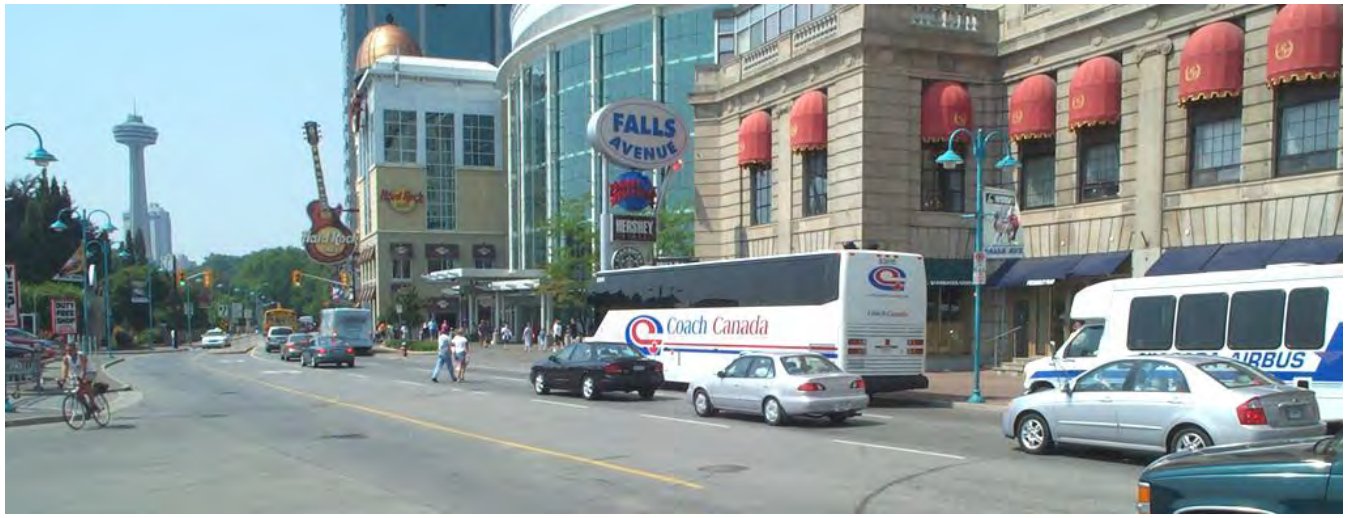
Anyone with an interest in the study is invited to attend and participate. If you cannot attend the Public Information Meeting and would like to provide comments, please forward them by January 30th to either of the following individuals:

Mr. Doug Allingham, P.Eng .
Project Manager
AECOM
300 Water Street
Whitby, ON, L1N 9J2
Telephone: (905) 668-9363 x 2231
Facsimile: (905) 668-0221
Email: doug.allingham@aecom.com

Ms. Marzenna Carrick, C.E.T.
Manager of Transportation Engineering
City of Niagara Falls
4310 Queen Street, P. O. Box 1023
Niagara Falls, ON, L2E 6X5
Telephone: (905) 356-7521 x 5204
Facsimile: (905) 353-0651
Email: mcarrick@niagarafalls.ca

TRANSPORTATION BEYOND TOMORROW 2031

Sustainable Transportation Master Plan



Public Information Meeting #2 Agenda

- Overview of PIC #1
- Transportation Demand Management
- Active Transportation
- Preliminary Road Network Improvements
- Next Steps
- Q & A Session

Study Participants

- City of Niagara Falls
- Niagara Region
- Ministry of Transportation
- Niagara Parks Commission

Consulting Team

- AECOM
- Urban & Environmental Management

PIC # 1 – September 2010

- **Summary of Public Survey Results**
  - **—Roads/Traffic" is the leading local issue**
  - **Use of transit and active transportation are very low**
  - **Cycling is a popular recreational activity; not generally a commuter travel mode**
  - **Opinions on roadway conditions are mixed**

- **Developed Study Goals & Objectives**
  - **Optimize the Transportation System**
  - **Promote Transportation Choice**
  - **Foster a Strong Economy**
  - **Support Sustainable Development and Growth**

PIC # 1 – September 2010

- **Summary of Community Advisory Group Input**
  - **What Works? - New buses, grid layout, VIA's bike train, adequate road capacity**
  - **What Doesn't Work? - Freight rail blocks roads, free parking, overlap of school/private & public transit bus services, bus scheduling, bike trail constraints**
  - **Input received from PIC 1 have been considered in developing draft recommendations for the City**

Future Travel Demands

- **2031 weekday Auto Trips forecast to increase by 39% and weekday truck demands increase by 18% compared to 2006**
  - 37,375 PM peak hour auto trips to/from Niagara Falls
    - 51% is internal to city – 49% to from external areas
    - 7043 tourist trips (19%) – summer weekday
  - 14, 503 PM peak hour truck trips to/from Niagara Falls
    - 79% is internal to city – 21% to from external areas
    - Significant additional truck demand that passes through the City on QEW

Key Recommendations for City

- Develop a TDM program to reduce peak hour travel demands and encourage use of non-auto travel options
- Invest in Transit - double the share of trips using local transit
- Invest in an integrated network of trails, sidewalks, and bike lanes to encourage increased use of active transportation
- Invest in Road Network infrastructure to support planned growth
- Updated City-wide Transportation Policies to implement and support the transportation goals and objectives

TDM – New and Planned Initiatives

- **Three pillars of sustainability: Economy (local), the Public, and the Environment, all benefit through the use of an effective TDM program**
- **The STMP TDM strategy will offer potential and opportunity to achieve a multitude of planning goals**
- **Specific STMP policies will support a comprehensive TDM program with strategies and initiatives directed at transportation and land use planning**

TDM – Auto Trip Reduction

Implementing TDM measures can reduce auto demands by 10% (if targets met)

TDM Measure	Short Trips (<10km)		Long Trips (>10km)	
	2021 Short to Medium term	2031 Long term	2021 Short to Medium term	2031 Long term
	Percent Reduction in Number of Automobile Trips			
Improved land use and transportation integration	1%	2.5%	1%	2.5%
Ridesharing (numbers reflect potential for overlap with transit)	1%	1%	1%	2%
Walking/cycling (except winter)	3%	5%	Minimal	
Telecommuting	0.5%	0.5%	1%	1.5%

TDM – New and Planned Initiatives

- **TDM recommendations:**
  - **build upon existing initiatives underway in the City and Region,**
  - **Are based on best practices in other jurisdictions across North America and Europe**
- **A successful TDM program will need**
  - **a champion in the municipality and wider community,**
  - **leadership in promoting program, preparing marketing material, securing funding and coordinating community programs**

TDM – Overarching Recommendations

- **Appoint a dedicated TDM Co-ordinator for the City**
- **Update the Official Plan to be complimentary with TDM strategies**
- **Initiate discussions with Niagara Region and the Province with respect to modifications to the Development Charges Act to recognize efforts to promote TDM (Transit).**

TDM – Overarching Recommendations

- **Market TDM throughout the community**
  - **target specific markets, including the tourist sector**
- **Develop a separate infrastructure capital program within the annual budget to implement TDM-related initiatives**
- **Reassess traffic impact study guidelines to require consideration of TDM and consider TDM in the context of all development reviews**

Specific TDM Recommendations & Priorities

- **Recommended TDM strategies are grouped into four areas of action:**
  1. **Education, Promotion and Outreach**
  2. **Travel Incentives**
  3. **Land Use and Transportation Integration**
  4. **Transportation Supply**

- **57 strategies have been recommended**
- **Grouped by implementation time horizon – short, medium and long term**

Active Transportation: Cycling & Walking

Active Transportation:

any form of travel that is self-propelled

this component of the sustainable transportation study is focused on *walking* and *cycling*

active transportation is an important component of a comprehensive, forward-looking strategy for tackling the transportation challenges of the future holistically

Active Transportation: Cycling & Walking

Why should Niagara Falls support Active Transportation?

cycling & walking are excellent and fast options for the local commuter and visitor to the city

cycling and walking are a practical and economical means of meeting the local transport needs

There are *health*, *economic* and *environmental* benefits associated with active transportation, and it is a very *equitable* transportation mode

Active Transportation: Cycling & Walking

Trends in Niagara Falls and elsewhere suggest an attitude change on the horizon

- **In the public survey the most commonly identified barriers are the *lack of facilities* (bike lanes—25%, trails—15%) as well as concerns related to *connectivity* and *safety* of available facilities**
- **There is a growing culture of engagement in active transportation activities**
- **There is a developing political environment that is more supportive of Active Transportation plans**

Active Transportation: Cycling & Walking

Preliminary recommendations…

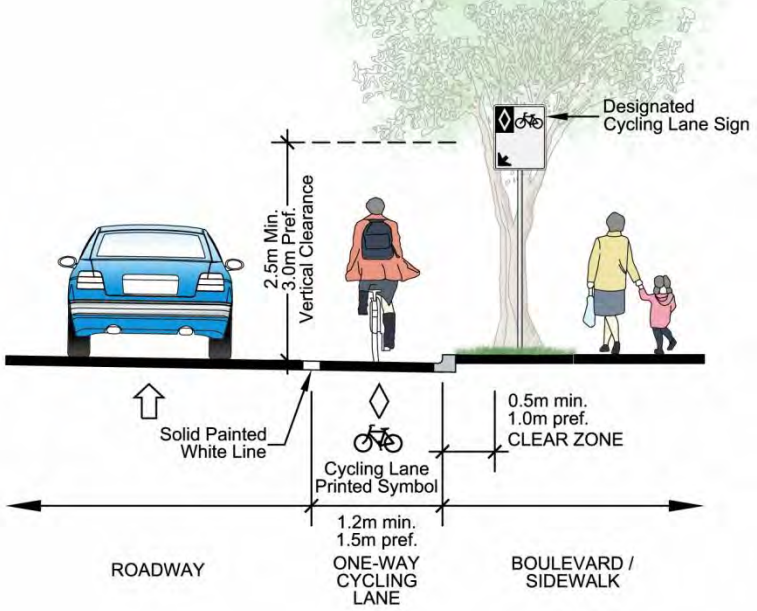
FOUR PRINCIPLES FOR INVIGORATING DEVELOPMENT AND USE OF CYCLING FACILITIES:

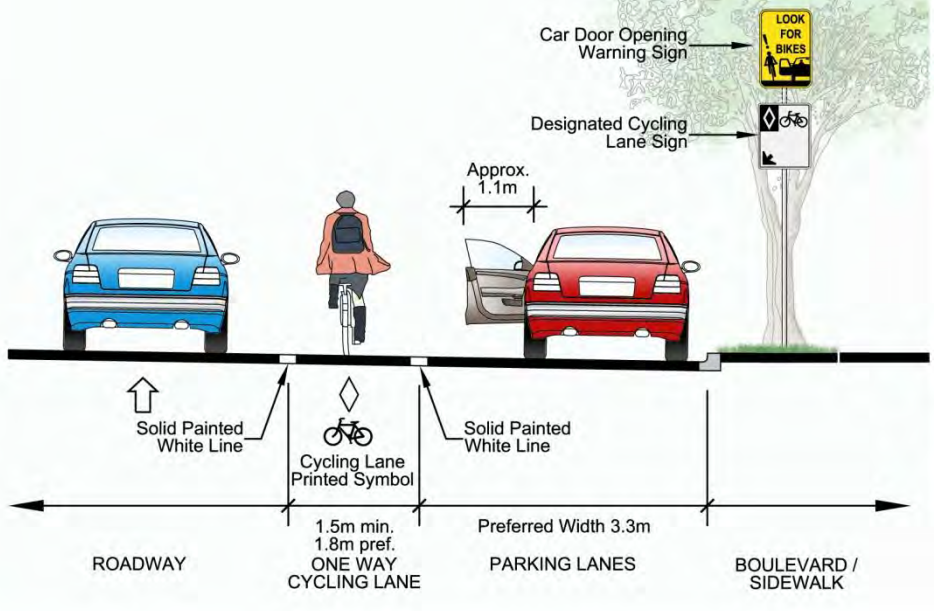
1. **CONTINUITY of CYCLING FACILITIES**
2. **VISIBILITY (for promotion and safety)**
3. **COMPLETE RANGE of FACILITY TYPES**
4. **CO-OPERATION**

Active Transportation: Cycling & Walking

Facility Types:

- **Examples of dedicated, on-road facilities (bike lanes)**





Active Transportation: Cycling & Walking

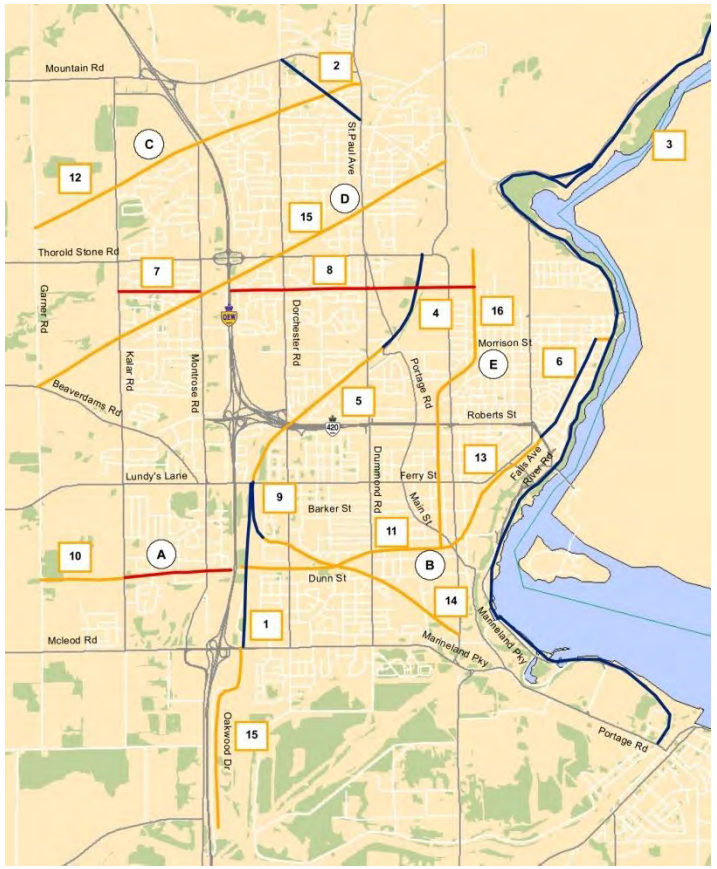
PRIMARY CANDIDATE ON-ROAD ROUTES

A. Mountain Road
B. Thorold Stone Road
C. Morrison Street
D. Lundy's Lane
E. McLeod Road
F. Kalar Road
G. Montrose Road
H. Dorchester Road
I. Drummond Road
J. Portage Road
K. Stanley Avenue
L. Victoria Avenue
M. Niagara Parkway & Whirlpool Road

Active Transportation: Cycling & Walking

PRIMARY CANDIDATE OFF-ROAD ROUTES

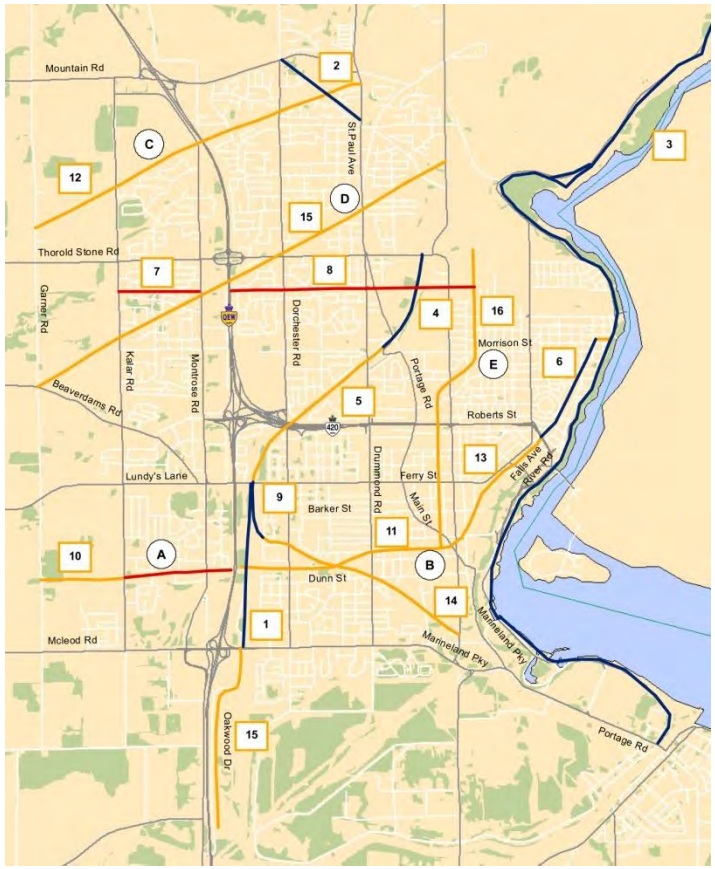
1. Millennium Trail (Phase 1)
2. Haulage Road Trail
3. Niagara Parkway
4. Millennium Trail (Phase 4)
5. Millennium Trail (Phase 3)
6. Olympic Torch Run Legacy Trail
7. NS&T Trail — A (West)
8. NS&T Trail — B (East)



Active Transportation: Cycling & Walking

PRIMARY CANDIDATE OFF-ROAD ROUTES

9. Gary Hendershot Memorial Trail
10. Hydro Corridor – South West (to Garner)
11. Hydro Corridor – South East (to Stanley)
12. Hydro Corridor – North Diagonal
13. Olympic Torch Legacy Trail (Phase 2)
14. Mitchell Line
15. Hydro Corridor – South Diagonal
16. Hydro Corridor – North to South



Active Transportation: Cycling & Walking

Case study #1: Kalar Road

Case study #2: Olympic Torch Run Legacy Trail

Active Transportation: Cycling & Walking

Other recommendations

- **Identification of local roads and local cycling routes to access the primary network routes and local destinations**
- **Extension of the network to through rural areas and to neighboring municipalities based on regional plans**
- **Extension of the network to and within new development areas at time of development**

Active Transportation: Cycling & Walking

Walking:

Assets

Challenges

Recommendations

Identifying Road Improvement Needs

- **Improved transit and TDM will reduce road improvement needs**
  - **Currently at 1.4% transit mode share (2011)**
  - **Transit Business Plan will achieve 3.2% transit mode share**

- **Incorporating the TDM targets discussed previous results in a total 18% Non-Auto Mode share by 2031 (up from 8% today)**

Model Scenarios

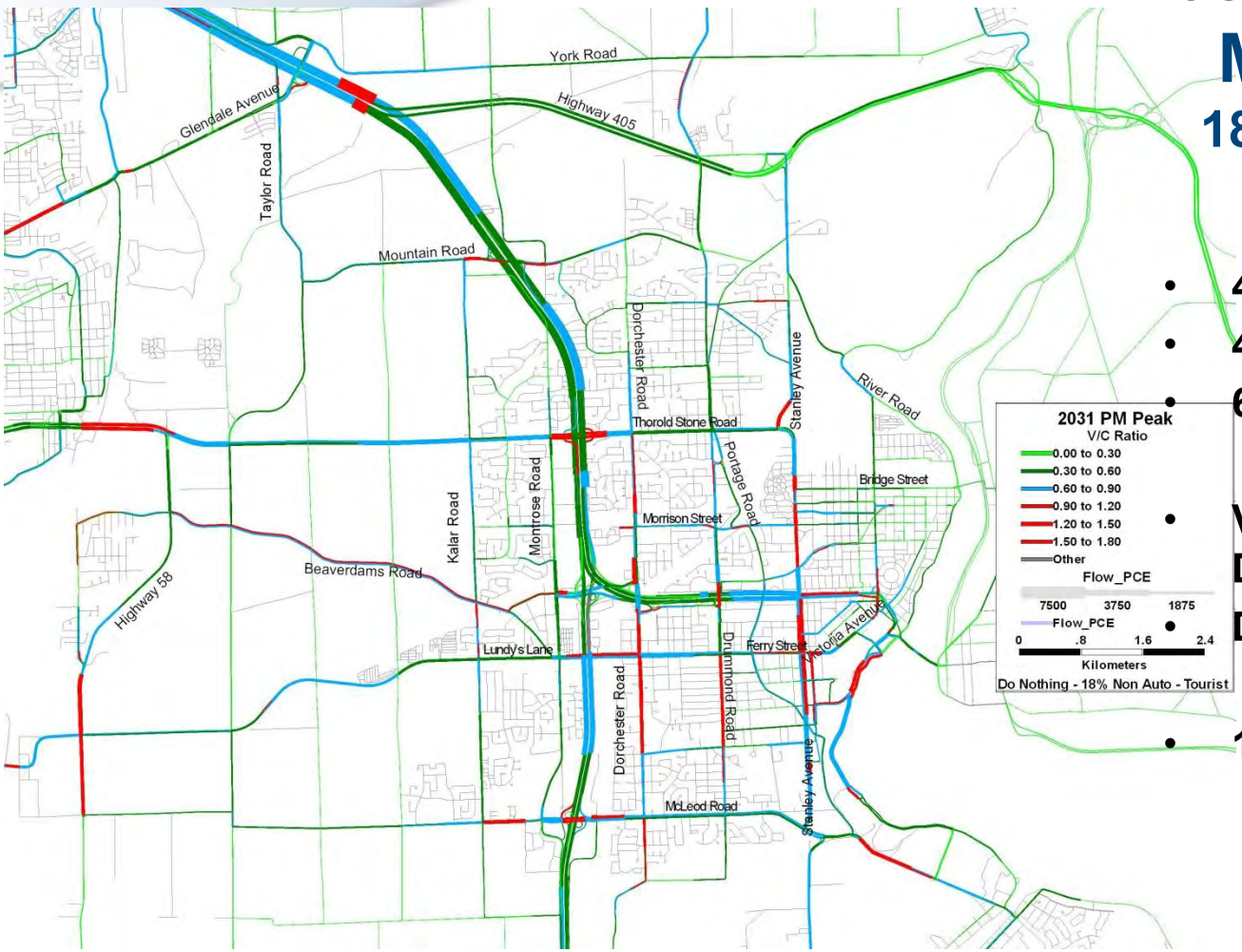
Impact on PM Peak Hour Demand

Scenario	Non Auto Mode Share	Total Internal Auto Trips PM peak hr[1]	Auto Trip Reduction From Base	% Reduction
Do Nothing	8%	13,704		
Transit Improvements	10%	13,453	-251	- 1.8%
Transit + TDM	18%	12,242	- 1,462	- 10.6%

- Achieving 18% Non-Auto mode share reduces city-wide auto delay by almost 900 veh-hrs per day
- This represents an estimated $7.5 M annual benefit to residents in terms of travel time savings by 2031

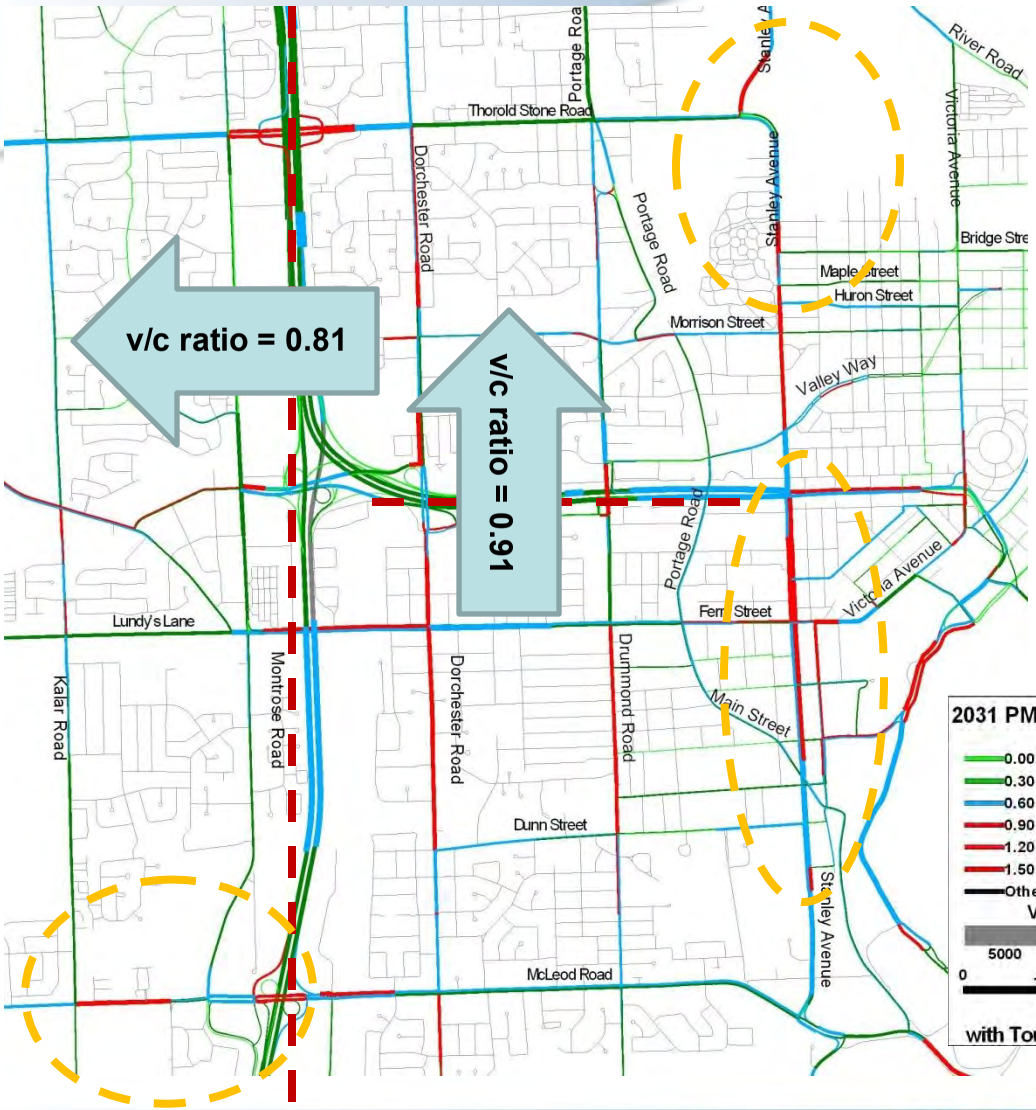
2031 PM Peak Hour Model Results

18% Non Auto Share



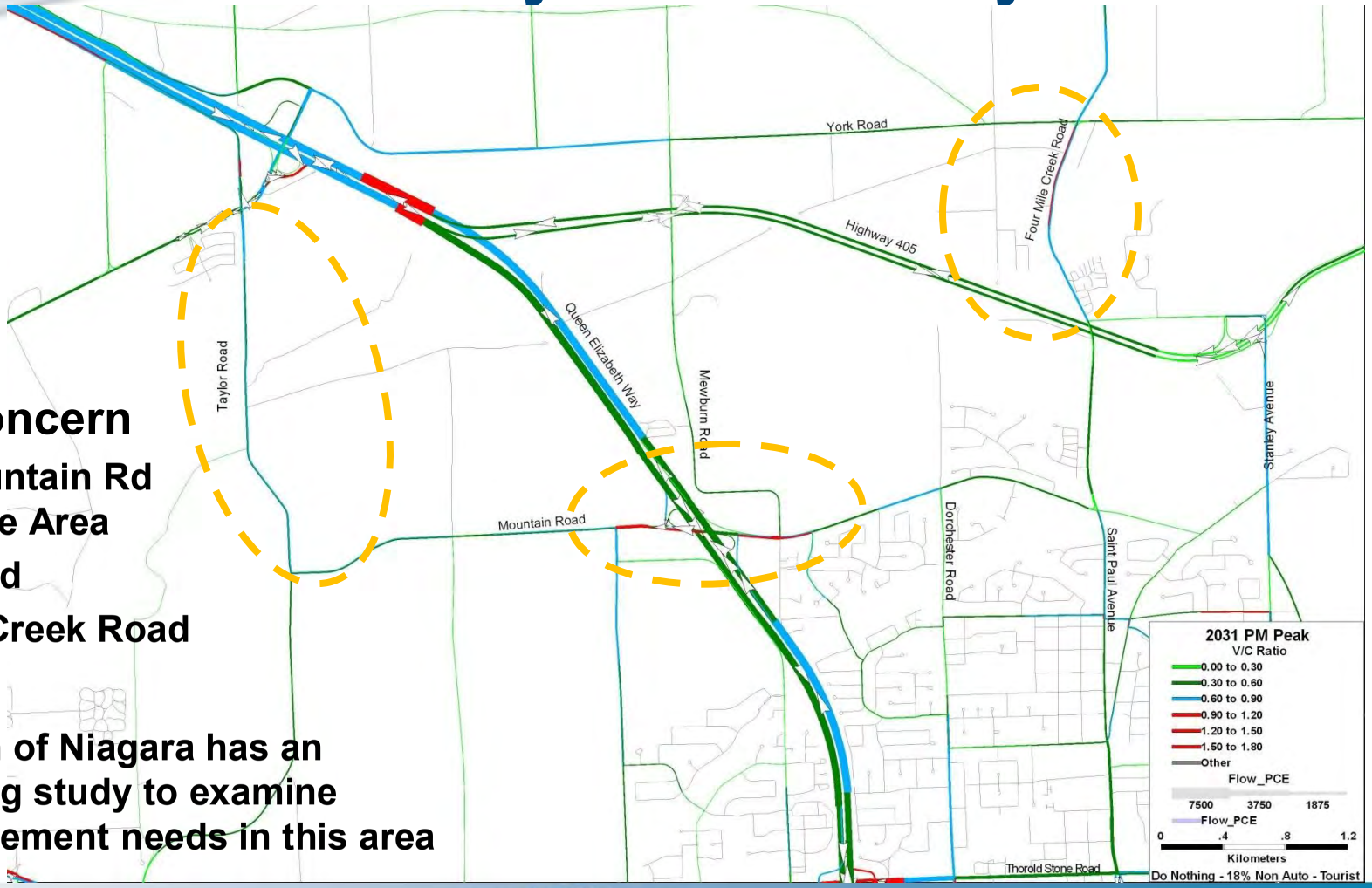
- 46 km at LOS E-F
- 46 km at LOS D
- 665 km at LOS A-C
- Veh-km of travel at LOS D or worse = 21%
- Delay = 1,588 veh-hrs
- 107% Increase from 2006

2031 Deficiency Areas



- Most QEW & Hwy 420 Crossings at / over capacity by 2031
- QEW Screenline at v/c ratio of 0.80
- Hwy 420 Screenline at v/c ratio of 0.91
- North South Arterials South of Lundy's Lane
- McLeod Rd Interchange
- Mountain Road Interchange / Highway 405 Area

Mountain Road / Hwy 405 Deficiency Areas

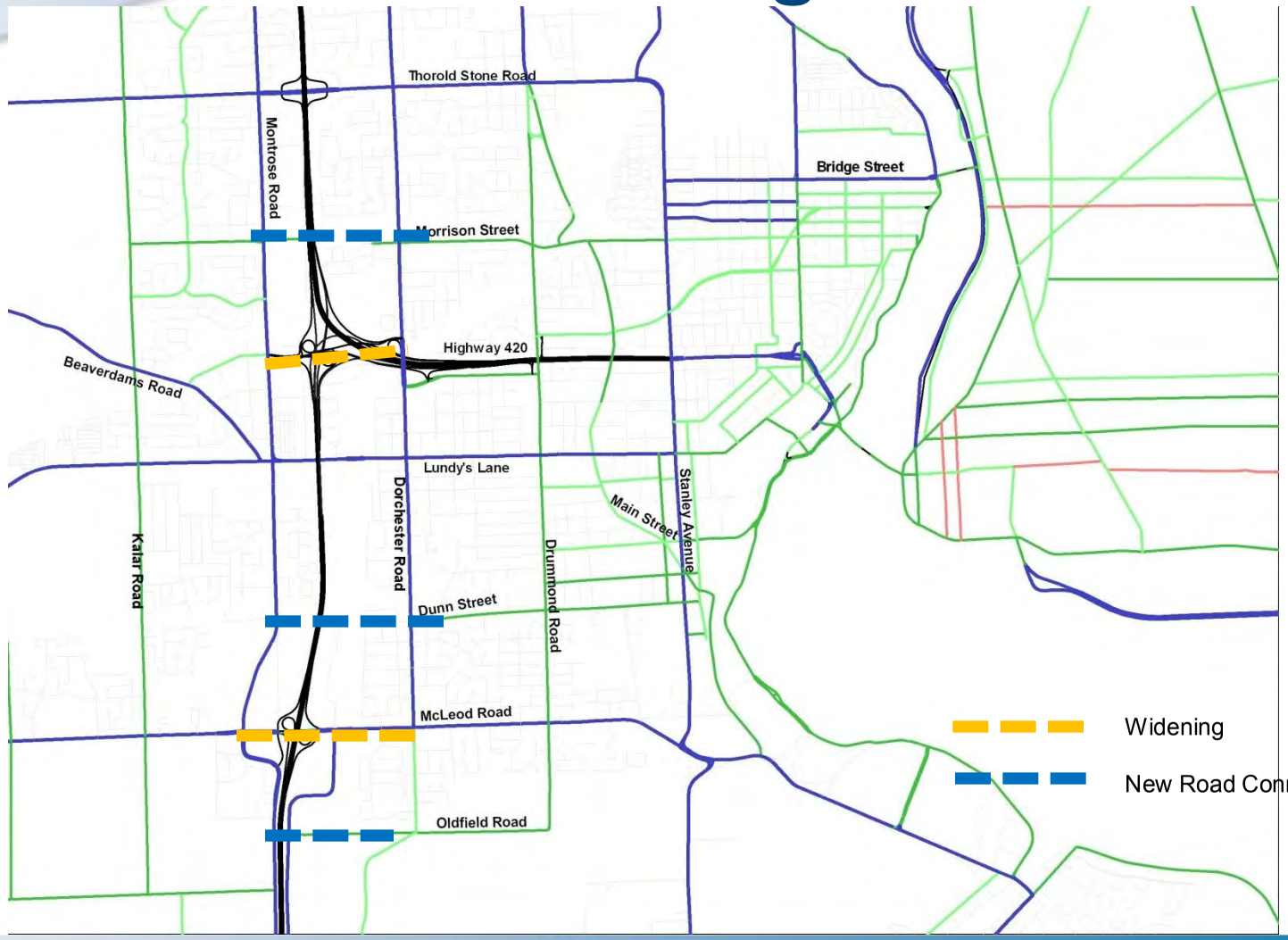


Areas of Concern

- QEW / Mountain Rd Interchange Area
- Taylor Road
- Four Mile Creek Road

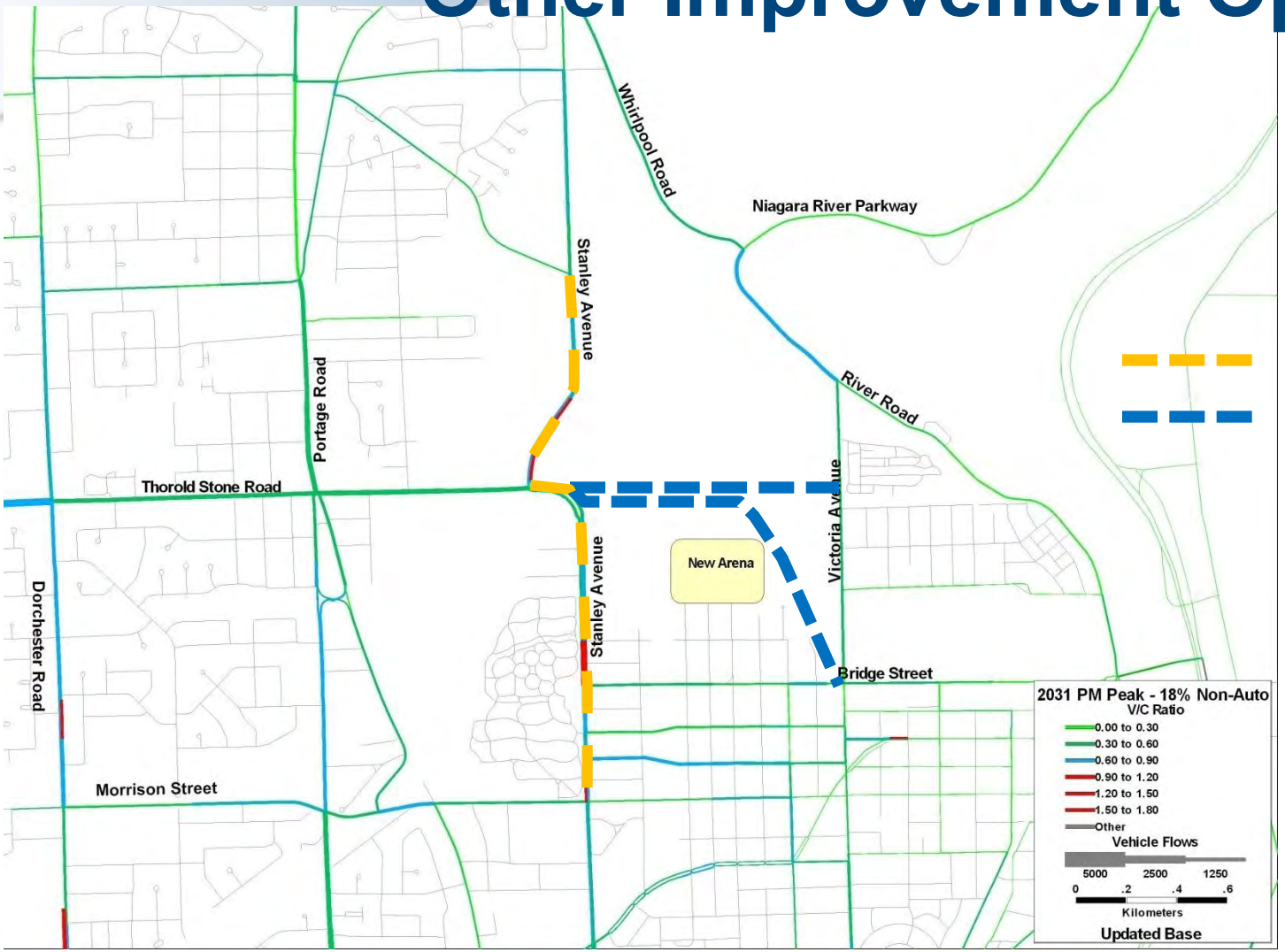
Note: Region of Niagara has an ongoing study to examine improvement needs in this area

QEW Crossing Alternatives



Highway 420 Crossing Alternatives

Other Improvement Options



Widening

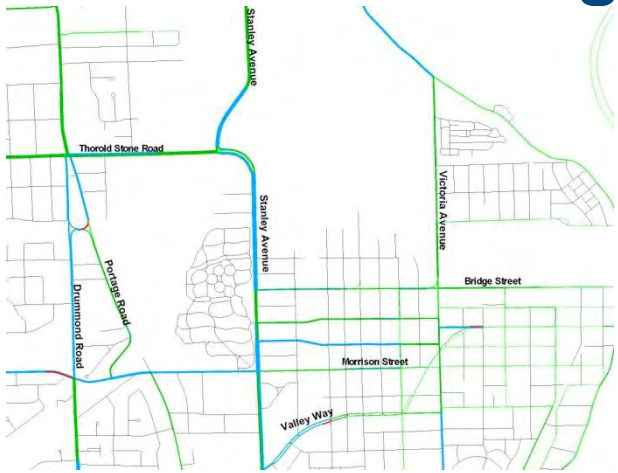
New Road Connection

Evaluation of Road Network Improvements

- For each issue, Four criteria “groups” reviewed
  - Transportation System
  - Social/Cultural
  - Natural Environment
  - Economic Environment
- A preferred alternative has been selected for each category

Preliminary Evaluation Results
Thorold Stone Road / Bridge St Area

Alternative 1 – Thorold Stone Rd Extension to Bridge St



Alternative 2 – Widen Stanley Ave

Alternative 3 – Thorold Stone Rd Extension to Victoria Ave

Network Stats	Base 2031 km	Alt 1 2031 km	Alt 2 2031 km	Alt 3 2031 km
LOS A-C	53.6	55.4	56.4	55.7
LOS D	4.2	6.0	2.9	4.3
LOS E	1.3	0.3	1.2	0.8
LOS F	1.5	1.5	0.1	1.8
Total	60.4	63.2	60.5	62.6
LOS E or Worse (km)	2.8	1.8	1.3	2.6
Delay (veh-hrs)	82.1	74.3	74.0	79.6

- **Widening of Stanley Ave to 6 lanes (4 lanes south of Bridge) addresses capacity deficiency in area better than Thorold Stone Rd extension**

Evaluation Results – Thorold Stone Road / Bridge St Area

Criterion	Do Nothing Base	Alternative 1 Thorold Stone Rd Extension to Bridge St	Alternative 2 Widen Stanley Ave	Alternative 3 Thorold Stone Rd Extension to Victoria Ave
Transportation	LEAST PREFERRED	PREFERRED		
Social / Cultural		PREFERRED	LEAST PREFERRED	PREFERRED
Natural Environment	PREFERRED		LEAST PREFERRED	
Economic Environment	LEAST PREFERRED	PREFERRED		
Evaluation Summary		**RECOMMENDED**		
Thorold Stone Road extension to 4th Avenue preferred from a transportation, social/cultural and economic perspective.				

Preliminary Evaluation Results QEW Crossings

Alternative 1 – Morrison Road Crossing

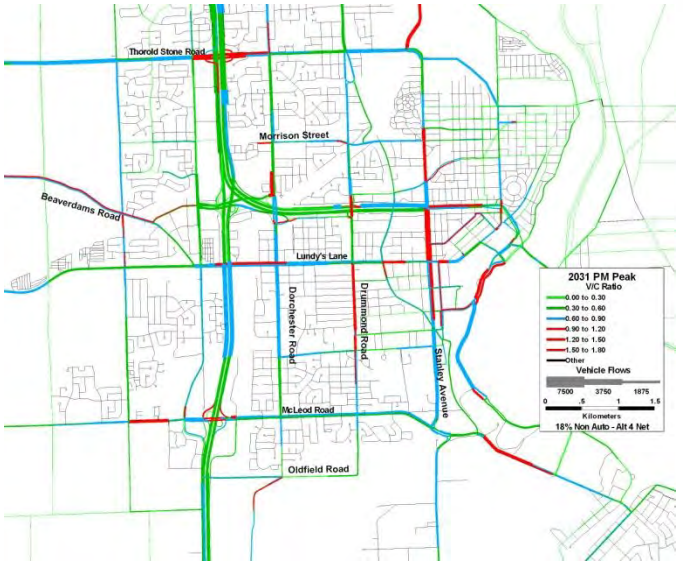
Alternative 2 – Dunn St Crossing

- **Morrison Road Crossing provides relief to Thorold Stone Road and Lundy's Lane – results in best v/c performance**

- **Dunn St crossing well used but does not provide relief to McLeod Road and increases demand on Montrose Rd.**

Preliminary Evaluation Results QEW Crossings

Alternative 3 – Widen McLeod Rd



Alternative 4 – Improve 420 and New Oldfield Road Crossing

Network Stats	Base 2031 km	Alt 1 2031 km	Alt 2 2031 km	Alt 3 2031 km	Alt 4 2031 km
LOS A-C	95.2	103.5	95.5	98.7	102.9
LOS D	9.6	8.7	12.5	8.2	6.4
LOS E	3.3	4.8	5.6	6.6	5.7
LOS F	12.6	6.4	9.2	7.3	5.6
Total	120.7	123.5	122.8	120.7	120.7
LOS E or Worse (km)	15.9	11.3	14.8	13.9	11.3
Delay (veh-hrs)	435	390	390	402	377

- **New QEW crossing south of McLeod combined with Hwy 420 interchange improvements can work as well as Morrison St crossing**

Evaluation Results – QEW Crossings

Criterion	Do Nothing Base	Alternative 1 Morrison Road Crossing	Alternative 2 Dunn St Crossing	Alternative 3 Widen McLeod Rd	Alternative 4 New QEW Crossing South of McLeod
Transportation	LEAST PREFERRED	PREFERRED			PREFERRED
Social / Cultural			LEAST PREFERRED	PREFERRED	
Natural Environment	PREFERRED		LEAST PREFERRED		
Economic Environment	LEAST PREFERRED			PREFERRED	PREFERRED

Evaluation Summary

RECOMMENDED

New QEW Crossing South of McLeod is preferred from a transportation and economic perspective.

Preliminary Evaluation Results 420 Crossings

Alternative 1 – Dorchester Rd Widening

Alternative 2 – Stanley Ave Widening (6lanes)

Alternative 3 – Drummond Rd widening

Network Stats	Base 2031 km	Alt 1 2031 km	Alt 2 2031 km	Alt 3 2031 km
LOS A-C	115.9	122.5	120.0	118.3
LOS D	13.7	12.1	15.1	15.6
LOS E	4.3	6.2	6.0	6.7
LOS F	13.6	8.5	8.2	6.8
Total	147.5	149.2	149.3	147.4
LOS E or Worse (km)	17.9	14.7	14.2	13.5
Delay (veh-hrs)	628	577	573	562

- **Both Dorchester and Drummond Road will require widening by 2031**
- **Additional capacity required in Stanley Ave corridor south of Ferry St.**

Evaluation Results – Highway 420 Crossings

Criterion	Do Nothing Base	Alternative 1 Dorchester Rd Widening	Alternative 2 Stanley Ave Widening (6lanes)	Alternative 3 Drummond Rd widening
Transportation	**LEAST PREFERRED**			**PREFERRED**
Social / Cultural	**PREFERRED**			**LEAST PREFERRED**
Natural Environment	**PREFERRED**		**LEAST PREFERRED**	
Economic Environment	**LEAST PREFERRED**			**PREFERRED**

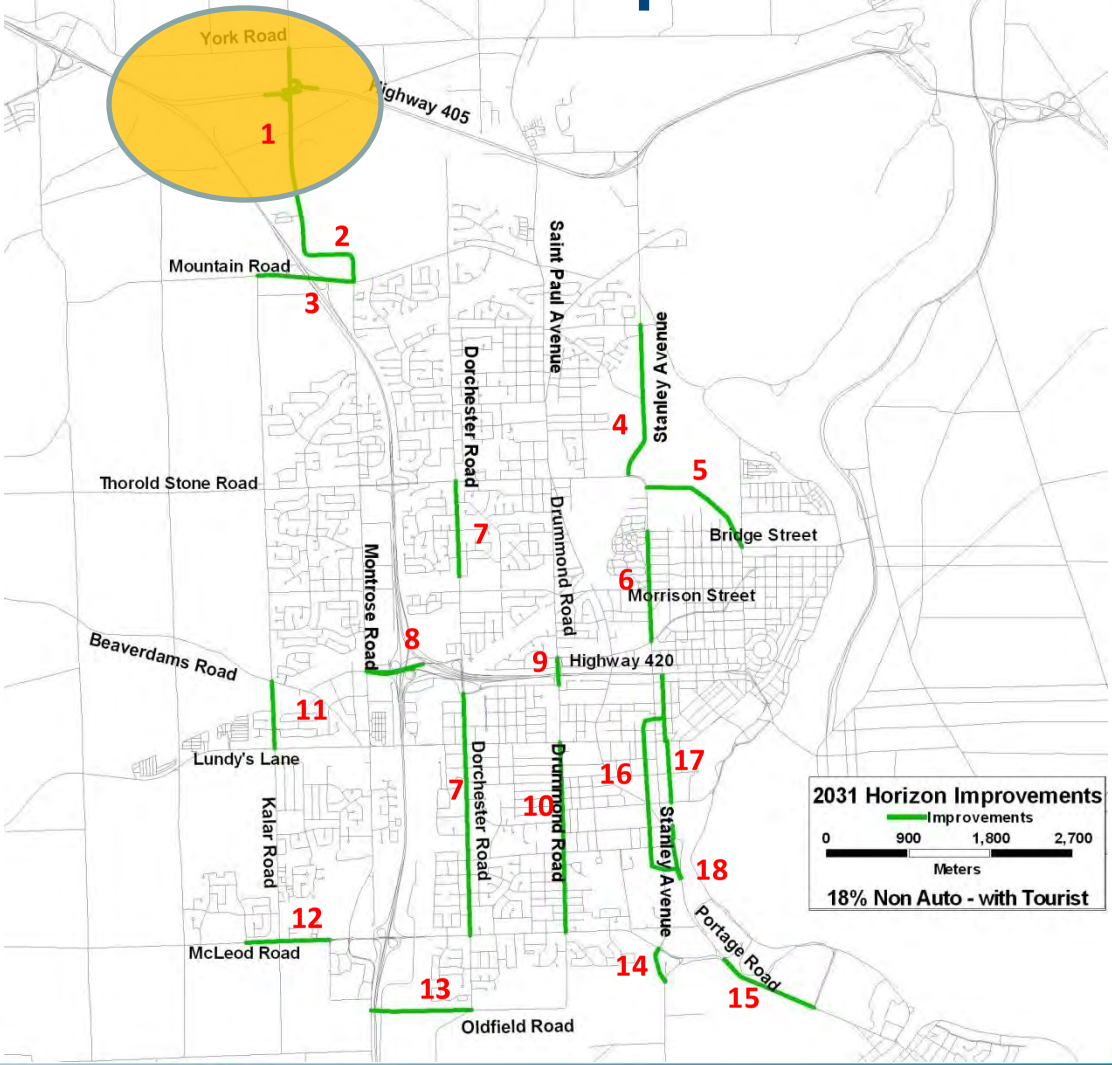
Evaluation Summary

RECOMMENDED

Drummond Road widening is preferred from a transportation and economic perspective. While Do Nothing is preferred from a social/cultural and natural environment perspective is does not address the transportation deficiencies and is least preferred from an economic perspective..

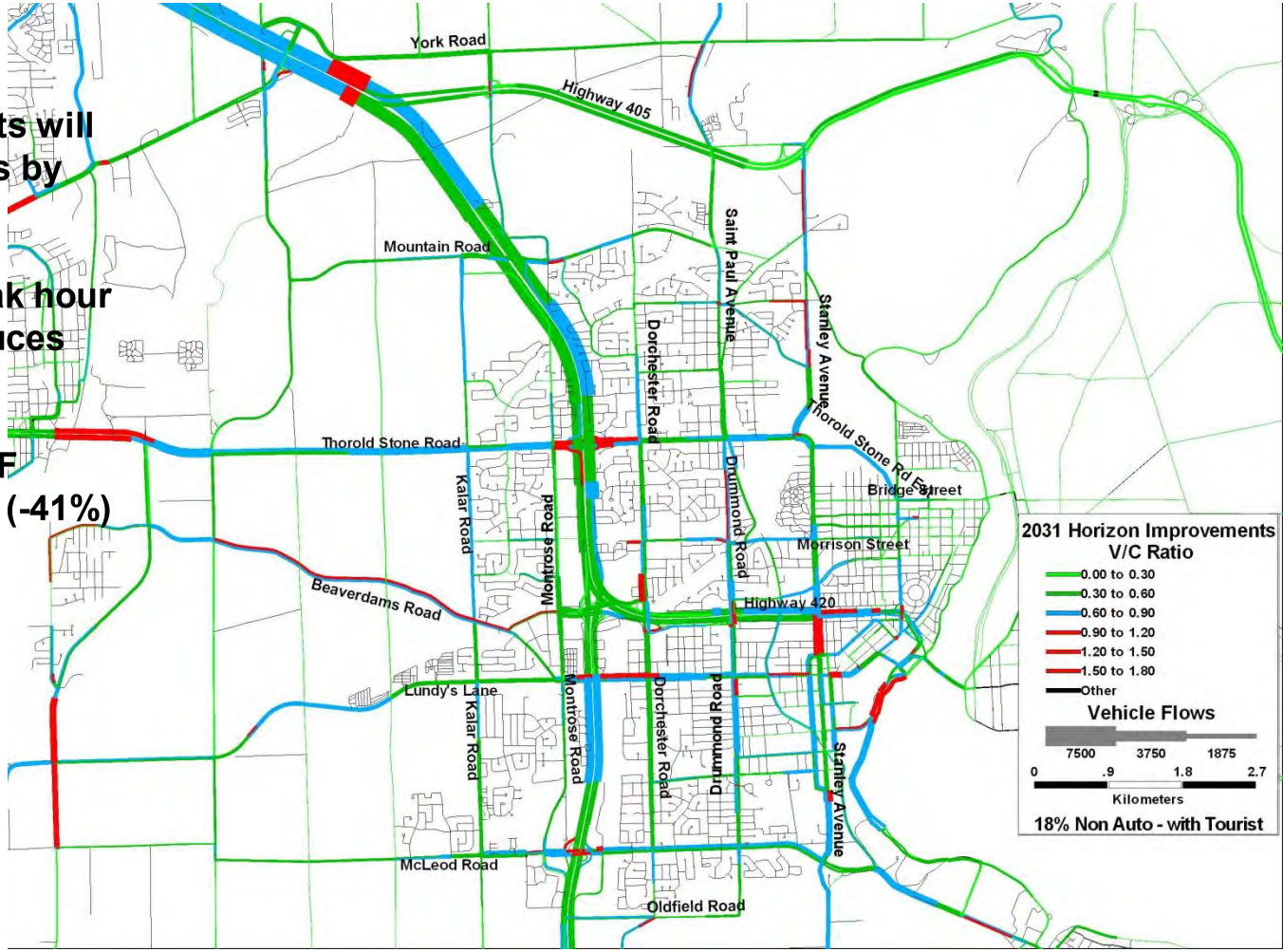
Recommended Road Improvements

1. Highway 405 Interchange Area (subject to ongoing Region of Niagara study)
2. Improve Mewburn Road (subject to ongoing Region of Niagara study)
3. Widen Mountain Road at QEW
4. Localized widening of Stanley (north of Thorold Stone Rd)
5. Thorold Stone Road extension to Bridge Street
6. Widen Stanley Ave to 4 lanes – Bridge to Valley Way
7. Widening of Dorchester North to Thorold Stone Rd and South to McLeod Rd
8. Widen Highway 420 ramps to Montrose Road (long term)
9. Widen Drummond Road across Highway 420
10. Widen Drummond Road – Lundy's Lane to McLeod
11. Widen Kalar Road north of Lundy's Lane
12. Widen McLeod Road – to West of Kalar to Montrose Road
13. New crossing of QEW / Hydro Canal south of McLeod Road
14. Stanley Ave / Marineland Parkway realignment
15. Portage Road widening (to Upper Rapids Blvd.)
16. Allendale widening and connection to Stanley Ave. (north of Ferry, south of Dunn)
17. Buchanan / Fallsview widening and realignment (Livingstone – Forsythe)
18. Portage Rd connection to Buchanan / Fallsview



Recommended Road Improvements

- Recommended Improvements will reduce 2031 peak hour delays by 17% (275 veh-hrs)
- With improvements total peak hour travel at LOS D or worse reduces from 21% to 16%
- Length of network at LOS E-F reduces from 46 km to 27 km (-41%)



Recommended Road Improvements

	Project	Limits	Length km	Total Estimated Cost ($2009)	Implementation
1	Highway 405/Conc. 6 Interchange		1.2	$ 6,197,000	Region
2	Mewburn Rd Reconstruction	Mountain Rd to York Rd	2.0	$ 6,673,000	City
3	Mountain Road Widening	Kalar Rd to Olden Ave	1.27	$ 12,063,500	Region
4	Stanley Ave Widening	Church's Lane to Thorold Stone Rd	1.69	$ 10,136,500	Region
5	Thorold Stone Rd Extension	Stanley Ave to Bridge St	1.43	$ 9,585,900	Region
6	Stanley Ave. Widening	Hamilton St. to Valley Way	1.19	$ 7,371,340	Region
7a	Dorchester Rd Widening	Thorold Stone Rd to Pinedale	1.1	$ 6,515,100	City
7b	Dorchester Rd Widening	Frederica St to Mc Leod Rd	2.6	$ 19,194,000	City
8	Hwy 420 / Montrose Rd Improvements	Widening Ramps and Improve Intersection	0.6	$ 3,900,000	Region/MTO
9	Drummond Rd / Hwy 420 Bridge Widening	Valley Way to Frederica St	0.3	$ 5,109,000	City
10	Drummond Rd Widening	Lundy's Lane to McLeod Rd	2.1	$ 15,948,000	City
11	Kalar Rd Widening	Beaverdams Rd to Lundy's Ln	0.74	$ 4,589,200	City
12	McLeod Rd widening	Pin Oak Dr to Parkside Rd	0.9	$ 5,265,000	City
13 a	New Hydro Canal Crossing	Dorchester to Oakwood	1	$ 9,672,000	City
13 b	New QEW Crossing	Oakwood to Montrose	0.9	$ 9,780,000	City
14	Stanley Ave / Marineland Pkwy Intersection	Jog Elimination or Intersection Imp.	0.4	$ 6,721,000	Region
15	Portage Rd Widening	Marineland Pkwy to Upper Rapids Blvd.	1.3	$ 7,605,000	City
16a	Allendale Ave. widening	Forsyth St to South of Dunn St	1.2	$ 7,320,000	City
16b	Allendale Ave New Connections to Stanley Ave	Dixon St to Stanley Ave & Ferry St to Forsythe	0.87	$ 4,849,000	City
17	Buchanan / Fallsview Widening	Roberts to Livingston St	2.3	$ 17,001,000	City
18	Livingston St / Fallsview Connection to Portage Rd		0.5	$ 3,550,000	City

Total	$	179,045,540
City	$	123,070,300
Region	$	55,975,240

What's Next – Stay Involved

- **Comment Sheets – Let us know what you think!**
- **Finalize Plans and STMP Report**
- **Public Meeting #3**
- **Comments, Questions or Concerns? Contact:**
  - Mr. Doug Allingham, P.Eng, Project Manager, AECOM
  - Ms. Marzenna Carrick, C.E.T., Manager of Transportation Engineering, City of Niagara Falls

TRANSPORTATION BEYOND TOMORROW 2031

PUBLIC INFORMATION CENTRE NO. 2 – ATTENDANCE SHEET

Thursday, January 27th, 2011

Name (Please Print)	Mailing Address	Telephone or E-Mail	Check to be kept informed
[redacted]			
[redacted]			✓
[redacted]			✓
[redacted]			✓
[redacted]			✓
[redacted]			
[redacted]			✓
[redacted]			✓

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NiagaraFalls CANADA

TRANSPORTATION BEYOND TOMORROW 2021

PUBLIC INFORMATION CENTRE NO. 2 – COMMENT SHEET

Thursday, January 27th, 2011

- bus routes stretched to the limit, improvements needed NOW

1. Do you agree with the deficiencies identified by the Study? Do you think that there are any additional deficiencies in the City's transportation system that have not been identified?

lack of safe public transportation after dark - buses have low lighting, stops are in dark locations, passengers are frequently driven past, some drivers (routes 3, 6 and other crosstown routes) travel at unsafe speeds, main transfer point & bus terminal are in locations that feel unsafe for seniors, females

2. Transportation Demand Management (TDM) is an important component of the development of a sustainable transportation system for the City. Do you agree with the TDM strategies that have been recommended by the Study?

yes

3. Can you provide any input on potential strategies that can be implemented to further encourage active transportation (cycling, walking, etc.)?

- listing cycling and walking trails/ facilities on transit maps
- bicycle lock-up racks at transit facilities
- lined concrete sidewalks linking NF & Chippawa along Portage Rd.

4. Was the information provided tonight clear, yes or no? Please explain.

yes - audience was actively ~~engag~~ engaged by team members

5. Did the session meet your expectations, yes or no? Please explain.

_____

_____

_____

_____

6. Please provide any additional comments you may have about the information presented tonight or the study in general.

_____

_____

_____

_____

Thank you for your time. If you are unable to respond at this time, please submit your comments by February 18th, 2011 to:

Mr. Doug Allingham, P.Eng. Project Manager AECOM 300 Water Street Whitby, ON, L1N 9J2 Telephone: (905) 668-9363 ext 2231 Facsimile: (905) 668-0221 Email: doug.allingham@aecom.com	**Ms. Marzenna Carrick, C.E.T.** Manager of Transportation Engineering City of Niagara Falls 4310 Queen Street, P. O. Box 1023 Niagara Falls, ON, L2E 6X5 Telephone: (905) 356-7521 ext 5204 Facsimile: (905) 353-0651 Email: mcarrick@niagarafalls.ca

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TRANSPORTATION BEYOND TOMORROW 2031

PUBLIC INFORMATION CENTRE NO. 2 – COMMENT SHEET

Thursday, January 27th, 2011

1. Do you agree with the deficiencies identified by the Study? Do you think that there are any additional deficiencies in the City's transportation system that have not been identified?

Yes, I agree with the deficiencies.

2. Transportation Demand Management (TDM) is an important component of the development of a sustainable transportation system for the City. Do you agree with the TDM strategies that have been recommended by the Study?

Yes, I agree with the strategies

3. Can you provide any input on potential strategies that can be implemented to further encourage active transportation (cycling, walking, etc.)?

- investigate carpooling and ridesharing options for large traffic generators such as ~~will~~ businesses and schools

- safe Routes to School Program – currently a region wide pilot program requires more schools to participate

4. Was the information provided tonight clear, yes or no? Please explain.

yes – through slides and oral presentation + handouts

develop a Active Transportation Committee/Group or Advisory Com. for council.

5. Did the session meet your expectations, yes or no? Please explain.

Yes – there were a number of questions which were answered fully to the satisfaction of those present.

6. Please provide any additional comments you may have about the information presented tonight or the study in general.

the information was presented in a clear and easy to understand manner with good use of visual maps and slides.

Thank you for your time. If you are unable to respond at this time, please submit your comments by February 18th, 2011 to:

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TRANSPORTATION BEYOND TOMORROW 2031

PUBLIC INFORMATION CENTRE NO. 2 – COMMENT SHEET

Thursday, January 27th, 2011

1. Do you agree with the deficiencies identified by the Study? Do you think that there are any additional deficiencies in the City's transportation system that have not been identified?

YES - TALK is CHEAP TIME for ACTION. TIME TO SCRAP The ENTIRE NIAGARA TRANSIT SYSTEM AND START NEW.

2. Transportation Demand Management (TDM) is an important component of the development of a sustainable transportation system for the City. Do you agree with the TDM strategies that have been recommended by the Study?

[redacted] SOMEWHAT

3. Can you provide any input on potential strategies that can be implemented to further encourage active transportation (cycling, walking, etc.)?

FIX The SIDEWALKS ON DRUMMOND Rd. CLEARLY AND VISABLY MARK ALL The BIKE TRAILS ON MAPS AND The BIKE TRAILS AND LET The "locals" KNOW ABOUT IT.

4. Was the information provided tonight clear (yes) or no? Please explain.

5. Did the session meet your expectations, yes or no? Please explain.

IT WAS INFORMATIVE SOMEWHAT

6. Please provide any additional comments you may have about the information presented tonight or the study in general.

Question
~~Tech~~ NIAGARA TRANSIT ON WHY THEY TOOK DOWN THE BUS TIMES SIGNS IN THE CITY? WHAT ARE THEY TRYING TO PROVE? NIAGARA TRANSIT IN THIS CITY IS SUB PAR IMPROVEMENT NEEDED. NO MORE STUDIES NEEDED.

Thank you for your time. If you are unable to respond at this time, please submit your comments by February 18th, 2011 to:

Mr. Doug Allingham, P.Eng. Project Manager AECOM 300 Water Street Whitby, ON, L1N 9J2 Telephone: (905) 668-9363 ext 2231 Facsimile: (905) 668-0221 Email: doug.allingham@aecom.com	**Ms. Marzenna Carrick, C.E.T.** Manager of Transportation Engineering City of Niagara Falls 4310 Queen Street, P. O. Box 1023 Niagara Falls, ON, L2E 6X5 Telephone: (905) 356-7521 ext 5204 Facsimile: (905) 353-0651 Email: mcarrick@niagarafalls.ca

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TRANSPORTATION BEYOND TOMORROW 2031

PUBLIC INFORMATION CENTRE NO. 2 – COMMENT SHEET

Thursday, January 27th, 2011

1. Do you agree with the deficiencies identified by the Study? Do you think that there are any additional deficiencies in the City's transportation system that have not been identified?

City should expand Montrose Road from Niagara Square to Lyon's Creek Road to 4 Lanes, Lyon's Creek Road from Montrose Road to Sodom Road to 4 Lanes. Extend Drummond Road from Oldfield Road to Lyons Creek Road to Connect to Beck Road in Chippawa

2. Transportation Demand Management (TDM) is an important component of the development of a sustainable transportation system for the City. Do you agree with the TDM strategies that have been recommended by the Study?

Niagara Falls Transit should return bus service to Stanley Ave. from Bridge Street to Thorold Stone Rd. by returning old bus routes ie: Route #7 Rolling Acres, Route #8 Cherrywood and #12 Thorold Stone and the old Route #8 do the Bridge St. Homewood Ave.

3. Can you provide any input on potential strategies that can be implemented to further encourage active transportation (cycling, walking, etc.)?

Yes by adding new bus routes going from Downtown to the new Gales Centre via Victoria Ave.-Thorold Stone Rd. Loop (ie. Route #13 Stanley North) and add a new bus route that leaves Downtown at :30 minutes after the hour to get to Zher's (ie. Route #16 that would make connections at Main & Ferry at 45 min to the hour)

4. Was the information provided tonight clear, yes or no? Please explain.

Yes it was informative and I understand what the City is try do to make transportation beteer by 2031.

5. Did the session meet your expectations, yes or no? Please explain.

Yes it did met my expectations

6. Please provide any additional comments you may have about the information presented tonight or the study in general.

Niagara Falls Transit should reroute the current bus rotes and add new bus routes that go From Niagara Square to the Rola Woods/ Mountian Road Area via Stamford Centre at 40 Mintues after the hour

Thank you for your time. If you are unable to respond at this time, please submit your comments by February 18th, 2011 to:

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Active Transportation: Cycling & Walking

What is required to support Active Transportation?

- ***more facilities***
  (sidewalks, trails, bike lanes, etc.)

- ***better-connected facilities***
  (from any point A to B, C or D, wherever they may be)

- ***safer facilities***
  (visible and comprehensible; designed, constructed & maintained to meet established safety guidelines)

TRANSPORTATION BEYOND TOMORROW 2031

CITY OF NIAGARA FALLS

TRANSPORTATION BEYOND TOMORROW 2031

Niagara Falls Sustainable Transportation Study and Master Plan – Class Environmental Assessment

NOTICE OF 3rd PUBLIC INFORMATION MEETING

The City of Niagara Falls, through their consultant AECOM, has initiated a study to update and replace the existing Transportation Master Plan. The City's Sustainable Transportation Master Plan (STMP) will provide a comprehensive forward-looking strategy of priority improvements and programs required for the City to meet several transportation challenges. The STMP will address operational, planning and policy issues for all modes of travel as they relate to tourism, economics, environment, sustainability, and the community.

The purpose of this study is to update the transportation vision for the community in consultation with the public and other stakeholders. Objectives of the study include developing an achievable and sustainable transportation strategy and network to improve the flow and movement of traffic, pedestrians and cyclists in the city. The study will also provide improvement priorities for corridor and transit infrastructure and transit service. Additional study information can be located on the project website at the following link: www.tbt2031.com

Overall, the STMP will provide not only an updated multi-modal transportation plan for the next 20-25 years, but also the necessary policy and decision making framework to allow the City to move forward with its priorities in a progressive and sustainable way. The STMP Study will follow the Class Environmental Assessment planning process meeting the requirements of Phases 1 and 2 in the planning process.

A key component of the study process involves consultation with interested stakeholders (public and affected agencies). A Public Information Meeting is being held that will provide stakeholders and members of the public with an opportunity to meet the Project Team, review the study progress to date, and to discuss issues related to the Project. Topics to be discussed at this meeting include transportation modeling efforts to date, identified deficiencies in the system, potential solutions, travel demand management (TDM), and active transportation (walking, cycling, etc.).

Date:	Wednesday, September 21, 2011
Time:	6:00 pm to 8:00 pm, Presentation Starting at 6:15 pm
Location:	The Gale Centre Arena, **Memorial Room** 4171 Fourth Ave, Niagara Falls, ON

Anyone with an interest in the study is invited to attend and participate. If you cannot attend the Public Information Meeting and would like to provide comments, please forward them by September 26th to either of the following individuals:

Mr. Doug Allingham, P.Eng.
Project Manager
AECOM
300 Water Street
Whitby, ON, L1N 9J2
Telephone: (905) 668-9363 x 2231
Facsimile: (905) 668-0221
Email: doug.allingham@aecom.com

Ms. Marzenna Carrick, C.E.T.
Manager of Transportation Engineering
MacBain Community Centre
Transportation Services
7150 Montrose Road, Unit #1
Niagara Falls, ON, L2H 3N3
Telephone: (905) 356-7521 x 5204
Facsimile: (905) 356-7404
Email: mcarrick@niagarafalls.ca

BE PART OF THE SOLUTION

Help us shape the future transportation network.

- concerned about traffic congestion? - we are evaluating new crossings over the QEW via Morrison Street, near Dunn Street and south of McLeod Road
- wish you could cycle around the city more easily and safely?
- is the present signing in the city clear and understandable?
- and more

We are developing a transportation master plan and encourage the public to attend the next meeting

Gale Centre
September 21, 2011
6pm - 8pm

We want to hear your input and ideas!

More information is available at
www.niagarafalls.ca

NiagaraFalls CANADA

CITY OF NIAGARA FALLS ONTARIO

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CITY OF NIAGARA FALLS ONTARIO

TRANSPORTATION BEYOND TOMORROW 2031

Sustainable Transportation Master Plan

Public Meeting #3, September 21, 2011

TRANSPORTATION BEYOND TOMORROW 2031

Public Meeting # 3

- **Date:** September 21, 2011
- **Time:** 6:00 p.m. to 8:00 p.m.
  - Presentation starts at 6:15 p.m.
- **Location:** Gale Centre Arena, Memorial Room
  4171 Fourth Ave, Niagara Falls, ON
- **Presentation Topics:**
  - Summary of study to date,
  - Public Comments/Feedback
  - The Sustainable Transportation Master Plan (STMP),
  - Morrison Street Flyover and other potential initiatives

www.tbt2031.com

Study Participants

- City of Niagara Falls
- Niagara Region
- Ministry of Transportation
- Niagara Parks Commission

Consulting Team

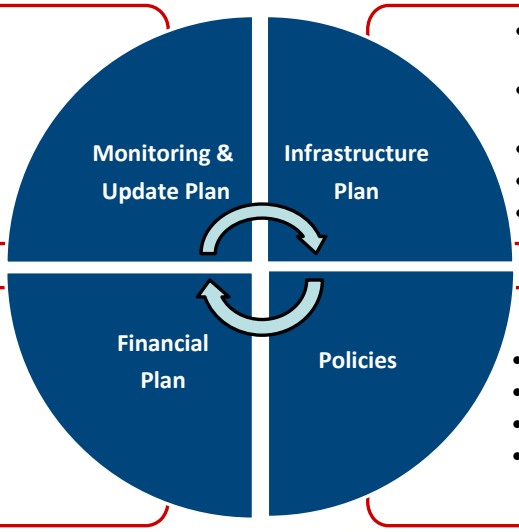
- AECOM
- Urban & Environmental Management
- Victor Ford and Associates
- Informa

TRANSPORTATION BEYOND TOMORROW 2031

Introduction & Review

The STMP has Four Connected Parts

- Goals & Objectives
- Transit Mode Share Targets
- Financial Indicators
- Policy Regime
- Plan Review / Updates



- Active Transportation network improvements
- Transit Network Improvements
- TDM program initiatives
- Road Network Improvements
- Supporting systems

- Development Charges Act
- Provincial / Federal Funding Opportunities
- Alternative Revenue Sources

- Active Transportation Policies
- Transit Supportive Policies
- TDM policies
- Parking Policies (separate report)

Sustainability and Issues

- **The purpose of the STMP study is to update and replace the existing TMP developed in 1998 and updated (in part) in 2003**
- **The goal of the STMP is:**
  - To provide a vision for a multi-modal transportation system that ensures future growth in the City is sustainable, in the context of the Smart Growth Policies
  - To address operational, planning and policy issues for all modes in the context of tourism, economics, environment and the community

Definitions

- **Sustainability –** the capacity to endure
- **STMP –** Sustainable Transportation Master Plan
- **Active Transportation** – includes walking, cycling, and other self-propelled travel modes like rollerblading, etc.
- **TDM –** Travel (also Traffic or Transportation) Demand Management
- **BRT –** Bus Rapid Transit
- **VTS –** Visitor Transportation System
- **Mode Share –** the division (usually measured by percent split) between active transportation, transit, and auto use

TRANSPORTATION BEYOND TOMORROW 2031

Background – Goals & Objectives

- **Study Goals & Objectives were developed, and include (in no particular order):**
  - **Optimize the Transportation System**
  - **Promote Transportation Choice**
  - **Foster a Strong Economy**
  - **Support Sustainable Development and Growth**

www.tbt2031.com

"Key to Success" Factors

- Review/revision of existing policies and procedures to align with recommendations of the STMP
- Requires agency and jurisdictional collaboration
- Needs public/stakeholder and political support
- Financial commitment

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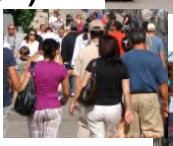
TRANSPORTATION BEYOND TOMORROW 2031

Policy Priorities

- This is a multi-modal plan that establishes the order of priority as the City considers transportation and planning policy development and implementation strategies
- Priority given to:
  - Walking & cycling (active transportation)
  - TDM, including transit
  - Smart-commute strategies
  - Auto use and goods movement



www.tbt2031.com

Public/Agency Involvement

- Public and agency involvement in the STMP development process is important; it leads to better decision making
- The review of background documents, the public survey results, and identified Goals & Objectives were presented at Public Meeting #1, held September 2010
- Study components including Active Transportation, TDM, Modelling, and Evaluation of selected alternatives, were presented at Public Meeting #2, held January 2011

TRANSPORTATION BEYOND TOMORROW 2031

Public Survey

- At study outset, a statistically significant public survey was completed
- Data gathered in the survey indicated that:
  - "Roads/Traffic" is the leading local issue
  - Use of transit and active transportation are very low
  - Cycling is a popular recreational activity; not generally a commuter travel mode
  - Opinions on roadway conditions are mixed

www.tbt2031.com

Public Comments

ACTIVE TRANSPORTATION
–Recognize that we are all pedestrians first
–Bicycle tourism is not as prominent as it could be
–Consider special traffic signals for cyclists and pedestrians
–Complete Millennium Trail and make it safer to use
–Bike lanes need to be continuous, safe and separated from cars and pedestrians
–Bike lanes should extend into new developments at the time of development

TRANSIT
–Transit improvements are needed including better frequency, longer schedule, and additional routes/destinations
–Need better clearing of snow at bus stops

TDM
– A TDM coordinator should help see that TDM recommendations are carried out

ROAD NETWORK
– Consider grade-separated railroad crossings

GENERAL
– Consider visitor needs
– Focus more on local residents, not just tourists

C.A.G. Comments

WHAT WORKS?
–New buses
–Grid layout
–VIA's bike train
–Adequate road capacity

WHAT DOESN'T WORK?
–Freight rail blocks roads
–Overlap of school/private & public transit bus services
–Bus scheduling
–Discontinuous bike trails

Key Comments

- **Comments received from Public Meetings #1 and #2, and the Project Team and Advisory Group meetings, resulted in a review of the following long-term initiatives:**
  - **Extension of Highway 420**
  - **Morrison Street Flyover Corridor Protection**
  - **Dorchester/Morrison – Traffic Accommodation at Rail Crossings**

TRANSPORTATION BEYOND TOMORROW 2031

Mode Share Targets

- **An 18% Non-Auto mode share reduces city-wide auto-trips by ~1,400 vehicles (p.m. peak hour; current non-auto mode share is 8%)**
- **Represents an estimated $7.5 M annual benefit to residents in terms of travel time savings, by 2031**
- **An Active Transportation focus is critical in achieving these targets**
- **Future road network deficiencies and improvements are based on Transit + TDM mode share targets**

STMP Recommendations

TRANSPORTATION BEYOND TOMORROW 2031

STMP Recommendations

- **The preferred alternative is a comprehensive STMP for the City of Niagara Falls, covering the following key elements of the transportation system:**
  - **Signing/Wayfinding**
  - **Parking (separate report)**
  - **Active Transportation (walking and cycling)**
  - **TDM Initiatives**
  - **Road Network**
  - **Supported by**
    - project costs, policy initiatives and a monitoring program

Signing/Wayfinding

TRANSPORTATION BEYOND TOMORROW 2031

Signing/Wayfinding Strategy

- **Builds upon existing signage, including tourist area signing, and enhances existing transportation network**
- **Supports the use of active transportation and transit**
- **Purpose:**
  - **Better managed traffic flow and reduce congestion**
  - **Better identify key destinations within the community**
- **Plans show new/revised sign requirements**

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Signing/Wayfinding Strategy

- **Recommendations:**
  - **Create a recognized system for signing based on aesthetics and commonality, and ensure signing conforms to appropriate guidelines**
  - **Complete a regular signing inventory**
  - **Conduct a sign effectiveness survey to target feedback from tourists and residents (prior to next TMP update)**

TRANSPORTATION BEYOND TOMORROW 2031

Signing/Wayfinding Strategy

Promote Active Transportation; Reduce Congestion

Strategy	Description
Tourist Information Map	• Map indicating Tourist Districts, parking, transit and active transportation information.
Tourist District Signage	• Unique signage for the eight Tourist Districts identified in Niagara Falls.
Parking Signage	• Signage to direct motorists to parking structures/lots with available spaces.
On-Street Information Maps	• "You Are Here" guidance to nearest attractions and transportation routes.
Transit Signage / People Mover Information	• Signage for GO and VIA Rail facilities for both motorists and pedestrians/cyclists.
Signage for Active Transportation	• Walking and Cycling route information, directional signing for bridge crossings and use of specific signing.
Signage for Public Gathering and Historical/Heritage Locations	• Minimal signage but clear tourist map provided at key facilities.
Special Event Signage	• Specific permanent signing for long-term (repeat) events and temporary signing for one-off events.

Signing/ Wayfinding Strategy

Additional Proposed Signing

- **Note: Signs to be approved by relevant roadway authority prior to posting. Direction signs noted along the QEW may be combined with existing CTODS signage where appropriate**

NiagaraFalls CANADA

TRANSPORTATION BEYOND TOMORROW 2031

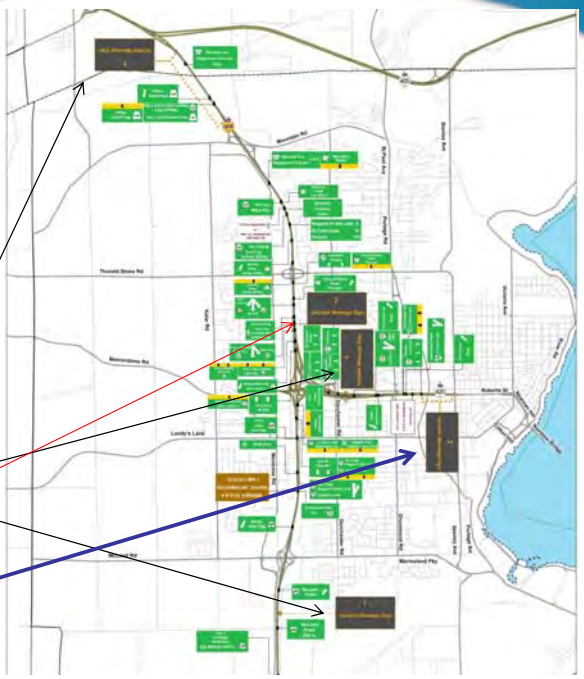
Signing/Wayfinding Strategy

Divert and Manage Congestion

Strategy	Description
Variable Message Signs (VMS)	• System of VMS strategically located on the QEW to manage congestion on Highway 420.
Advisory Signs for Canal Crossings	• Strategically located signs (such as at Allenburg crossing/lift bridge) to provide travellers with real time information on crossing closures and alternate routes.
Commercial Vehicles and International Bridge Crossing	• Placement of signing at strategic intersections to route trucks to appropriate bridge crossings.
Border Wait Time Advisory System	• Provision of MTO Border Wait Time Advisory System information at key decision points.
Emergency Detour Routes (EDR)	• Signing of EDR routes in Niagara Falls

Signing/ Wayfinding Strategy

Potential locations for Variable Message Signs



#1: MTO Proposed
#2: Existing VMS
#3: Potential new VMS

- Note: Signs to be approved by relevant roadway authority prior to posting

TRANSPORTATION BEYOND TOMORROW 2031

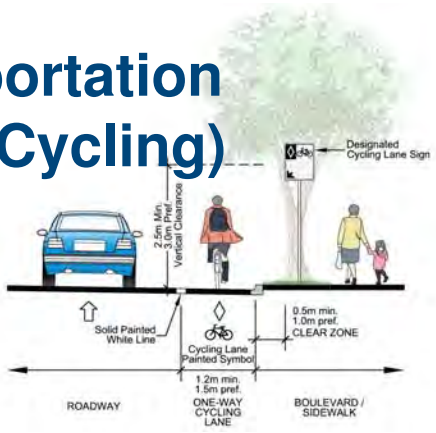
Parking

Parking

- A key element of the City transportation system
- Supply and management of parking linked to hotels and other accommodation is an issue which requires significant stakeholder consultation
- The City therefore considers this to warrant a separate study to be conducted outside the scope of this STMP
- Going forward, any form of parking considered by the City should be an integral component of a wider TDM strategy and sustainable urban development initiatives

TRANSPORTATION BEYOND TOMORROW 2031

Active Transportation (Walking and Cycling)



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Active Transportation: Cycling & Walking

- **Recommended four principles for invigorating development and use of cycling facilities:**
  - **Continuity of Cycling Facilities**
  - **Visibility (for promotion and safety)**
  - **Complete range of facility types**
  - **Co-operation**

TRANSPORTATION BEYOND TOMORROW 2031

Active Transportation Assessment of Priorities

- **Top ranked priorities primarily selected for ease of implementation**
  - **Short Term: Provides the City with a base network of useful connected facilities**
  - **Includes off-road facilities for both pedestrians and cyclists**
  - **Based on public feedback, these facilities have potential to attract users, increasing demand for more facilities and encouraging walking and cycling as more sustainable travel modes**
  - **Successive projects then move the City towards a more complex network**

Active Transportation

Proposed Off-Road Network

Four priority Groups A to D:

Short-term (2012 to 2017)

- **Group A: 10a, c, d, e & 13**
- **Group B: 8b, 9a, b, 11d, 15a, c**

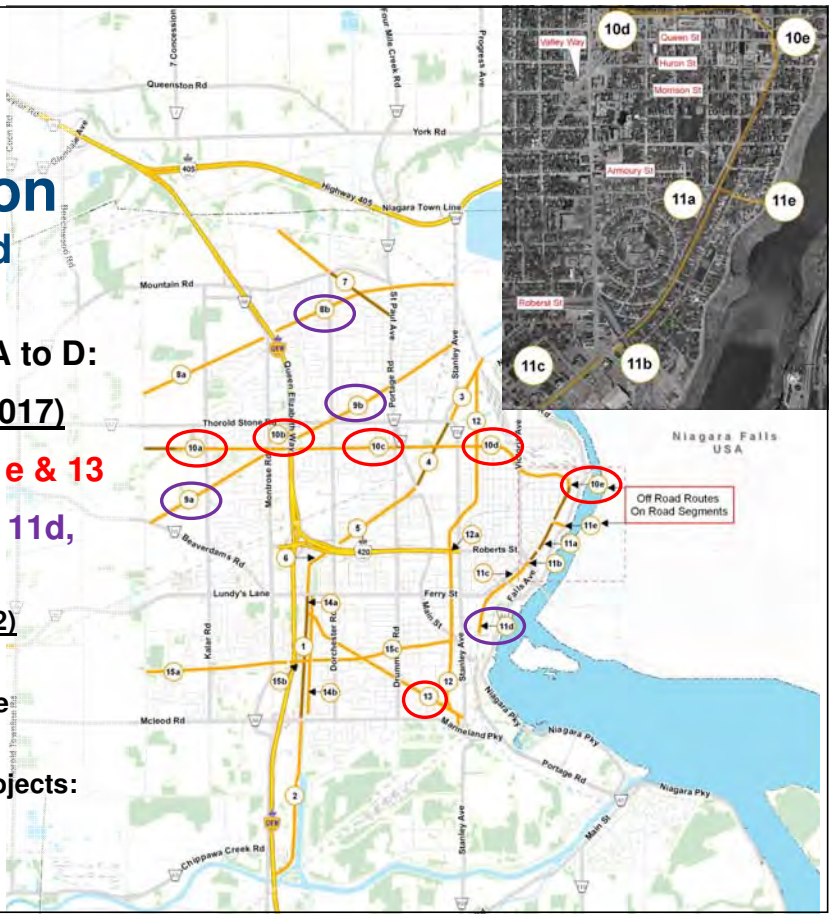
Medium-term (2018 to 2022)

Group C: 5, 6, 12 & 14b

- **Group D: 11b, 11c & 11e**

Long-term (before 2030)

Remaining Marquee Projects: 10b, 12a & 15b



Active Transportation

Proposed On-Road Network

Priority Groups 1A to 1D:

Short-term (2012 to 2017)

- **Group A: C, Ca, Da & Ea**
- **Group B: H, I, J & M**

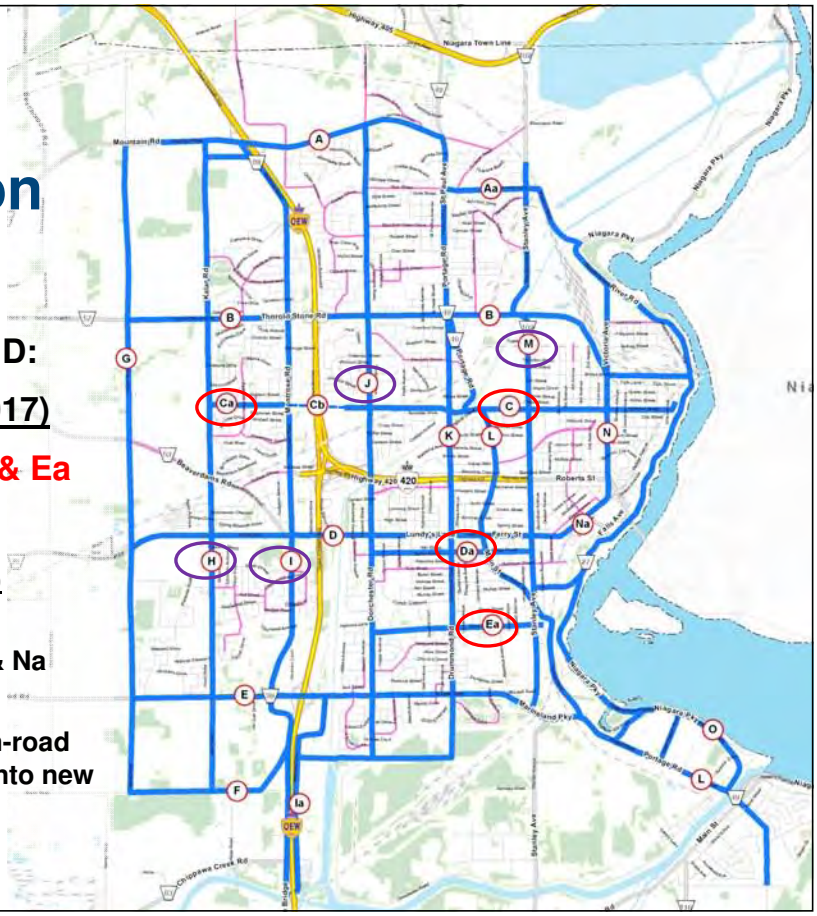
Medium-term (2018 to 2022)

Group C: B, D, and E

- **Group D: A, Ae, K, L, N & Na**

Long-term (before 2030)

Focus on intensifying on-road network and extending into new development areas



Active Transportation

- **To encourage more people to integrate walking and cycling choices into daily life:**
  - **Develop active transportation infrastructure initiatives**
  - **Work with surrounding municipalities and Region to integrate cross jurisdictional facilities**
  - **Incorporate pedestrian and cycling friendly design and maintenance standards**
  - **Sign routes through residential neighbourhoods, on major roadways connections and open space trails**
  - **Work with employers/major end user destinations to provide on site amenities (e.g. bike lockers, shower facilities)**
  - **Educational and awareness campaigns**

TRANSPORTATION BEYOND TOMORROW 2031

Transit Initiatives

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Transit Initiatives

- **Recommendations of the "Transit Strategic Business Plan and Ridership Growth Strategy":**
  - **Adopt transit ridership and modal split targets into the updated Transportation Master Plan**
  - **As a result of this recommendation, a transit modal split increase from 1.9% to 3.2% by 2018 has been incorporated into the network assessment model**
  - **The impact of this recommendation is an overall reduction in future road network improvements**

TRANSPORTATION BEYOND TOMORROW 2031

Transit Initiatives

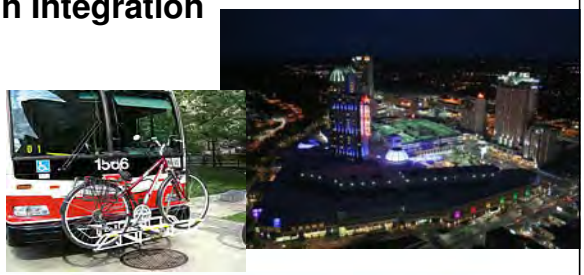
- **The following initiatives have moved forward towards Council adopting the recommended "Transit Strategic Business Plan and Ridership Growth Strategy":**
  - **Spring 2011: Ad-hoc committee to lead strategy implementation**
  - **Three year Regional Pilot project underway; 3 agencies combine to provide services to connect 5 communities**
    - Agencies: St. Catharines Transit Commission, Niagara Falls Transit, and Welland Transit
    - Communities: St Catharines , Niagara Falls, Welland, Port Colborne, Fort Erie
  - **Visitor Transportation System (VTS; formerly People Mover System) is approved and targeted implementation is May 2012. VTS is a premier BRT service. There are opportunities to create dedicated transit lanes in the City, especially during peak tourist season.**

Travel Demand Management (TDM) Initiatives

TRANSPORTATION BEYOND TOMORROW 2031

Specific TDM Recommendations & Priorities

- **Recommended TDM strategies are grouped into four areas of action:**
  1. **Education, Promotion and Outreach**
  2. **Travel Incentives**
  3. **Land Use and Transportation Integration**
  4. **Transportation Supply**



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Specific TDM Recommendations & Priorities

- 57 strategies, grouped by implementation horizon, were recommended and reviewed in Public Meeting #1
- Primary recommendation – appoint/hire a dedicated TDM Co-ordinator for the City, and source support resources to:
  - Prepare a program business plan
  - Co-ordinate program marketing
  - Monitor results
  - Organize public outreach programs
  - Implement TDM strategies

TRANSPORTATION BEYOND TOMORROW 2031

Road Network

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2031 PM Peak Hour Model Results

18% Non Auto Share

- 46 km at LOS E-F
- 46 km at LOS D
- 665 km at LOS A-C

- Veh-km of travel at LOS D or worse = 21%
- Delay = 1,588 veh-hrs

- 107% Increase from 2006

TRANSPORTATION BEYOND TOMORROW 2031

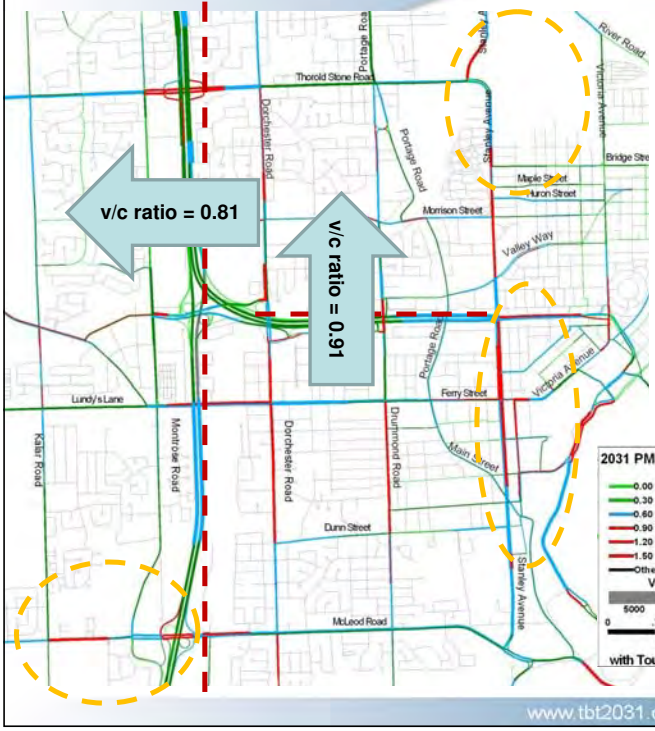
2031 Deficiency Areas Road Network

- Even with an increased overall level of non-auto mode use by 2031, the Transportation Demand Modelling exercise identified a number of key road network locations which remain as future areas of congestion in the p.m. peak hour, including:
  - Mountain Road/Highway 405 area
  - Thorold Stone Road/Bridge Street area
  - The QEW and Highway 420 Crossings
- 18 improvements were recommended and presented at Public Meeting #2

TRANSPORTATION BEYOND TOMORROW 2031

2031 Deficiency Areas

(PM Peak Hour)

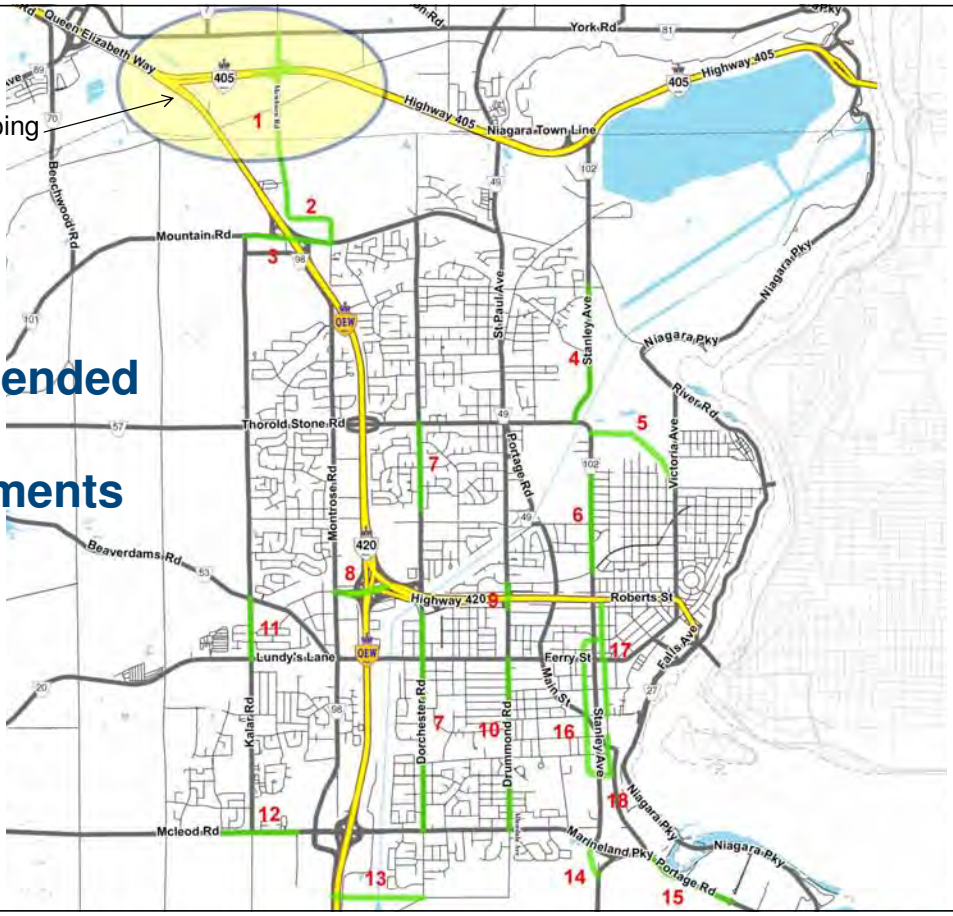


- **Most QEW & Hwy 420 Crossings at / over capacity by 2031**
- **QEW Screenline at a <u>volume to capacity (v/c)</u> ratio of 0.80**
- **Hwy 420 Screenline at v/c ratio of 0.91**
- **North South Arterials South of Lundy's Lane**
- **McLeod Rd Interchange**
- **Mountain Road Interchange / Highway 405 Area**

- **"v/c ratio" is a comparison of the volume of vehicles on the road to the available road capacity**
- **v/c <0.9 : volume is less than capacity – OK!**
- **v/c >0.9: volume nearing capacity – Congested!**

Subject to ongoing Regional Study

Recommended Road Improvements



TRANSPORTATION BEYOND TOMORROW 2031

Road Network Implementation

Short Term Priorities

	Project	Limits
Short Term		
5	Thorold Stone Road Extension	Stanley Ave to Gale Centre
12	McLeod Road Widening	Kalar Road to Hydro Canal
11	Kalar Road Widening	Beaverdams Rd to Rideau St.
18	Livingston St / Fallsview Connection to Portage Road	
9	Drummond Road / Hwy 420 Bridge Widening	Valley Way to Frederica St
15	Portage Road Widening	Marineland Pkwy to Upper Rapids Blvd
17	Buchanan / Fallsview Widening	Roberts to Livingston St
16a	Allendale Avenue Widening	Forsyth St to south of Dunn St

TRANSPORTATION BEYOND TOMORROW 2031

Road Network Implementation

Medium - Long Term Priorities

	Project	Limits
Medium Term		
5	Thorold Stone Road Extension	Gale Centre to Bridge
7a	Dorchester Road Widening	Thorold Stone Rd to Pinedale
16b	Allendale Ave New Connections to Stanley	Dixon St to Stanley Ave & Ferry St to Forsyth
6	Stanley Ave Widening	Hamilton St to Valley Way
8	Hwy 420 / Montrose Road Improvements	Widening Ramps and Improve Intersection
13a	New Hydro Canal Crossing	Dorchester to Oakwood
7b	Dorchester Road Widening	Frederica St to McLeod Rd
2	Mewburn Rd Reconstruction	Mountain Rd to York Rd
Long Term		
3	Mountain Road Widening	Kalar Rd to Olden Ave
4	Stanley Ave Widening	Church's Ln to Thorold Stone Rd
14	Stanley Ave / Marineland Pkwy Intersection	Jog Elimination or Intersection Improvement
13b	New QEW Crossing	Oakwood to Montrose
10	Drummond Road Widening	Lundy's Ln to McLeod Rd

Road Network Recommendations

- The 18 road network recommendations that were presented at Public Meeting #2 have been maintained
- Based on comments and input gathered throughout the study, additional analysis was conducted, resulting in recommendations for the following long-term initiatives:
  - Region to consider protection for Extension of Highway 420
  - Morrison Street Flyover Corridor Protection
  - Dorchester/Morrison – Traffic Accommodation at Rail Crossings

TRANSPORTATION BEYOND TOMORROW 2031

Extension of Highway 420

- Currently under MTO jurisdiction
- MTO does not foresee need for future highway extension
- This study identified need for additional network capacity in the area of Beaver Dams Road to Thorold Stone Road tunnel for the 2031 horizon year
- Niagara Region should consider protecting this corridor (outside of City jurisdiction)

Morrison Street Flyover Corridor Protection

- Even with a new QEW crossing south of McLeod Road, between Oldfield Road and Chippawa Parkway, additional crossing capacity may be required in the future
- Morrison Street Flyover provides the greatest level of relief to the future crossing capacity issues on the network (beyond horizon year 2031)

TRANSPORTATION BEYOND TOMORROW 2031

Morrison Street Flyover Corridor Protection

- Could take the form of a grade separated bridge crossing, connecting to the existing Morrison Street/Dorchester Road intersection and the existing retail development on the south side of Morrison Street

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Morrison Street Flyover Corridor Protection

- As a minimum, the flyover could provide a new Active Transportation link (pedestrian and cycling trail) over the QEW
- This option better relieves future congestion along Thorold Stone Road than an extension of Highway 420
- The absence of this corridor could result in a need to widen Thorold Stone Road to six lanes, which is not suitable from a number of environment, social and economic perspectives

TRANSPORTATION BEYOND TOMORROW 2031

Rail Crossings Review

- Recommend that the City initiate a thorough review of all existing railway corridors in the city, in discussion with the railroads and Transportation Canada
- Determine future needs and opportunities
- Develop a process to prioritize where new railway grade separations would provide the most benefit
- Review should include consideration of future rail traffic demands and opportunities to divert rail traffic around the City

Resulting Levels of Service (LOS)

PM Peak Hour

- Recommended Improvements will reduce 2031 peak hour delays by 17% (275 veh-hrs)
- With improvements total peak hour travel at LOS D or worse <u>reduces from 21% to 16%</u>
- Length of network at LOS E-F reduces from 46 km to 27 km (-41%)

TRANSPORTATION BEYOND TOMORROW 2031

Other Recommendations

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Other Recommendations

- The City undertake a Roadway Standards review
- Monitor progress; the STMP outlines a monitoring program that links the key performance indicators to the STMP goals and objectives
- Undertake on-board transit surveys
- Partner with MTO to collect data on influence of external traffic
- Sustainability Report Card (Greenroads™)

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Other Recommendations

- Update the City transportation model every 5 years using traffic and transit count data from a screenline count program
- Prepare a Transportation Perspective Report for Council (every 5 years; scheduled for 6 months following the release of TTS data) to advise Council on recent trends with respect to transportation patterns within the City and the need to update the STMP
- Review and/or update the STMP every 5 years, including public input

Strategy to Tactical Plans

- **Policy recommendations should be incorporated into the relevant policy documents within future Official Plan updates, to be implemented through the Planning Act**
- **Follow the Municipal Class EA planning process for recommended infrastructure projects**

TRANSPORTATION BEYOND TOMORROW 2031

Financing/Funding

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Financing/Funding Opportunities

- **Create a TDM administrator/coordinator position; budget $30 to $40k for a part-time position with an additional $50k to assist with initial marketing and promotional activities, to begin the program**
- **Identify other potential funding sources available to the City beyond its annual budget process**
- **Amend DC Act to enable municipalities to levy charges for all transportation infrastructure, especially transit**
- **Ongoing: program all initiatives to reflect the City's capability to finance the infrastructure needs**

TRANSPORTATION BEYOND TOMORROW 2031

What's Next – Stay Involved

- **Comment Sheets – Let us know what you think of the STMP Plan!**
- **Project team completes review of Draft STMP report**
- **Post final STMP report to the website**
- **Present STMP to Council in October 2011**
- **Comments, Questions or Concerns? Contact:**
  - Mr. Doug Allingham, P.Eng, Project Manager, AECOM
  - Ms. Marzenna Carrick, C.E.T., Manager of Transportation Engineering, City of Niagara Falls

Thank you!

- **Thank you for your participation in the development of the City of Niagara Falls Sustainable Transportation Master Plan**

NiagaraFalls CANADA

TRANSPORTATION BEYOND TOMORROW 2031

PUBLIC MEETING NO. 3 – COMMENT SHEET

Wednesday, September 21st, 2011

1. Is the focus of the STMP appropriate? Are you in favour of the overall plan which includes less reliance on the single occupant vehicles (i.e. cars) and greater focus on walking and cycling?

I like the emphasis on active transport. We need to encourage trails / pedestrian/cycling routes.

2. Do you agree with the noted transportation deficiencies and the improvements proposed to address them? What, if anything, was missed for the future walking, cycling, transit, and road networks?

- Active transport plan has not included millenium section 3 which would connect to the Niagara Parkway Trail & make it more useful.

3. Do you support the recommended flyovers of the QEW (i.e. Morrison Street, and South of McLeod Road between Oldfield Road and Chippawa Parkway). What are your additional comments/concerns?

Yes these will be needed eventually

4. Was the information provided tonight clear, yes or no? Please explain.

Yes.

5. Did the session meet your expectations, yes or no? Please explain.

Yes.

6. Please provide any additional comments you may have about the information presented tonight or the study in general.

Thank you for your time. If you are unable to respond at this time, please submit your comments by October 3rd, 2011 to:

Mr. Doug Allingham, P.Eng.
Project Manager
AECOM
300 Water Street
Whitby, ON, L1N 9J2
Telephone: (905) 668-9363 ext 2231
Facsimile: (905) 668-0221
Email: doug.allingham@aecom.com

Ms. Marzenna Carrick, C.E.T.
Manager of Transportation Engineering
Transportation Services
City of Niagara Falls
7150 Montrose Road, Unit #1
Niagara Falls, ON, L2H 3N3
Telephone: (905) 356-7521 ext 5204
Facsimile: (905) 356-7404
Email: mcarrick@niagarafalls.ca

Name : [redacted]

Mailing Address : [redacted]

City/Town : [redacted] Postal Code : [redacted]

Telephone : [redacted] Email Address : [redacted]

Personal information on this form is collected pursuant to the Planning Act, R.S.O. 1990, c.P.13, the Municipal Act, 2001, S.O. 2001, c 25 and will be used for future contact in relation to the City of Niagara Falls Sustainable Transportation Study and Master Plan. Questions about the collection of your information should be addressed to Ms. Marzenna Carrick, C.E.T. Manager of Transportation Engineering, Transportation Services, City of Niagara Falls, 7150 Montrose Road, Unit 1, Niagara Falls, ON, L2E 3N3, Telephone: (905) 356-7521 x5204, Facsimile: (905) 356-7404, Email mcarrick@niagarafalls.ca

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NiagaraFalls

TRANSPORTATION BEYOND TOMORROW 2031

PUBLIC MEETING NO. 3 – COMMENT SHEET

Wednesday, September 21st, 2011

1. Is the focus of the STMP appropriate? Are you in favour of the overall plan which includes less reliance on the single occupant vehicles (i.e. cars) and greater focus on walking and cycling?

Yes

2. Do you agree with the noted transportation deficiencies and the improvements proposed to address them? What, if anything, was missed for the future walking, cycling, transit, and road networks?

East bound Dhorold Stone Road turn into Rolling Acres is a problem. There could be a centre turn lane added or don't allow the left turn at all.

3. Do you support the recommended flyovers of the QEW (i.e. Morrison Street, and South of McLeod Road between Oldfield Road and Chippawa Parkway). What are your additional comments/concerns?

Yes. The Morrison St. flyover should happen sooner than later.

4. Was the information provided tonight clear, yes or no? Please explain.

Yes.

5. Did the session meet your expectations, yes or no? Please explain.

Yes but cycling safety and the following by cyclists of the "rules of the road" needs to be addressed at a municipal and provincial level.

6. Please provide any additional comments you may have about the information presented tonight or the study in general.

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Niagara Falls

Transportation Beyond Tomorrow 2031

PUBLIC MEETING NO. 3 – COMMENT SHEET

Wednesday, September 21st, 2011

1. Is the focus of the STMP appropriate? Are you in favour of the overall plan which includes less reliance on the single occupant vehicles (i.e. cars) and greater focus on walking and cycling?

The City of Niagara Falls and the region should expand Montrose Road to 4 Lanes and have a Bike lane from Canadian Drive to Lyon's Creek Road For future delelopment

2. Do you agree with the noted transportation deficiencies and the improvements proposed to address them? What, if anything, was missed for the future walking, cycling, transit, and road networks?

Niagara Falls Transit should revive the old Route #8 Cherrywood leaving Great Wolf Lodge and Glenview area to Optmist Club/Zher's and then to Stamford Centre. Route #8 should go to Fourth Avenue - Thorold Stone Road - Dorchester Road - Morrison to Zhers

3. Do you support the recommended flyovers of the QEW (i.e. Morrison Street, and South of McLeod Road between Oldfield Road and Chippawa Parkway). What are your additional comments/concerns? from Downto win

Expand Dorchester Road to connect with Rexinger Road and Lyon's Creek (Chippawa) and Drum mond Road (Regional Road 100) from Oldfield Road to Lyon's Creek Road and have a Stanley Avenue flyover From Marshall Road to the QEW and Bossert Road.

4. Was the information provided tonight clear, yes or no? Please explain.

Yes it was because it explain what Niagara Falls would be like in 26 years with improvement of roads and sidewalks

5. Did the session meet your expectations, yes or no? Please explain.

Yes

6. Please provide any additional comments you may have about the information presented tonight or the study in general.

Niagara Falls and Niagara Region should expand Stanley Avenue (Regional Road 102) from Marineland Parkway to Lyon's Creek Road and Lyon's Creek Road (Regional Road 47) from Sodom Road to Montrose Road

Thank you for your time. If you are unable to respond at this time, please submit your comments by October 3rd, 2011 to:

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NiagaraFalls CANADA

PUBLIC MEETING NO. 3 – COMMENT SHEET

[redacted]

Wednesday, September 21st, 2011

1. Is the focus of the STMP appropriate? Are you in favour of the overall plan which includes less reliance on the single occupant vehicles (i.e. cars) and greater focus on walking and cycling?

NO. FIRST THINGS FIRST, SOLVE THE MAJOR TRANSPORTATION ISSUES FIRST FOR THE BEST EFFECT IE. 420 CONJESTION & TOURIST VISITOR BEWILDERMENT.

2. Do you agree with the noted transportation deficiencies and the improvements proposed to address them? What, if anything, was missed for the future walking, cycling, transit, and road networks?

NO. MITIGATION OF 420 CONJESTION IN PEAK PERIODS WOULD BE SOLVED BY DRAWING TORONTO TRAFFIC TO PARKING AREA ON 405 SERVICED BY PEOPLE MOVER & THOROLD STONE Rd TO [illegible]
FORT ERIE TRAFFIC COULD BE DRAWN FROM QEW ON LYON CREEK Rd & McLEOD Rd TO Chippawa Parking [illegible]
SECURE LAND ON 405 AT THE QUARRY.
THIS WOULD REDUCE 420 TRAFFIC & MAKE VISITING NIAGARA MORE PLEASURABLE

3. Do you support the recommended flyovers of the QEW (i.e. Morrison Street, and South of McLeod Road between Oldfield Road and Chippawa Parkway)? What are your additional comments/concerns?

YES. EVEN HAVE EXITS TO DRAW TRAFFIC TO CHIPPAWA PARKING AREAS IS MORE TOURIST EXPEDIENT. SEE ANSWER TO Q2

4. Was the information provided tonight clear, yes or no? Please explain.

VERY DISSAPPOINTED. THIS HAS BEEN (IE Q1 & 2 ~~responses~~ questions 1 & 2) ~~several~~ inputed [illegible] THE SOLUTION TO THE MAJOR PROBLEM IS OUTSIDE THE NIAGARA FALLS JURISDICTION. CO-OPERATION AT THE REGION LEVEL IS NECESSARY. THE RESTRICTION THE TRANSPORTATION STUDY TO THE CONFINES OF NIAGARA FALLS BALIWICK IS ~~[illegible]~~ EXTREMELY SHORT SIGHTED!

5. Did the session meet your expectations, yes or no? Please explain.

NO, I WAS ALARMED AT THE ~~POOR TURNOUT~~ & TO DISCOVER THAT THERE HAD BEEN TWO PREVIOUS SESSIONS. THAT THE SOLUTIONS PRESENTED DID NOT TRULY RESOLVE THE MOST URGENT MATTERS IN AN EXPEDIENT MANNER.

6. Please provide any additional comments you may have about the information presented tonight or the study in general.

I WAS DISAPPOINTED THE TRANSPORTATION STUDY DID NOT COVER PARKING ISSUES WHICH IS PART & PARCEL TO THE ISSUE ALSO FOR A TRANSPORTATION STUDY NOT TO ADDRESS GO TRAIN VS TRANS CANADA HIGHWAYS (TO GIVE PRIORITY TO) WAS ALSO ALARMING. WAKE UP CITY ~~COUNCIL~~!

Thank you for your time. If you are unable to respond at this time, please submit your comments by October 3rd, 2011 to: HAND

Mr. Doug Allingham, P.Eng. Project Manager AECOM 300 Water Street Whitby, ON, L1N 9J2 Telephone: (905) 668-9363 ext 2231 Facsimile: (905) 668-0221 Email: doug.allingham@aecom.com	**Ms. Marzenna Carrick, C.E.T.** Manager of Transportation Engineering Transportation Services City of Niagara Falls 7150 Montrose Road, Unit #1 Niagara Falls, ON, L2H 3N3 Telephone: (905) 356-7521 ext 5204 Facsimile: (905) 356-7404 Email: mcarrick@niagarafalls.ca

Name : [redacted]

OFFICE
Mailing Address : [redacted]

City/Town : [redacted] Postal Code : [redacted]

Telephone : [redacted] Email Address : [redacted]

Personal information on this form is collected pursuant to the Planning Act, R.S.O. 1990, c.P.13, the Municipal Act, 2001, S.O. 2001, c.25 and will be used for future contact in relation to the City of Niagara Falls Sustainable Transportation Study and Master Plan. Questions about the collection of your information should be addressed to Ms. Marzenna Carrick, C.E.T. Manager of Transportation Engineering, Transportation Services, City of Niagara Falls, 7150 Montrose Road, Unit 1, Niagara Falls, ON, L2E 3N9, Telephone: (905) 356-7521 x5204, Facsimile: (905) 356-7404, Email: mcarrick@niagarafalls.ca

The City of Niagara Falls and AECOM thank you for your involvement in this Study. Comments and information regarding this study are being collected to assist the City of Niagara Falls with meeting the objectives of the Sustainable Transportation Study and Master Plan. With the exception of personal information, all comments will be included in the Environmental Study Report and will become part of the public record.

TRANSPORTATION BEYOND TOMORROW 2031

PUBLIC MEETING NO. 3 – ATTENDANCE SHEET

Wednesday, September 21st, 2011

Name (Please Print)	Mailing Address	Telephone or E-Mail	Check to be kept informed
[redacted]			
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NiagaraFalls CANADA

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The City of Niagaro Falls and AECOM thank you for your involvement in this Study. Comments and information regarding this study are being collected to assist the City of Niagaro Falls with meeting the objectives of the Sustoinable Transportation Study and Master Plan. With the exception of personal information, all comments will be included in the Environmental Study Report and will become part of the public record.

TRANSPORTATION BEYOND TOMORROW 2031

PUBLIC MEETING NO. 3 – ATTENDANCE SHEET

Wednesday, September 21st, 2011

Name (Please Print)	Mailing Address	Telephone or E-Mail	Check to be kept informed
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TRANSPORTATION BEYOND TOMORROW 2031

Appendix G

OTHER INPUT RECEIVED

Sean Norman

From: Willoughby, Doug [Doug.Willoughby@aecom.com]
Sent: Friday, October 01, 2010 8:54 AM
To: Rick Brady; Sean Norman
Cc: Allingham, Doug; Harmsworth, Sheri
Subject: FW: TBT 2031 Comments
Follow Up Flag: Follow up
Flag Status: Green
Attachments: NF PIC 1 Comments.doc; Model Mun Bicycling Policy RNBC Final Draft August 24 2010 (2).docx

Rick / Sean

Please add to the public comments record.

Thanks, Doug

[redacted]
Sent: Thursday, September 30, 2010 6:36 PM
To: Willoughby, Doug
Cc: Marzena Carrick
Subject: TBT 2031 Comments

Mr Willoughby,

Attached please find my comments limited to the scope of the Comment Sheet from the first PIC held September 15th. Also attached are the Model Municipal Bicycle Policies revised recently by the Regional Niagara Bicycling Committee.

I ask that inclusion of these Policies in the Transportation and Planning guiding plans be considered as this would propel Niagara Falls to become a prime destination for the emerging Cycle Tourism market. Longer visits from tourists will result, using Niagara Falls as a base to explore the Region on two wheels.

There are hidden benefits as well. The health and well being of the local citizens will be improved and healthy cities are where doctors, professionals and workers in the nascent knowledge economy wish to locate.

Please keep me apprised of further advances in the Transportation Study.

Regards,

[redacted]

Sean Norman

From: Willoughby, Doug [Doug.Willoughby@aecom.com]
Sent: Saturday, October 02, 2010 8:28 AM
To: Rick Brady; Sean Norman; Harmsworth, Sheri; Allingham, Doug
Cc: Jones, Kevin; Oketch, Timothy
Subject: FW: Niagara Falls Sustainable Transportation Study and Master Plan
Follow Up Flag: Follow up
Flag Status: Green
Attachments: Every candidate for municipal office promises good governance and accountability.doc

Forwarding for record and information.

Doug

[redacted]
Sent: Saturday, October 02, 2010 12:03 AM
To: Willoughby, Doug; mcarrick@niagarafalls.ca
Subject: Niagara Falls Sustainable Transportation Study and Master Plan

Please accept this e-mail and attachment as my comment on the above study. The major concern I have is that in referencing Niagara Regions Bikeways Master Plan, you are using information, ideas and attitudes that are almost 10 years old. Cities in North America are doing an about face with regard to cycling. Designers have realized that attitude surveys didn't work because they were based on riders experiences with poor or no facilities. Further people don't regularly commute in Niagara so have no experience. They have no idea about distance and time.

Since the AECOM has suggested that McLeod Rd will be an increasingly congested arterial route a bikeway there is a non starter.

Do what other cities are doing. Make radical changes for sustainable transportation within the city first. Build the incoming traffic plan around that.

[redacted]

develop complications, they're likely to be sent back down the highway to see the original doctor.

The northern travel grant helps defray costs, but that doesn't allay problems with a higher number of sick days that must be taken, and the drop in productivity northern cities experience as a result.

The province must take a comprehensive look at northern health care and its unique problems. Failing that, the 750,000 people who live here face a permanent health-care crisis with the solution too often being — head south.

Brian MacLeod is an ex-pat from the south who is now Managing Editor of The Sudbury Star. bmacleod@thesudburystar.

replace outgoing Mayor David Miller.

Ford is a penny-pincher with a history of speaking out against perks, high taxes and wasteful spending.

His message resonates because voters are fed up with elites who are either unable or unwilling to control taxes, spending and the bureaucracy.

The establishment didn't help its cause when it put Torontonians through a gruelling, five-week garbage strike in the summer of 2009, only to cave in the end to most everything the union demanded. The

buck thanks to a jobless recovery. And guess who got bailed out courtesy of the American taxpayer? The very people who caused the misery in the first place.

Couple this with a nightmare oil spill in the Gulf of Mexico from an industry that gouges at the pumps and you have a population that is loaded for bear.

Populism begins as an impulse to smash the status quo. It is the bastard child of elite behaviour gone awry.

The powers-that-be ignore it at their peril.

— Monte Sonnenberg

supplies (cups, cutlery,

Applicants for this job req ary education, two to five ye and the "ability to deal with deadlines."

Imagine that. You now ne coffee for the bosses.

It's enough to make you ga

What company in the priva someone to get coffee? What pany buys the coffee and "cor employees?

Someone needs to tell thes we're not the suckers they tak

Talk about let them eat cake

Families around the provinc under the overbearing weight bills.

And we're paying for bureau

christina.blizzard@sunmedia.c

LETTERS TO THE EDITOR

Better transit, bike lanes needed

Every candidate for municipal office promises good governance and accountability.

This is the minimum we should expect. We must consider it as our obligation to demand more. One place to start is the Municipal Performance Measures Program and "Canada's Best Places to Live" — Money Sense, May 2010.

Of 179 cities on the Best Places list, Niagara Falls ranked 127.

Of all the measures that a city can change immediately and improve the quality of life for its residents is transit and bike routes. Most of the top cities have safe, separate bike routes for people to commute to work.

Vancouver just this year reached 400 kilometres of dedicated bike routes and a $25-million commitment over the next two years. Last year alone they added more than 50 kilometres by just taking lanes away from cars on two of Vancouver's central streets.

Ottawa has 235 kilometres of bike routes, London 180, St. Catharines 90, Welland 30 and Niagara Falls 4. It is embarrassing that the much-hyped "Bike Train" comes to Niagara Falls and we have no bike trails. Biking is the most sustainable of all methods of transportation. It also improves overall health, keeps hospital visits down and adds tremendously to eco-tourism." It would be a tremendous sight to see 100,000 cyclists a summer driving the length of Ferry St. and Lundy's Lane and connecting to Queen Victoria Park and tourist areas by way of the old train corridor. Imagine 1,000 people commuting to work and school every day for nine months — it is possible.

Vancouver is as big a tourism draw as Niagara Falls and they have taken entire lanes from two roads and two bridges. The Burrard Bridge was too dangerous — just like Lundy's Lane — to cycle prior to the separated bike lane. In one year since the change one million bike trips have taken place. When people are assured of their safety they will cycle as an alternative, take cars off the road and thereby reduce harmful emissions.

Transit ridership in the best cities is also high, effective and efficient. In Ottawa, more than 100 transit trips per year per person living in the transit area occurred. In London 54, St. Catharines 34 and in Niagara Falls it is just 17 trips per year. We also pay more per rider trip (almost $5) than Ottawa and $2.10 more than St. Catharines per trip. Transit is expensive and inefficient in Niagara Falls — we need fewer convention trips and more home grown ideas to improve overall cost and efficiency.

The quality of a city is measured by the quality of life of it residents and the voice they have in making positive change occur. Our city councillors must be held accountable to get those positive changes made and do so effectively and efficiently.

Tony Phillip
Niagara Falls

REWIND 09:29

Today in history

1985 Lincoln Alexander was named lieutenant-governor of Ontario, becoming the first black to hold a vice-regal position in Canada.

1962 Canada became the third nation to have a satellite in space with the launch of "Alouette One".

1970 Russell Peters, Canadian comedien, born today.

N.F. Review Sept. 23/10

WE W
YOUR

The Review we to the Editor. Let no more than 30 typed or printed writers' full name a daytime telepho verification. Lette for content and le citydesk@nfreviev 905-374-0461.

facebook.com/niag

Sean Norman

From: Willoughby, Doug [Doug.Willoughby@aecom.com]
Sent: Friday, October 08, 2010 3:46 PM
To: Rick Brady; Sean Norman
Cc: mcarrick@niagarafalls.ca; Allingham, Doug; Harmsworth, Sheri
Subject: [redacted]

Follow Up Flag: Follow up
Flag Status: Green

Rick / Sean

Please add to the public consultation file.

Thanks, Doug

-----Original Message-----
From: Marzenna Carrick [mailto:mcarrick@niagarafalls.ca]
Sent: Friday, October 08, 2010 3:43 PM
[redacted]
Cc: Allingham, Doug; Willoughby, Doug; Harmsworth, Sheri
Subject: [redacted]

[redacted]
Thank you for your interest in participating on the Transportation Master Plan as a stakeholder and Community Advisory Group member.

Would you kindly provide us with your home address and telephone number as well should we need to further correspond with you. I anticipate that we will be hosting a 2nd Public Meeting in March and will be engaging the stakeholders prior to that, possibly in February. We will notify you in advance.

Also, you may view information regarding the Sustainable Transportation Master Plan study on the city homepage www.niagarafalls.ca, and on the bottom of the page click on the icon " Transportation Beyond Tomorrow 2031" or alternately at www.tbt2031.com

thanks again.

Marzenna Carrick, C.E.T.
Manager of Transportation Engineering
Transportation Services
tel. 905-356-7521 ext 5204
fax. 905-353-0651

[redacted] 10/8/2010 2:31 PM >>>
M. Carrick

I would be interested in serving on a committee to improve all modes of transportation in our city.

My involvement in public transit has been for 35 years as a driver for the Hamilton Street and Railway in Hamilton. Also I was employed with Canada Coach in Niagara Falls and had some experience in supervisory duties.

My wife and I are avid cyclists and enjoy hikes on public trails.

Since my wife has a computer I receive all my emails through her. We will be away in January and February but she always takes her computer with her to Barbados. The email

[redacted]

[redacted]

October 19, 2011

Via: Email Delivery
mcarrick@niagarafalls.ca

Marzenna Carrick
Manager of Transportation Engineering
City of Niagara Falls
7150 Montrose Rd., Unit 1
Niagara Falls, Ontario L2H 3N3

RE: Transportation Master Plan TB2031 – City of Niagara Falls

Dear Ms. Carrick:

Further to our discussion at the Public Open House held on September 21, 2011, enclosed are comments submitted on behalf of [redacted] p. regarding the City of Niagara Falls' Transportation Master Plan. Also included is a brief description of our company.

Background

[redacted] is a joint venture between [redacted] and [redacted] Over the past 8 years, the above noted corporations have developed [redacted] Golf Club and [redacted] Village. In July 2008, the City of Niagara Falls and the Region of Niagara approved Official Plan Amendment 81 converting approximately 600 acres of land owned by [redacted] from industrial zoning to residential and environmental protection area uses. The land designation and revised EPA mapping was included in the City of Niagara Falls' city wide Official Plan Amendment approved by council in the fall of 2010. These lands are roughly defined in the north by the hydro corridor between Dorchester and Drummond, to the west by Dorchester Road, to the south by the Chippawa Parkway, and to the East by the Industrial Park and Thundering Waters Golf Club.

Transportation Master Plan Comments

General Comments – The components of the plan and their integration into the city's fabric are well defined for the areas of the city that are already or currently being developed. It appears, through conversation with Aecon and their consultants that the Thundering Waters Development area, which represents approximately 2500 housing units to be developed over the next 20 years, has been omitted from the analysis and integration of the various transportation master plan components. As an example, our development site incorporates over two kilometers of river frontage, representing an ideal opportunity to develop and integrate a biking and hiking network to the proposed network trails in the plan.

Stanley Avenue / Marineland Parkway Re-Alignment – The proposed realignment of this intersection may improve connectivity north/south along Stanley Avenue, but we feel that consideration should be given to extending Stanley Avenue diagonally through our site to create better connectivity for the future residential developments to the balance of Niagara Falls' services and existing road networks to the north.

Oldfield Road / QEW Crossing – We support this initiative of the plan. The residential development area of Thundering Waters will encompass over 2500 new homes for the city over the next 15 to 20 years. These new residents will certainly require an alternate access to the existing and new commercial areas being developed in the McLeod and QEW area. The first phase, which is known as the Drummond /Oldfield development area, consists of 350 housing units. These units will be developed over the next 5 years. The presentation materials distributed at the 3rd public open house indicated that the first phase of this crossing was to be developed in the medium term, which was categorized as 5 to 10 years from the adoption of the plan. However, the plan being presented to council indicates that the initial phase of the crossing is to be developed over the long term, categorized as 15 to 20 years. It is our respectful opinion that this time frame may be somewhat protracted, but certainly the need for a crossing of the QEW south of McLeod is warranted. Moreover, in light of the number of units which will be built in this neighbourhood, consideration may also be required for the addition for an on/off ramp in this location.

Natural Areas Mapping – The underlying maps used to highlight several of the features and components of the overall Transportation Master Plan show incorrect natural areas mapping, particularly in the Thundering Waters development area. The natural areas referenced in the Thundering Waters area does not conform with OPA 81, the City's official plan adopted in the fall of 2010 (OPA #96), or the mapping provided in May 2010 by the Ministry of Natural Resources.

Proposed Funding Initiatives – While we respect that development needs to pay its fair share of infrastructure required to foster growth, we respectfully disagree with the consultant's recommendation that the DC Act should be amended to enable municipalities to levy charges for all transportation infrastructure, especially transit. It is our position that development currently pays more than its fair share for infrastructure required to foster growth, and transit specifically should be financed with user fees. Subsidizing transit with unrelated revenue sources is both unsustainable and unfair.

In closing, the [redacted] area requires a Secondary Plan, and some preliminary stakeholder sessions have already taken place wherein issues of road networks, trail systems, and connectivity have already been discussed. When this planning exercise resumes, we look forward to discussing in greater detail how our lands will be integrated into infrastructure networks serving the balance of Niagara Falls.

Respectfully submitted,

[redacted]

cc. [redacted]

AECOM

NiagaraFalls CANADA

TRANSPORTATION BEYOND TOMORROW 2031

City of Niagara Falls

SUSTAINABLE TRANSPORTATION MASTER PLAN

TRANSPORTATION BEYOND TOMORROW 2031

Goals, Principles and Objectives

September 2010

NiagaraFalls CANADA

Niagara Parks

Niagara Region
Building Community. Building Lives.

Ontario

Statement of Qualifications and Limitations

The attached Report (the "Report") has been prepared by AECOM Canada Ltd. ("Consultant") for the benefit of the client ("Client") in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations")
- represents Consultant's professional judgement in light of the Limitations and industry standards for the preparation of similar reports
- may be based on information provided to Consultant which has not been independently verified
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued
- must be read as a whole and sections thereof should not be read out of such context
- was prepared for the specific purposes described in the Report and the Agreement
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time

Consultant shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. Consultant accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

Consultant agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but Consultant makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

The Report is to be treated as confidential and may not be used or relied upon by third parties, except:

- as agreed in writing by Consultant and Client
- as required by law
- for use by governmental reviewing agencies

Consultant accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information ("improper use of the Report"), except to the extent those parties have obtained the prior written consent of Consultant to use and rely upon the Report and the Information. Any damages arising from improper use of the Report or parts thereof shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.

Table of Contents

Statement of Qualifications and Limitations

List of Exhibits

List of Tables

1. GUIDING POLICIES AND SYSTEM GOALS AND OBJECTIVES

In reviewing and assessing the existing and future transportation service and infrastructure requirements of the City of Niagara Falls, establishing the policy framework is the first step in developing goals and objectives to guide the planning, implementation and management of the transportation system.

The following report summarizes the overarching Provincial, Regional and City policy framework that is currently in place as well as the selected transportation system goals and objectives.

1.1 GROWTH PLAN FOR THE GREATER GOLDEN HORSESHOE

The Greater Golden Horseshoe (GGH) region, which encompasses the Greater Toronto Area (GTA) and a large part of southern Ontario, including the Region of Niagara, is considered one of the fastest-growing regions in North America. In order to manage this growth, the Ontario Government enacted the Places to Grow Act in June 2005. The Growth Plan for the GGH, prepared under the Act, provides a framework for implementing the Province's vision for building stronger, prosperous communities by better managing growth until the year 2031, and serves to guide decisions on a wide range of issues including; economic development, transportation, land-use planning, urban form, housing, natural heritage and provincial infrastructure planning.

In order to achieve its objectives of directing growth to built-up areas and optimizing the use of existing infrastructure, the Growth Plan provides density targets for intensification areas and designates twenty-five Urban Growth Centers across the GGH **(see Exhibit 1)**, which will be planned as focal areas for investment and population and employment growth. Directing growth to built-up areas promotes transit-supportive densities and a healthy mix of residential and employment land uses.

One of the key policy objectives of the Growth Plan is to provide a transportation network that links urban growth centers through an integrated system of transportation modes. The Growth Plan recognizes that such a transportation system will offer competitive transportation choices that reduces reliance upon any single mode; promotes transit, cycling and walking; and provides connectivity among transportation modes for moving people **(Exhibit 2)** and goods **(Exhibit 3)**.

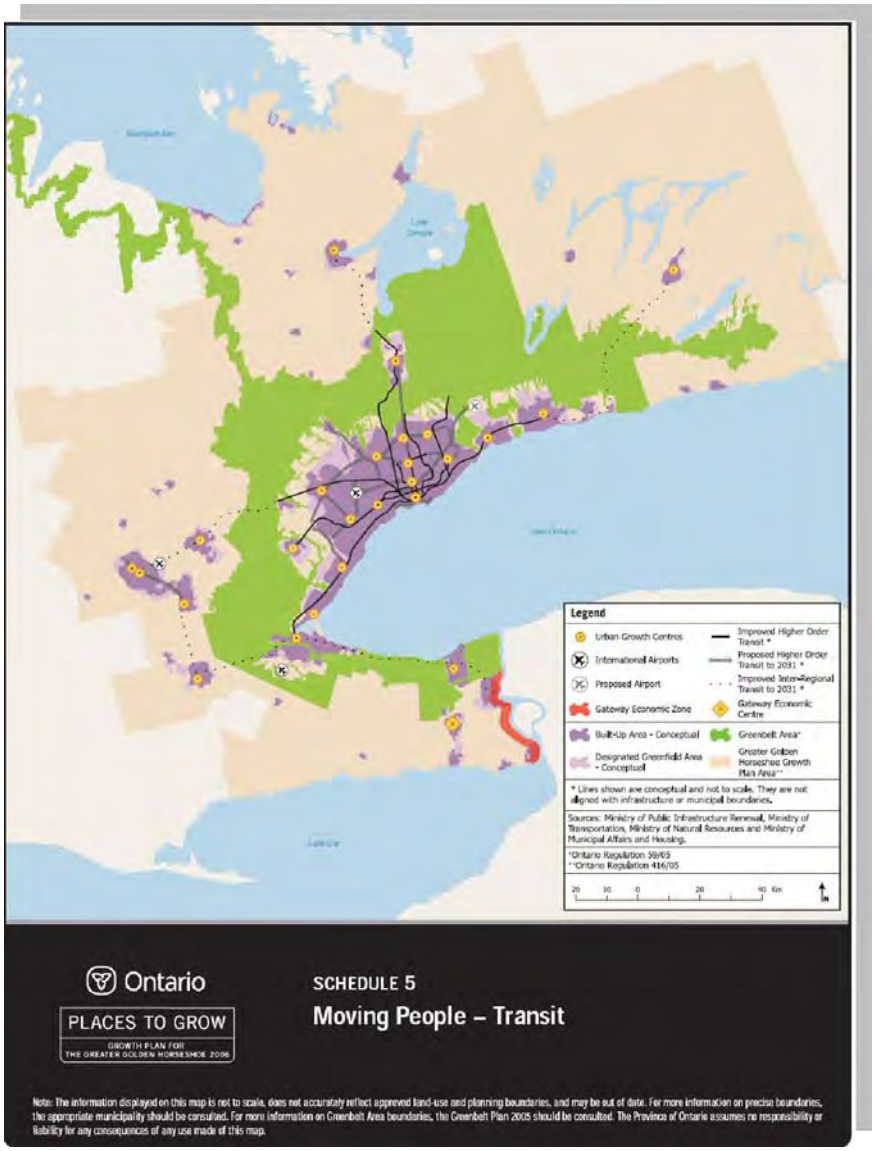
A key policy for moving people and moving goods is to ensure that corridors are identified and protected to meet current and projected needs for various travel modes. The Growth Plan identifies that overall transportation planning must support opportunities for multi-modal use where feasible prioritizing transit and goods movement needs over those of single occupant

automobiles. Whereas **public transit will be the first priority** for transportation infrastructure planning and major transportation investments, the plan underlies the need to consider separation of modes within corridors, where appropriate.

Exhibit 1: Urban Growth Centres

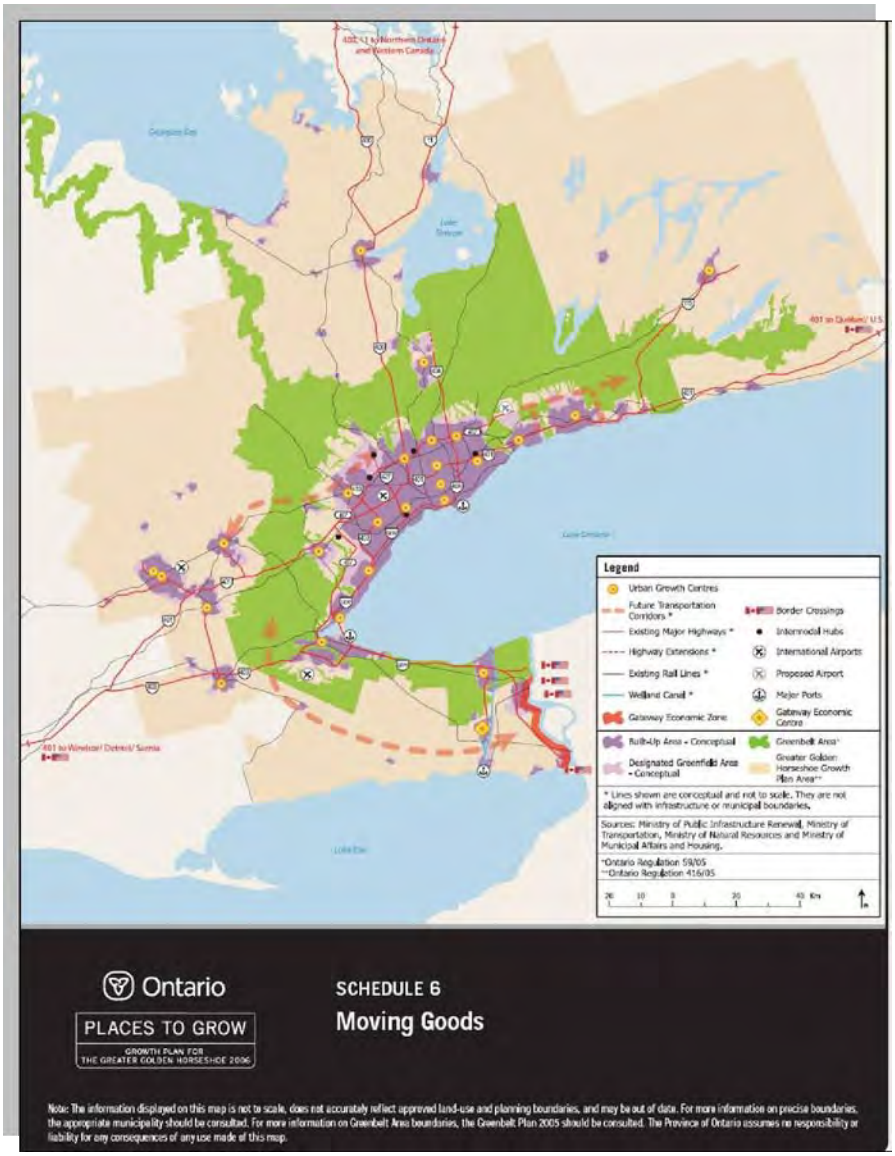
Source: Ministry of Public Infrastructure Renewal, Growth Plan For The Greater Golden Horseshoe, 2006

Exhibit 2: Moving People



Source: Ministry of Public Infrastructure Renewal, Growth Plan For The Greater Golden Horseshoe, 2006

Exhibit 3: Moving Goods



Source: Ministry of Public Infrastructure Renewal, Growth Plan For The Greater Golden Horseshoe, 2006

1.2 REGIONAL NIAGARA SUSTAINABLE COMMUNITY POLICIES (RNSCP)

In May of 2009 Niagara Regional Council adopted the "Regional Niagara Sustainable Community Policies: Places to Grow/ 2005 Provincial Policy Statement Conformity and Niagara 2031 Amendment". This is an amendment to the Region's Policy Plan for the purpose of aligning the Region's Policy Plan with the Provinces Places to Grow Plan (2006) and the Provincial Policy Statement (2005). It also establishes a new urban vision to guide growth and development in Niagara to the year 2031. The Amendment replaces the urban policies, adds new policies regarding the Niagara Economic Gateway and infrastructure and replaces the Urban Area Boundary map with a Regional Urban Structure map.

The following objectives form the basis for the policies contained in the Amendment:

- Compact, vibrant, integrated and complete communities
- Plan and manage growth to support a strong, competitive and diverse economy
- Protect, conserve, enhance and wisely use valuable resources of land, air, energy and water for current and future generations
- Maximize use of existing and planned infrastructure to support growth in a compact and efficient manner
- Provide flexibility to manage growth in Niagara that recognizes diversity of communities
- Promote collaboration and cooperation among governments, institutions, businesses, residents and not-for-profit organizations to achieve vision and objectives

The following are the growth targets for the year 2031 set out in the plan for the Region and for Niagara Falls:

	Population	Households	Employment
Niagara Region	545,000	221,240	243,540
Niagara Falls	106,800	42,740	53,640

The following are relevant transportation policies included in the Region's Policy Plan:

- Ensure that corridors are identified and protected to meet current and projected needs for various modes of travel including active transportation
- Support opportunities for multi-modal use where feasible, in particular prioritizing transit and goods movement needs over those of single occupant automobiles

- Consider increased opportunities for moving people and goods by rail, where appropriate
- Consider the separation of modes within corridors, where appropriate
- For goods movement corridors, provide for linkages to planned or existing intermodal opportunities where feasible
- Develop transportation demand management policies to be incorporated into the Regional Policy Plan
- Local municipalities are encouraged to develop transportation demand management policies to be incorporated into local official plans
- Local municipalities to create a network of safe, attractive active transportation linkages, and provide related amenities such as sheltered walking areas and landscaped areas to enhance active transportation experiences. On-road and off-road linkages for cycling are particularly encouraged. Wherever opportunities are available, consideration should be given to enhancing connectivity between communities and neighbourhoods.
- Within urban areas, the requirement for road reconstruction and rehabilitation and sewer and water works should be viewed as an opportunity to improve the public realm within the section of roadway under consideration
- An Environmental Assessment for a transportation project should include consideration of opportunities to improve the living environment of existing residents adjacent to the street and within the adjacent neighbourhood; i.e. noise attenuation
- Public transit will be the first priority for transportation infrastructure planning and major transportation improvements for moving people in Niagara
- The Region will make recommendations on transit planning according to the following criteria:
    - Using transit infrastructure to shape growth, and planning for high residential and employment densities that ensure the efficiency and viability of existing planned transit service level
    - Placing priority on increasing the capacity of existing transit systems to support intensification areas
    - Expanding transit service to areas that have achieved, or will be planned to achieve transit supportive residential and employment densities, together with a mix of residential, office, institutional and commercial development wherever possible
    - Facilitating improved linkages from nearby neighbourhoods to the St. Catharines Urban Growth Centre and locally designated residential intensification areas

- Developing transit linkages among the settlement areas in Niagara and with settlement areas outside the Region
- Increasing the modal share of transit in Niagara
- Supporting multi-modal transportation where feasible

- The Region and the local municipalities will ensure that pedestrian and bicycle networks are integrated into transportation planning to:
  - Provide safe, comfortable travel for pedestrians and bicyclists within and between existing communities and new development
  - Provide linkages between intensification areas, adjacent neighbourhoods, and transit stations, including dedicated lane spaces for bicyclists on the major street network where feasible
  - Encourage provision of appropriate and sufficient bicycle parking facilities at major transit nodes and public and private facilities

1.2.1 Niagara to GTA Transportation Corridor

This is an ongoing multi-year study that is assessing transportation requirements in a broad corridor connecting Niagara to the GTA.

The purpose of the study is to confirm and characterize the need for additional transportation capacity between the Greater Toronto Area (GTA) and the Niagara Frontier; identify the specific transportation problems and opportunities within the area; develop, assess and evaluate a range of Area Transportation System Alternatives to address the identified transportation problems and opportunities within the Preliminary Study Area; and, recommend a Transportation Development Strategy (TDS) based on the Area Transportation System Alternatives carried forward from the evaluation.

There have been a number of reports to date including: an overview of environmental conditions (2007); an overview of transportation and socio-economic conditions (2007); the Study vision, purpose goals and objectives (Aug 2008); grouped Transportation Alternatives (March 2010); and a listing of individual transportation alternatives being considered (March 2010). The assessment of alternatives includes:

- Transportation Demand Management (TDM)
- Transportation Systems Management (TSM)
- Transit
- Air
- Marine
- Rail
- Freight inter-modal
- Road and highways

Alternatives under consideration that would impact Niagara include:

- Implement express rail service along GO Transit Lakeshore corridor
- Expand GO transit to Niagara Falls
- Expand Hamilton International Airport
- Widen QEW (for truck lanes)
- Convert QEW to core collector system with core lanes for international traffic
- Place freeway in Townline tunnel
- Complete Central Peninsula Highway to Hwy 403, 401, 6, and 407 connections
- Build new corridor QEW in Fort Erie to either 403, 401, 407 or Hwy 6
- Upgrade or widen RR 20 with potential bypasses of settlements
- Combination of new and existing corridors to provide bypass of urban core of Hamilton
- Upgrade or widen Hwy 406 connecting to new corridor between 406 and QEW south of Niagara Falls

The study process will be continuing in parallel with the Niagara Falls study and the two will be coordinated.

1.3 TRANSIT INITIATIVES

1.3.1 People Mover System

Niagara Falls' current People Mover System was inaugurated in 1985 and is deemed to be operating beyond its practical capacity. The system, which runs mainly in Queen Victoria Park, is operated by the Niagara Parks Commission (NPC). Over the last three decades, the issue of a people mover serving visitors to the community has been the subject of much study. The people mover system is intended to:

1) provide a reliable connection between tourist areas and attractions as soon as practically possible
2) replace the system of privately operated shuttles and the NPC operated people mover buses with new, accessible, state-of-the-art system that would provide visitors with a higher level of service
3) establish a system that could be expanded, possibly with different technology and serve new areas and attractions.

In September of 2009 the City of Niagara Falls completed a "Business Case for the Proposed Niagara Falls People Mover System"; the report was subsequently updated in June 2010. This report reviewed:

- The need for the system (history, surveys, forecasts, consultations, ridership and revenue forecasts, cost benefits, etc.

- Background and History of related projects and studies including:
  - 1981 – study recommends monorail system
  - 1985 – NPC implemented present rubber tire propane powered system
  - May 1986 – People Mover Study identifies need for system on separate right-of-way
  - Summer 1987 – coordination of People Mover with Niagara Transit operation
  - October 1988 – NPC study recommends enhanced people mover system for QVP.
  - February 1996 – Niagara Falls People Mover Feasibility Study confirmed need to upgrade the people mover
  - September 1998 – Niagara Falls Transportation Master Plan recommended a number of short and long term improvements to transportation system including upgraded people mover in the area referred to as “Pressures in the Tourist Area” (PTA)
  - October 2000 – Niagara Falls People Mover Individual Environmental Assessment and Economic Analyses provided details of preferred alignment
  - May 10, 2001 – Minister of Environment approved EA for Niagara Falls People Mover System
  - 2002 City conducted a Stated Preference Survey regarding transportation services for tourists
  - The City, OLG and FMC purchased railway right of way from VIA station to Marineland for $40.5 million with City owning majority and OLG owning portion through Fallsview.

Funding of up to $50 million was committed by the Federal and Provincial Governments. The Study contains latest forecasts of tourist (of 14 million persons per year to 2025) which are considerably less than previous forecasts in earlier studies.

The Business Case recommends a two phase approach to the People Mover System:

1) Phase One is rubber tired vehicles operating on the roadway in mixed traffic (20 new buses to last up to 15 years) with improved stations and improvements to the inclined railway
2) Phase Two is dedicated right of way; this will require addressing a number of issues on roles and relationships as well as design

- Sets out basic requirements and specifications for Phase One vehicles
- People Mover infrastructure will be owned by the City and operated by Niagara Falls Transit and The Niagara Parks Commission.
- Implementation date of 2011 to coincide with opening of new Convention Center
- Total cost estimates are $55 million including vehicles, maintenance building, station upgrades, intersection improvements and fare collection system

In September 2009 the Federal and Provincial governments renewed their commitments to set aside $25 million each for the implementation of the project. The new People Mover System will enhance the existing transportation system already in place and provide greater access for visitors to tourist facilities with connections to the VIA station, where riders can access the new GO transit service.

The People Mover System is a key component of the overall transit system and the growth management strategy to pursue land use and transportation policies that would promote public transit and re-urbanization. The system would be consistent with the planned inter-regional transit system as identified in Schedule 5 of the Growth Plan [Section 5.1 above] reducing the need for the high population of visitors to add to network congestion.

The system would be operated by Niagara Transit, and would link to the City transit system. System maps and signage will assist visitors with accessing the People Mover System, contributing to improved system usage.

1.3.2 Transit Strategic Business Plan and Ridership Growth Strategy (2009)

IBI prepared the "Transit Strategic Business Plan and Ridership Growth Strategy, March 2009" in response to organizational changes within the City as of 2007. The changes included moving transit services under the direct control of City Council as part of the Transportation Services Division within the Community Services Department. As noted in the report, the study reviewed the level and quality of its conventional and specialized transit services, scope of operations and infrastructure requirements with the goals of defining a future direction and the required resources to increase ridership and the transit mode split, improve productivity and cost-effectiveness, and reduce greenhouse gas emissions.

The key findings for two main categories of interest in the study include the following:

1) Service:

- Niagara Transit provides a level of service, and therefore market penetration and modal split, below that of most of its peers
- The conventional transit system is under-utilized and does not meet the needs or travel patterns of the community and is perceived by stakeholders as ineffective, inconvenient and marginalized
- Service frequency is typically 60 minutes, compared to 30 minutes in other peer municipalities
- Financially, the transit operation is as efficient as its peers, although average fares collected are lower

2) Fleet and Facilities:

- Average age of the conventional bus fleet is 10.5 years – consistent with industry standards
- The transit garage and administration building are deficient in numerous ways; a new facility is required
- The downtown intercity bus terminal is generally in good condition and well-connected to intercity bus and rail services.

1.4 NIAGARA FALLS OFFICIAL PLAN

The Official Plan (OP) for Niagara Falls is a document approved by the Minister of Municipal Affairs in October of 1993 and Amended to January 2010. The OP provides a comprehensive framework for development and redevelopment of lands and sets out a public works program which guides the City's growth and development in an orderly and efficient manner. The Plan incorporates the broad concepts of the Regional Municipality of Niagara's Policy Plan and relevant Provincial and Federal legislation. The findings of various studies have been incorporated into the OP including the Recreation Master Plan, the Tourism Master plan various tourism reports, Commercial/Office Opportunities Study, the Greening Plan and other land use, economic and demographic inventories.

Section 3 contains policies on infrastructure including transportation. The following are considered pertinent to transportation studies:

- The purposed of the road network is to enable motorists to move with ease and reach destinations in the City, but also to serve as a pedestrian and bicycling realm and contribute to the urban street character.
- A hierarchy of roads includes:
    - Provincial Highways

  - Niagara Parkway
  - International crossings
  - Arterial roads (Regional and City)
  - Collector roads
  - Local roads
- Road rights-of-way are noted generally in policies 1.4.2.4 to 1.4.2.6 and are listed for specific arterial and collector roads in policy 14.19
- There are policies for property dedication for roads and daylight triangles which consider the needs vehicular traffic as well as of pedestrians, cyclists and transit
- The OP contains policies that state:
  - The City will plan and operate transit so that the core area and centers of commerce are the primary focal points for provision of transit
  - It is desirable for public transit services be encouraged in proximity to higher density residential developments, areas of high employment concentration, major medical and social service centers, housing centers for people with special needs and social amenity areas and attractions
  - All development and redevelopment will provide adequate parking including parking for handicapped persons
  - On street parking is generally to be prohibited on sections of arterial and major collector roads where it interferes with safe and efficient operation of the road network
  - Council may consider cash in lieu of parking, as required by by-law and use monies for the provision of additional parking spaces
  - Major pedestrian destinations will be linked by pedestrian and bicycle paths and sidewalks along certain roadways
  - Council shall seek to eliminate railway grade crossings on a priority basis with financial assistance of appropriate authorities
  - Where appropriate Council shall seek the elimination of railways within the City

There are policies in the land use section that have potential implications on the transportation choices available in the City:

Policies 4.1.9 through 4.1.12 deal with the implementation of a people mover system utilizing the recently abandoned CP rail corridor in the core and tourist areas. There are general guidelines for the design and location of the facility.

- Policies 4.1.13 through 4.1.17 deal with the implementation of a Grand Boulevard linking the tourist districts. The Boulevard concept would provide for the extension of Victoria Avenue southerly to Robinson Street and then to Buchanan thereby connecting the existing activity node at Clifton Hill to the new Portage Road link between Marineland and Rapidsview and Fallsview. The extension of Ferry Street through to the new Grand Boulevard will also create a stronger link with the Lundy's Lane District.
- Policies 4.3.2 to 4.3.4 identify a series of entrance gateways to the City's tourist districts
- Policies 4.3.5 to 4.3.10 deal with the circulation system and streetscapes in the tourist districts with directions to guide the use and design of those streets.

In addition to the OP, the City has conducted a number of other land use studies, including the following two.

The **Historic Drummondville Land Use Plan**, completed in September of 2006, developed a community improvement plan for the Main Ferry area. That Plan identifies the following:

- Road improvements associated with gateways and focal points (at intersections of Main with Lundy's / Ferry) will be required to properly direct traffic, create a pedestrian friendly environment and create landscaping elements (i.e. widening sidewalks, landscape bulbs, street trees, landscaped medians)
- Gateways to link Fallsview and Clifton Hill that will add traffic to and create historic prominence on Main Street
- Policy to identify Main Street as Retail Street (Summer Street to Culp and Robinson) with specific commercial uses (galleries, etc.)
- Review of Battlefield Master Plan with clear pedestrian connection between Main Street and Battlefield precinct (Drummond Hill)
- Road improvements are not needed to carry associated traffic except landscaping of road right of way to identify Historic Drummondville and a redesign of connections at Main, Stanley and Murray Streets to allow better connection between Fallsview and Lundy's Lane

The **Niagara Falls Brownfield Community Improvement Plan (CIP)** was prepared in February 2006 to provide a framework of incentive programs and municipal actions that will promote the remediation and adaptive reuse and overall improvement of Brownfield properties throughout Niagara Falls.

A Brownfield is defined as an abandoned, vacant, derelict, idled, or underutilized industrial or commercial property in the urban area with an

active potential for redevelopment where the redevelopment is complicated by real or perceived environmental contamination, building deterioration, obsolescence, and/or inadequate infrastructure. There are a significant number of Brownfields in the older industrial areas of Niagara Falls and throughout the urbanized area. The goal of the CIP is reduced sprawl, improved visual and environmental quality of development, improved tax base, retention and growth of employment, environmental health and public safety.

1.5 NIAGARA FALLS TRANSPORTATION MASTER PLANS

1.5.1 Transportation Master Plans (1998)

This report recommend the following improvements:

- Thorold Stone Road and QEW interchange reconstruction
- Thorold Stone Road widening
- Stanley Avenue – widen to four lanes 420 to Valley Way, six lanes 420 to Dunn Street, four lanes Dunn Street to Marineland Parkway McLeod to Portage, to Lyons Creek with widening Welland River bridge.
- Allendale – extend from North Street to Dunn Street
- Buchanan – from North Street to Dunn Street as arterial standard
- Victoria Avenue 420 interchange improvements
- Widening QEW 405 to 420
- Crossing of Hydro canal between Falls industrial area and Oakwood Drive
- Visitor signing plan for City and Regional roads
- Pedestrian connections in tourist area
- Bicycle and multi-use trail system
- Portage to four lanes Marineland Parkway to upper Rapidsview Boulevard
- Hwy 20/Roberts Street – physical improvements and streetscaping, intersection (design to consider grade separation) improvements at Stanley ramp improvements to Victoria Avenue
- McLeod Road – improvements and turning lanes at key intersections
- Lyons Creek Road – upgrade to arterial road standard, intersection improvements at Stanley Ave
- Taylor Road upgraded to arterial to support District Airport
- Montrose to four lanes with auxiliary lanes for local traffic
- New four-lane arterial connection between Thorold Stone and Bridge Street

1.5.2 Update to the Niagara Falls Transportation Master Plans (2003)

This study was prepared as a result of development proposals and PTA and the study area was restricted mainly to the PTA. The following assessments of traffic requirements on the road system were recommended in the study:

- Hwy 20/Roberts Street – physical improvements and streetscaping, intersection (design to consider grade separation) improvements at Stanley Avenue with ramp improvements to Victoria Avenue
- McLeod Road – requires operational improvements at key intersections
- Lyons Creek Road is to be upgraded to arterial road standard
- Stanley Avenue to be widened from 420 to Bridge Street, reconstructed from Thorold Stone to 405, widened to four lanes from McLeod to Portage, and to six lanes from 420 to North Street, four lanes McLeod to Lyons Creek
- New four lane arterial connection between Thorold Stone and Bridge Street
- Road improvements in tourist area including
    - Thorold Stone Road – from Bridge Street to Whirlpool Bridge
    - Murray Street
    - Allendale – Buchanan
    - Allendale Avenue
    - Main Street
    - Dixon Road
    - Dunn Street
    - Portage Road
    - Buchanan Avenue
    - Grand Boulevard
    - Portage Road
    - Queen Victoria Park

1.6 ACTIVE TRANSPORTATION POLICIES AND PRINCIPLES

The policy framework for the planning and implementation of bike path system in Niagara Falls can be found in the “Regional Niagara Bikeways Master Plan (2003)”, the “City of Niagara Falls Transportation Master Plan (1998)”, and an update to the “Trails and Cycling Master Plan in 2005”. The Regional Study provides direction for the overall network and design guidelines.

The Niagara Falls Transportation Master Plan and later update to the trails and cycling section show a map of recommended bikeways in the City. The Plan contains a map that identifies on road cycling routes, recreational bike routes, off-road recreational routes and Regional designations of suitable on street bike routes. That study recommends that the network not be signed and that the Regional network map remain as the only publicly available route map to be used as a reference by the bikeway users. The recommended priorities for implementation are the commuter and recreational loops and connections to the U.S. network. The update to the Trails and Cycling Master Plan recommends trigger projects which include: completing walking trails on Millennium Trail, Mitchell Line, NS and T, Downtown Trail, Grand Boulevard and Palmer Avenue. Bikeways are recommended on Drummond, St. Paul, Kalar, McLeod, Mountain and Morrison.

1.7 DIRECTION FOR THE CITY OF NIAGARA TRANSPORTATION MASTER PLAN – GOALS, PRINCIPLES AND OBJECTIVES

In consideration of Provincial, Regional and Local overarching policies and strategies, a high level policy framework was developed for the TMP. The following four Study goals and underlying principles are the initial components of the framework:

Goal – Optimize the Transportation System

- Make the most of what exists; preserve and maximize the use of facilities and services — avoid or defer the need for new infrastructure that does not support the other goals.

Goal - Promote Transportation Choice

- Provide and maintain a transportation system that offers competitive choices for moving all people and goods in an integrated and seamless manner while minimizing single occupancy vehicle trips.

Goal – Foster a Strong Economy

- Provide a transportation system that supports the retention of existing businesses and attraction of sustainable economic activity.

Goal – Support Sustainable Development and Growth

- Provide and maintain a transportation system, in both new and existing areas of the community, which supports sustainable growth and green initiatives.

The Study goals are not listed in any order of priority. **Table 1** lists the guiding principles of the RNSCP and the City OP and shows how those principles are consistent with the four Study goals and underlying principles.

Table 2 consists of the four Study goals with corresponding principles and a series of supporting objectives and it serves as a guide for the completion of the TMP and the subsequent development of the transportation system.

The goals, principles and objective reflect a broad vision for the City for an inclusive, thriving and sustainable community. These goals and principles recognize the transportation needs of current and future generations and also the differing requirements of residents throughout the community and the large visitor population. The guiding principles form the foundation for the transportation objectives.

Table 1 – Proposed Goals & Objectives – Guiding Principles in the RNSCP and City OP

Regional Niagara Sustainable Community Policies/City Official Plan	RTMP Goals			
	Optimize the Transportation System	Promote Transportation Choice	Foster a Strong Economy	Support Sustainable Development and Growth
1. Compact, vibrant, integrated and complete communities	√			√
2. Plan and manage growth to support a strong, competitive and diverse economy			√	√
3. Protect, conserve, enhance and wisely use valuable resources of land, air, energy and water for current and future generations				√
4. Maximize use of existing and planned infrastructure to support growth in a compact and efficient manner	√			√
5. Provide flexibility to manage growth in Niagara that recognizes diversity of communities				√
6. The City will plan and operate transit so that the core area and centers of commerce are the primary focal points for provision of transit	√	√		√
7. It is desirable for public transit services be encouraged in proximity to higher density residential developments, areas of high employment concentration, major medical and social service centers, housing centers for people with special needs and social amenity areas and attractions	√	√		√
8. Council may consider cash in lieu of parking, as required by by-law and use monies for the provision of additional parking spaces	√			
9. Major pedestrian destinations will be linked by pedestrian and bicycle paths and sidewalks along certain roadways		√		√

Table 2 – Transportation System Goals, Principles & Objectives

GOAL Optimize the Transportation System	GOAL Promote Transportation Choice	GOAL Foster a Strong Economy	GOAL Support Sustainable Development and Growth
Principle: Make the most of what exists; preserve and maximize the use of facilities and services — avoid or defer the need for new infrastructure that does not support the other goals.	**Principle:** Provide and maintain a transportation system that offers competitive choices for moving all people and goods in an integrated and seamless manner while minimizing single occupancy vehicle trips.	**Principle:** Provide a transportation system that supports the retention of existing businesses and attraction of sustainable economic activity.	**Principle:** Provide and maintain a transportation system, in both new and existing areas of the community, which supports sustainable growth and green initiatives.
Objectives: 1. Improve the way that the components of the transportation network, including signage and traffic signals, roundabouts, pedestrian/cycling facilities, transit priority systems, intelligent transportation systems (ITS), and intersection improvements, etc., work together to reduce delays and best use available capacity. 2. Enhance the existing transit system to efficiently moves local residents throughout the network, and effectively moves visitors throughout the visitor area. 3. Use transportation demand management (TDM) measures to	**Objectives:** 1. Think ahead — embrace a comprehensive, long-term transportation planning approach that considers all modes and sets a priority for each mode related to the others. 2. Ensure that public transit services are planned and operated to be accessible, convenient, reliable and comparable with other modes, including the automobile. 3. Develop safe, convenient and well-integrated bicycle and pedestrian networks and facilities that link key activity nodes within the region.	**Objectives:** 1. Support the planning, design, delivery, and ongoing maintenance of a fully integrated transportation system composed of roads, walkways, bikeways, transit, and railways. 2. Implement a transit system that effectively moves visitors and related service providers throughout the visitor area to capitalize on tourism revenue and lengthen the average visitor stay within the community. 3. Work with the Provincial government and other agencies to upgrade and expand their transportation network and	**Objectives:** 1. Develop initiatives and strategies that reduce the need to travel for both residents and visitors. 2. Ensure that the health and social benefits of an active lifestyle direct transportation planning and design decisions. Generally, priority will be given in the following order: • Walking • Cycling • Public transit • Smart commute strategies • Single occupant vehicles; however, local context will influence transportation design choices (i.e. Context Sensitive Design and Complete Corridors).

improve the efficiency of the transportation system. 4. Fill the gaps —add connections and linkages within the existing transportation system to minimize the need for more infrastructure. 5. Invest in integrated public transportation services to manage high levels of travel demand: - for local residents - for visitors to the community - within the City and between Regional economic centres. 6. Optimize roads to accommodate all modes of travel, and expand roadways only when necessary.	4. Continue to support new and innovative approaches to improve upon the existing transit system, and bicycling and pedestrian networks.	corridors including the provision of improved road, rail (freight), and bus/rail transit linkages/connections to the City. 4. Develop a transportation system that provides exemplary service to existing areas, promoting densification. 5. Foster partnerships between the all levels of government, the private sector, educators and other stakeholders to improve the transportation system. 6. Develop a transportation system that allows for the efficient movement of goods and people and is adaptable to accommodate changing needs.	3. Consider urban design, zoning and parking management strategies that support walking, cycling and transit, and minimize land consumed to support automobile travel (e.g. parking lots). 4. Support changes to the transportation system that will result in a reduction in vehicle emissions, minimize energy consumption, and limit environmental impacts. 5. Ensure that new development and redevelopment support greater levels of walking, cycling and transit, and that transit service is provided at an early stage in new developments. 6. Be a leader in the implementation of greenhouse gas emission and carbon reduction measures to meet the challenge of current and emerging climate change issues. 7. Foster the development of communities that support active transportation such as walking and cycling.

			8. Ensure that transportation and land use decisions are consistent with the policies and direction included in the Regional Growth Management Strategy, City Official Plan, and the Provincial Growth Plan.

TRANSPORTATION BEYOND TOMORROW 2031

NIAGARA FALLS

Sustainable Transportation Master Plan

Active Transportation – Cycling and Walking

Date: October, 2011

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Executive Summary

The sections of the Active Transportation Cycling and Walking (ATCW) report provide numerous detailed recommendations intended to support, direct and focus the implementation of new active transportation facilities in a Strategic Network in the City of Niagara Falls (City). Focusing on the built-up areas of the City, this Strategic Network would integrate with regional facilities to connect to rural areas and nearby municipalities. It would also integrate with previously proposed, fine-grained facilities on local roadways throughout the City.

This section provides a general summary of the recommendation of this report, following the report's general outline.

General

Section 1 of this report introduces the concept of Active Transportation and provides reasons why the City should support it, and a description of what would be required to support it.

Four Principles for Invigorating Development and Use of Active Transportation Facilities are recommended to be adopted and referred to as developments are planned. These are:

- **Continuity of cycling facilities**
- **Visibility (for promotion and safety)**
- **Complete range of facility types**
- **Co-operation**

Goals for this report are outlined and include:

- To provide facilities that will help to increase the level of pedestrian and cycling activities, to make these facilities functional, visually attractive, and as safe as possible.
- To create more continuous, visible and attractive facilities that the public will use for both recreational purposes and utilitarian or commuting purposes.

The approach used to develop this report is described and a group of preliminary recommendations follow, which are summarized here. The City should:

- Implement a more continuous, comprehensive and integrated multi-modal system of on-road cycling facilities, off-road multi-use trails, and various pedestrian improvements.

- Develop infrastructure initiatives such as cycling lanes, wider curb lanes, paved shoulders, sidewalks and trails.
- Work with surrounding municipalities and Niagara Region (Region) to integrate cross jurisdictional facilities.
- Incorporate pedestrian and cycling friendly design and maintenance standards.
- Provide marked routes with signage through residential neighbourhoods, on major roadways connections and open space trails.
- Work with employers and major end user destinations to provide appropriate on site amenities.
- Promote active transportation through educational and awareness campaigns.

Policy Framework

Section 2 of this report outlines the broad policy framework in which this plan exists and in which the Strategic Network facilities will be implemented.

City of Niagara Falls

The City adopted a Transportation Master Plan in 1997 that included a Trails and Bikeway Master Plan (as supplement B.) This plan was updated in 2005. These plans are among the foundation documents.

- The ATCW integrates and updates the proposed facility design standards
- The ATCW proposes a Strategic Network, with priority ranking for implementation that supersedes the previous plan, but integrates with the proposed local routes of that plan, which are carried without alteration.

Niagara Region

The Region adopted the Regional Niagara Bikeways Master Plan (RNBMP) in 2003. For the present Sustainable Transportation Master Plan, the RNBMP provides a framework, and potentially a backbone of facilities that, due to mutual interest by the two levels of government, may be more readily implemented.

- This report integrates and responds to the proposed regional facility types and recommends they be supplemented by a wider range of facility types that are more clearly defined.
- The ATCW recommends that all strategic network routes within the built-up areas, including those on local roads, be developed primarily to meet the transportation goals of the City, and that cooperation with Regional Network Developments be focused on continuity and connections to rural areas and neighbouring municipalities.

Province of Ontario

At present, the City should proceed to develop facilities in accordance with this document, and with reference to current industry best practices, including those contained in the *Ministry of Transportation Ontario (MTO) Ontario Bikeways Planning and Design Guidelines (1996).*

In the near future, the *Ontario Traffic Manual Book #18: Bicycle Facilities* and the future publication *Ontario Traffic Manual Book #15 – Pedestrian Control and Protection*, may supersede or improve upon the current guidelines and best practices. When available, these manuals should be adopted.

The City should study the implications on active transportation facility development following from the *Highway Traffic Act* and any forthcoming amendments (which would likely accompany the adoption of the manuals noted above), as well as the *Ontarians with Disabilities Act, 2001*, and the *Accessibility for Ontarians with Disabilities Act, 2005*, which will result in the publication of new standards for accessibility in the built environment.

Canada-Wide Guidelines

The City should develop facilities with reference to the *TAC Guidelines for the Design and Application of Bikeway Pavement Markings*.

North America – Wide Guidelines

The City should develop facilities with reference to *AASHTO's Guide for the Development of Bicycle Facilities (1999).*

Strategic Trail and Cycling Network

Section 3 presents specific recommendations for active transportation facility routes which, in combination, comprise a "strategic network" for the built-up areas of the City. This network works in combination with local routes identified in the 1997 Trails & Bikeways Master Plan, and rural and regional routes identified by the Region, to provide residents and visitors with a fine-grained, hierarchical system of facilities connecting within and beyond the City.

- 26 off-road strategic network routes are proposed and described.
- 21 on-road strategic network routes are proposed and described.

General recommendations are provided to connect, integrate and enhance the strategic network:

- The City should continue to implement the local routes proposed by the 1997 Trails & Bikeways Master Plan and connect these to the strategic network.
- The City should cooperate with the Region to successfully integrate and connect to regional routes. This report does not recommend planning additional routes in rural areas beyond those that the Region has constructed or plans to construct.

- The City should maximize connections between local facilities, regional facilities and the strategic network, and plan for connections to facilities that do not exist but are planned.
- The City should provide supportive infrastructure along with basic facilities.
- Five "Marquee" projects are proposed to enhance the quality of the strategic network, to improve its visibility and to make the facilities destinations for tourists.

Recommended Cycling & Pedestrian Facility Types
Section 4 presents specific recommendations for active transportation facility standards. The following facility types are included:

- 'Off-Road' Facility Types (Outside of road rights-of-way)
  - Standard multi-use pathway
  - Separated multi-use pathway
  - Roadway crossings
- 'On-Road' Facility Types (Within road rights-of-way)
  - Designated bicycle lane (without on-street parking)
  - Designated bicycle lane (with on-street parking)
  - Shared outside lane (often identified as "sharrow," without on-street parking)
  - Shared outside lane (often identified as "sharrow," with on-street parking)
  - Signed cycling route (without on-street parking)
  - Signed cycling route (with on-street parking)
  - Paved roadway edge (often identified as "paved shoulder")
  - Standard multi-use pathway (often identified as "boulevard trail")
  - Separated multi-use pathway (often identified as "boulevard trail")
- Pedestrian Facility Types
  - Sidewalks
  - Paved roadway edge (often identified as "paved shoulder")
  - Mid-block crossings

General Recommendations For Facility Development
Section 4 also includes a range of general facility development recommendations that are not repeated here.

Additional Considerations
Section 5 also includes descriptions of additional considerations that the City should review. Uniform approaches to new facilities development should address:

- Lighting off-road facilities
- Winter maintenance
- Emergency and maintenance access
- Enhanced signage and markings at initial implementation

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1. INTRODUCTION

The purpose of the Niagara Falls Sustainable Transportation Study and Master Plan (STMP) is to develop a dynamic, sustainable and scoped multi-modal transportation strategy to accommodate future population and employment growth. The study provides the City of Niagara Falls (City) with the strategies, policies and tools needed to manage traffic safely, effectively, and cost efficiently. It offers residents and visitors a range of transportation choices that have been considered and coordinated in a holistic manner, as opposed to the historically-dominant approach that has been oriented towards personal automobile use.

A sustainable transportation system requires the integration of alternative modes such as walking, cycling, public transit and carpooling to provide a balanced transportation system that offers the City's residents more choices. The **Active Transportation – Cycling & Walking** (ATCW) report is intended to establish key goals and guidelines for the promotion of an effective active transportation alternative for residents and visitors.

1.1.1 What is Active Transportation?

Active Transportation refers to any form of travel using human-powered means. It could include any trip for any purpose, but is differentiated from recreational or fitness-oriented activities.

Ideally, active transportation facilities are integrated with other transportation facilities to enable fluid mode changes and easier multi-mode trips, with increasing active components. Importantly, almost all transportation trips usually considered to be by non-active modes already include some portion, however small, of active transportation, usually walking. Ideally, these small components would increase as a proportion of any trip and as a proportion of total trips, as the supportive facilities are implemented and the social factors bearing on active transportation evolve.

For this component of the sustainable transportation study, focus is primarily given to cycling, and to a lesser extent, walking. Walking facilities in the form of sidewalks are present to some degree and form a dense network throughout most of the built-up areas of Niagara Falls. The existing sidewalks are shown on a map in Appendix C, titled "Existing Sidewalks". Cycling facilities, on the other hand, are few and isolated, and do not currently approach anything like a network that can serve residents' needs at a local or city-wide scale. Notably, with thoughtful design and foresight, serving these uses will also serve those who travel by wheelchair, in-line or roller skates, skateboards, or other human-powered means.

1.1.2 Why Should Niagara Falls Support Active Transportation?

Residents in the City and across Niagara Region (Region) are heavily dependent on the use of the automobile as a means of transportation. Other modes are viewed as, and may be less practical or useful for many people's daily travel needs.

Trends in Niagara Falls and elsewhere suggest an attitude change on the horizon. There is a growing culture of engagement in active transportation activities, both for transportation and for recreation or fitness purposes. There is a developing political environment that is more supportive of integrating Active Transportation considerations into transportation policy and discourse.

A supplementary public survey was conducted in 2010 as a component of this study. Regarding Active Transportation, respondents identified a number of deterrents preventing or discouraging them from participating in active transportation:

- spatial disconnection from major destination due to urban sprawl;
- lack of pedestrian facilities;
- lack of cycling facilities;
- lack of integration between Regional and municipal systems;
- cycling facility safety concerns; and
- poor maintenance of existing facilities

Certainly, addressing these concerns will help to increase the possibility of improving the levels of active transportation in Niagara Falls. To gain political support for active transportation and to promote active transportation among potential participants, it is helpful to be reminded of the main benefits of active transportation.

Cycling & walking are excellent and fast options for the local commuter and visitor to the city. They are practical and economical means of meeting local travel needs. There are **health, economic and environmental benefits** associated with active transportation, and it is a very equitable transportation mode.

The ***environmental benefits*** include

- reduced air pollution (exhaust)
- reduced water pollution (toxic runoff)
- reduced noise pollution

The ***health benefits*** include

- safer streets
- reduced incidence of cardiac disease
- increased overall physical health
- reduced stress & increased emotional health

The ***economic benefits*** include

- reduced personal vehicle & transportation costs
- reduced health care costs, fewer sick days, higher productivity
- reduced economic impacts from traffic congestion
- reduced costs related to wear on transportation infrastructure
- reduced costs associated with treating air and water pollution
- increased bicycle tourism and bicycle sales and manufacturing
- increased property value and retail sales along trails and in pedestrian friendly areas

Active transportation is **equitable**:

Active transportation can be available and valuable to all residents and visitors regardless of age, ability or economic considerations:

- children
- seniors
- disabled persons
- students
- low income and unemployed
- others

While these reasons are developing as motivations for many people, it is important to acknowledge that active transportation is not an attractive way for many people to get around. It may seem less convenient to those who already drive, for example. And it is generally confused with recreational activities. While confounding to professionals or to seasoned active transportation users, this confusion points to a basic conclusion that

providing active transportation facilities that double as recreation facilities will open the door for more and more people to participate in cycling and walking.

This conclusion is supported by the results of the public survey and public information centre, where respondents were more likely to engage in active transportation activities as a form of recreation, or were more supportive of capital expenditures on active transportation facilities when they were presented as recreational facilities. This conclusion should inform the

implementation priorities among possible active transportation network facilities.

1.1.3 What is required to support Active Transportation in Niagara Falls?

Returning to the deterrents identified by public survey respondents, it is straight-forward to broadly recommend the kinds of improvements to walking and cycling infrastructure in which, the City should be investing to support and encourage active transportation:

- more facilities (sidewalks, trails, bike lanes, etc.)
- better-connected facilities (from any point A to B, C or D, wherever they may be)
- safer facilities (visible and comprehensible; designed, constructed & maintained to meet established safety guidelines)
- better maintenance of all facilities, year-round

Based on preliminary, qualitative assessments, it is our opinion that most roads and many open-space corridors in the city can accommodate some type of active transportation facility. The biggest physical challenges will be crossing roads and intersections, and overcoming significant physical barriers such as hydro canals and highways, as well as coordinating successful facilities along busy roadway alignments that are constrained by utilities and driveways. Other challenges will include coordinating planning and implementation among the various interested parties (the Region, Ministry of Transportation Ontario (MTO), Niagara Parks Commission (NPC) & Utility Companies) whose individual interest will not always coincide with the interests of the City.

Four Principles for Invigorating Development and Use of Active Transportation Facilities

To work towards the goals noted above, this report recommends four principles that can guide development and management of active transportation facilities. To a greater or lesser extent, adherence to these principles will always improve the quality of the finished facility.

- ***Continuity of cycling and pedestrian facilities***
- ***Visibility (for promotion and safety)***
- ***Complete range of facility types***
- ***Co-operation***

Continuity of Cycling and Pedestrian Facilities

- A cycling and pedestrian facility MUST exist along the ENTIRE length of any designated route
- A cycling and pedestrian facility SHOULD maintain a consistent form for the maximum possible length along any designated route

The City should prioritize the review, upgrade and/or completion of all existing facilities, including eliminating gaps and discontinuities. Following after, or in conjunction with upgrading existing facilities, the City should extend & connect those existing facilities, and build new facilities to form a coherent network. These efforts should be coordinated with the network plan presented later in this report.

Visibility (for Promotion and Safety)

- Signage & pavement markings, as well as visible supportive facilities (bicycle parking, map signs, branding enhancements, etc.) must be implemented as an integral component of any facility
- New facilities should be implemented with signage and painted marking that exceed minimum requirements, much as additional warning signs would be implemented when an intersection is newly signalized

The City should review existing facilities and, where found deficient, prioritize upgrading these to include improved signage and pavement markings. New facilities should be implemented with a strong presence and visibility. This recommendation promotes safety for users by making facilities visible and comprehensible to users and drivers alike, and promotes use of the facility by clearly telling residents and visitors that the facility is there and giving them the comfort of a safer, designated facility.

Complete Range of Facility Types

- Set of facility design standards that includes tools to deal with the range of conditions that may exist, and which may be applied consistently
- In most cases, this includes dedicated pedestrian facilities, (sidewalks) a dedicated on-road bicycle facility (bike lane), a shared on-road bicycle facility ('sharrow'), and a separated multi-use option (boulevard trail) as well as off-road multi-use pathway types

A later section of this report provides a recommended palette of facility types. Notably, the Ontario Traffic Council is proceeding with development of Ontario Traffic Manual Book 18, which would standardize these for all areas of Ontario. When published (expected late 2012 or early 2013) this manual should eliminate the need for the City of Niagara Falls to maintain its own set of standards. The facility standards recommended herein are based on current guidelines and best practices, and can be expected not to diverge significantly from upcoming guidelines.

This report generally defers to Niagara Regional standards. Significantly, this report does differ from the Region in its recommendation that a "shared lane"

facility-type should be adopted for use on City and Regional roads, where appropriate, to meet the City's network objectives.

The City should re-evaluate existing facilities (some continuous routes could be established by converting discontinuous bicycle lanes to shared lanes, for example) and should proceed to implement new facilities according to the best-fitting among the forms provided

Co-operation

- Co-operate with the Region, MTO, NPC & utility companies to prioritize, implement and connect facilities throughout and beyond the City
- Co-operate between departments within City of Niagara Falls to ensure seamless transitions and connectivity between on-road and off-road facilities
- Co-operate and engage with stakeholders including public- and private-sector operators of 'destination' facilities to encourage and facilitate supportive facilities

1.2 GOALS AND OBJECTIVES

The ATCW report provides policy guidelines related to the infrastructure implementation, a recommended cycling network that links jurisdictions, provides internal linkages to attractions such as schools, parks and community facilities while encouraging utilitarian, leisure, recreational and touring trips by pedestrian and cyclists.

The broad objective of all pedestrian and cycling improvements will be to provide facilities that will help to increase the level of pedestrian and cycling activities, to make these facilities functional, visually attractive, and as safe as possible.

The specific objectives will be to create more continuous, visible and attractive facilities that the public will use for both recreational purposes and utilitarian or commuting purposes, complementary to the vehicular transportation system. This helps address environmental issues by facilitating alternative modes of transportation, and helps to encourage health and fitness while hopefully taking some pressure off the vehicular road system.

1.2.1 Scope

This policy provides guidelines for the implementation of cycling and pedestrian facilities and is intended to be applicable to roadways under the jurisdiction of the City and for consideration on roadways within the City under upper tier jurisdiction.

1.3 APPROACH

The consultant team for this report has followed the steps below in preparing this report for the City:

- Review & apply published guidelines, standards and best practices
- Review and compare existing, previous plans—identify successes and setbacks
- Make thorough site investigations of a wide range of possible candidate routes
- Consult with other consultants, City and Regional staff, the public, and other stakeholders

Guideline, standard and best practices research began in December 2010, followed soon after by thorough reviews of previous plans for the City and Region. Research and review of these background documents continued throughout preparation of this report and a brief summary of the findings is included in a later section of this report.

Site investigations by consultant staff were carried out throughout the month of January and into early February. Four full-day site visits were conducted, with the full length of all candidate routes, as, and a range of sites not carried as candidates visited at least twice. Photographs were taken for reference. As winter conditions do not reveal all pertinent site conditions, the on-site reviews were supported by use of on-line tools such as Google StreetView.

On-going consultations were coordinated with the prime consultant, AECOM, and maps appended to this report were prepared by their staff with input and direction by the report authors. Attendance at a STMP working group meeting provided useful direction and participation in a community consultation event organized as part of the broader STMP allowed the authors to review preliminary plans with members of the public and obtain helpful insights into the preferences and desires of Niagara Falls residents.

1.3.1 Preliminary Recommendations

The STMP is intended to guide the City as it works with the Region, surrounding municipalities, conservation authorities, Niagara Parks Commission, interest groups such as the Regional Niagara Bicycling Committee (RNBC), and the public to implement a comprehensive pedestrian and cycling network to promote active transportation. It builds upon existing and previously proposed pedestrian and cycling infrastructure within the Region, as outlined in the Regional Niagara Bikeways Master Plan (RNBMP), and is founded on best practices principles and experience gained working on studies for other Ontario municipalities and through consultation with Niagara interest groups and general public.

The STMP proposes a more continuous, comprehensive and integrated multi-modal system of on-road cycling facilities, off-road multi-use trails, and various pedestrian improvements. The proposed system should be inter-connected and provide a range of route alternatives and access to significant local destination points, while accommodating specific needs of the residents of the City. As well, these improvements should be well-connected to surrounding municipalities including the Cities of St. Catharine's, Thorold, Welland and Port Colborne, and the Towns of Lincoln and Fort Erie.

This study is a significant opportunity to meet goals of both the City and Region within the framework of a reconsidered active transportation network by incorporating current best practices and published facility design standards (MTO, TAC, AASHTO, etc.) into established approaches, the City and Region can expand their set of tools and more successfully implement a continuous, connected network in the City.

The proposed network outlines a broad system of candidate routes forming a core network of on and off-road Active Transportation facilities for the urbanized area of Niagara Falls. These candidate routes are further organized into a priority ranking system for further study and implementation.

The City has the opportunity to impact residents' behaviours, promote change and increase active transportation. In order to encourage more residents to integrate cycling and walking choices into their daily travel, the City should strive to undertake the following:

- Undertake the development of infrastructure initiatives such as cycling lanes, wider curb lanes, paved shoulders, sidewalks and trails.
- Work with surrounding municipalities and the Region to integrate cross jurisdictional facilities.
- Incorporate pedestrian and cycling friendly design and maintenance standards.
- Provide marked routes with signage through residential neighbourhoods, on major roadways connections and open space trails.
- Work with employers and major end user destinations (commercial areas, libraries, municipal recreational facilities, schools) to provide appropriate on site amenities (bike lockers, shower facilities.)
- Promote active transportation through educational and awareness campaigns such as "Canbike" and "Share the Road" to increase public awareness of cycling as a safe and viable mode of transportation.

2. POLICY FRAMEWORK

This section contains a broad overview of a range of local, regional, national and international policies, plans & guidelines that together form a framework in which the recommendations of this report have been anchored.

2.1 EXISTING CYCLING AND WALKING MASTER PLANS & GUIDELINES

The policy framework for the planning and implementation of bike path system in Niagara Falls can be found in the "Regional Niagara Bikeways Master Plan (2003)", the "City of Niagara Falls Transportation Master Plan (1998)", and an update to the "Trails and Cycling Master Plan in 2005." The Regional Plan provides direction for the overall network and design guidelines.

2.1.1 City of Niagara Falls

The City adopted a Transportation Master Plan in 1997 that included a Trails and Bikeway Master Plan (as supplement B.) This plan was updated in 2005.

The Niagara Falls Transportation Master Plan and later update to the trails and cycling section show a map of recommended bikeways in the City. The Plan contains a map that identifies on road cycling routes, recreational bike routes, off-road recreational routes and Regional designations of suitable on street bike routes. That study recommends that the network not be signed and that the Regional network map remain as the only publicly available route map to be used as a reference by the bikeway users. The recommended priorities for implementation are the commuter and recreational loops and connections to the U.S. network. The update to the Trails and Cycling Master Plan recommends trigger projects which include: completing walking trails on Millennium Trail, Mitchell Line, NS and T, Downtown Trail, Grand Boulevard and Palmer Avenue. Bikeways are recommended on Drummond, St. Paul, Kalar, McLeod, Mountain and Morrison.

The original study was thoroughly-executed and is itself an excellent example of an active transportation plan for a medium-sized Ontario city. Unfortunately, the broad range of facilities planned was not implemented.

The update written in 2005 attempted a response to the lack of action on the original plan. It identified reasons why the plan may not have been implemented and suggested a way forward, including the identification of ten "trigger" projects—five on-road and, five off-road—that could be expected to be reasonably feasible to execute and to provide momentum for further development of the original plan's proposals. Unfortunately again, the "trigger" projects, and the expected momentum failed to materialize.

For the present Sustainable Transportation Master Plan, the 1997 plan and the 2005 update are among the foundation documents.

- The ATCW integrates and updates the proposed facility design standards
- The ATCW process reviewed the proposed network and trigger projects to determine compatibility with current and developing transportation needs and opportunities. It proposes a Strategic Network, with priority ranking for implementation that supersedes the previous plan, but integrates with the proposed local routes of that plan, which are carried without alteration.

2.1.2 Niagara Region

The Region adopted the Regional Niagara Bikeways Master Plan (RNBMP) in 2003, following the recommendations of a The Regional Bicycling Study completed in 1995. The RNBMP established a long-term vision and strategy for identifying a region-wide cycle network, programs and infrastructure to support recreational, tourism and utilitarian cycling. Ultimately, it guides the development of cycling facilities on Regional roads, including those within the City, making the Region possibly the most important partner in efforts to establish a network of facilities in the City.

The Region, in its Official Plan Amendment, makes a statement on policy related to cycling facilities. This statement has been quoted extensively in Section 2.2.2 of this report.

Integration and alignment to the Niagara Falls Sustainable Transportation Study and Master Plan is essential to all proposed cycling and walking strategies. This offers a common platform from which continuity can be delivered. In joint collaboration it will ensure a comprehensive forward-looking strategy that tackles the transportation challenges holistically rather than by singular mode. The approach allows priority improvements and programs to be accelerated to meet the City's immediate transportation needs.

For the present Sustainable Transportation Master Plan, the RNBMP provides a framework, and potentially a backbone of facilities that due to mutual interest by the two levels of government, may be more readily implemented.

- This report integrates and responds to the proposed Regional facility types and recommends they be supplemented by a wider range of facility types that are more clearly defined.
- Review the proposed Regional network and trigger projects to determine where the goals of the City and Region are best aligned. Generally, this report recommends that all strategic network routes

within the built-up areas, including those on local roads, be developed primarily to meet the transportation goals of the City and that cooperation with Regional Network Developments be focused on continuity and connections to rural areas and neighbouring municipalities.

2.1.3 Province of Ontario

Guidelines and Manuals

The MTO published the Ontario Bikeways Planning and Design Guidelines in 1996. These guidelines provide suggestions for the planning process, selection criteria, geometric design and supplemental facilities. The guidelines have been supplemented by new best practices and guidelines in Canada.

This publication is a widely-used and accepted guide to the design of cycling facilities in Ontario, and must be considered when planning or designing cycling facilities, in conjunction with federally-produced guidelines (see below.)

By late 2012 or early 2013, it is anticipated that the Ontario Traffic Council will publish the Ontario Traffic Manual Book #18: Bicycle Facilities. Many of the recommendations of this report for facility design may be superseded by that publication; however the facility standards recommended herein are based on current guidelines and best practices, and can be expected not to diverge significantly from upcoming guidelines.

Similarly the Ontario Traffic Manual Book#15: Pedestrian Control and Protection should be expected to be completed and adopted at some point in the future, and at that time the City should make use of any relevant parts.

Highway Traffic Act

Ontario's Highway Traffic Act which generally regulates the licensing of vehicles, classification of traffic offenses, administration of loads, classification of vehicles and other transport related issues for public roadways in Ontario. Its scope includes sections on the use of roadways by cyclists and pedestrians.

Development of Ontario Traffic Manual Book #'s 15 & 18: Bicycle Facilities is likely to result in amendments to this act that will directly impact development and use of active transportation facilities.

Ontarians with Disabilities Act 2001 and Accessibility for Ontarians with Disabilities Act 2005

The Province of Ontario, through these acts, is paving the way towards making Ontario accessible for everyone. The act will result in the creation and adoption of standards designed to reduce barriers in several different areas. Currently, five standards are either in effect or planned. The "Built Environment" standard will apply to many aspects of active transportation facility development, from surface conditions to signage and crossing designs. It will have the effect of incorporating in a single standard, a range of issues that are presently distributed among a range of standards and guidelines. This "Built Environment Standard," however, does not presently have a target date for completion. As an interim measure, Niagara Falls should strive to follow current best practices for the full spectrum of accessibility issues in all new facility development and in the repair and restoration of existing facilities.

2.1.4 Canada – Wide Guidelines

The Transportation Association of Canada (TAC) is a national centre of transportation expertise, and a not-for-profit association whose goal is to provide a neutral forum to gather and exchange relevant ideas and information on technical guidelines and best practices.

TAC publishes the Guidelines for the Design and Application of Bikeway Pavement Markings, a reference guide that describes current best practices and minimum dimensional standards for design, pavement markings and signage of cycling facilities for Canadian municipalities. It contains material related to both on-road and off-road facility design.

2.1.5 North America - Wide Guidelines

The American Association of State Highway and Transportation Officials (AASHTO) is a standards setting body which publishes guidelines, specifications and test protocols that are used for planning, design and construction of all types of transportation works throughout the United States. Their guidelines are generally applicable to Canadian contexts, especially where a parallel Canadian standard or guideline has not been established.

AASHTO's Guide for the Development of Bicycle Facilities (1999) describes current best practices and geometrical standards for design of cycling facilities from an engineering and cyclist movement perspective. It contains material related to both on-road and off-road facility design, and is considered the most widely regarded guideline in North America. Details on the full range of linear and auxiliary facilities, both on and off-road, are provided. An update of this document is expected in the near future.

2.2 PLANNING AND POLICY STATEMENTS FOR CYCLING & WALKING

With the adoption of the Niagara Falls Sustainable Transportation Study and Master Plan, of which this report will form a portion, the City will effectively update its current policies to reflect changing conditions in the City and improved standards for facility development.

2.2.1 Cycling and Pedestrian Planning & Policy Statements in Niagara Falls

The previously described Trails and Bikeway Master Plan (as supplement B) forms the most detailed existing policy, officially in-place for cycling for the City. It is recommended that this report replace that, except that the previously planned network of facilities on local roads should be retained.

Part 2 of the City's Official Plan (which focuses on tourism) also includes several statements that reference pedestrian pathways, including the following:

- Section 4.1.6: "Pedestrian movements between Queen Victoria Park and the adjacent Tourist Commercial Districts are an important part of the visitor's encounter with Niagara Falls. New and improved linkages will be created including the upgrading of connecting streets, the improvement of gateways and the introduction of pedestrian paths and walkways"
- Section 4.3.12: "A continuous publicly-accessible landscaped trail shall be created along the top of the escarpment from Clifton Hill to the southern end of Fallsview."
- Section 4.3.13: "New and improved pedestrian connections shall be developed between Queen Victoria Park and the top of the escarpment…"

Part 3 of the Official Plan (which focuses on infrastructure) also includes the following statements:

- Section 1.7.1: "Major Pedestrian destinations such as schools, parks, commercial areas, libraries and recreation facilities may be linked by pedestrian and bicycle paths and sidewalks along certain roadways."

It is recommended that in place of, or in addition to these, the City adopt the following statements, or similar:

- Pedestrian sidewalks should be provided on both sides of all roads within the existing built-up areas of the City, wherever feasible.

- Safe pedestrian crossings should be provided at all intersections in the built-up areas of the City, and in the rural areas wherever a pedestrian facility is present on any one of the connecting roadways or wherever a need has been identified.
- Additional, safe pedestrian crossings should be provided in-between intersections throughout the City wherever major pedestrian destinations including but not limited to schools, parks, commercial areas, libraries and recreation facilities exist at distances from nearest intersections determined to be significant enough to warrant introduction of a new crossing.
- An extensive, connected and continuous network of cycling facilities in road rights-of-way should be provided throughout the built-up areas of the City.
- An extensive, connected and continuous network of multi-use cycling and pedestrian facilities should be provided throughout the built-up areas of the City, outside of the road rights-of-way, on parkland, in utility and transportation corridors, and elsewhere. These facilities should connect to the pedestrian and cycling facilities in road rights-of-way.
- The City should adopt and maintain standards for the design, construction, maintenance and operation of pedestrian and bicycle facilities that conform to current and future best practices, guidelines and standards, and which conform to any relevant legislation.

2.2.2 Policy Statement from Niagara Region

The Region, in its Official Plan Amendment, states:

> *"The Regional Municipality of Niagara will:*
>
> *Ensure implementation of the overall Bicycling Network shown on the map titled "Regional Niagara Bicycling Network" where it follows Regional Roads, and facilitate the implementation elsewhere, with continuous and safe linkages through Capital Works and related programs, other agencies and partnerships*
>
> *Where the Regional Niagara Bicycling Network is proposed on a local municipal road, the Regional Municipality will be responsible for funding of the bicycling facility, subject to Regional Council approval. If these funds are not available, the local municipality may proceed with capital works without the bicycling facility.*
>
> *Provide the Regional Bicycling Committee with the approved annual Regional roads rehabilitation and construction program as well as the capital works program for sewer and water works to examine and to provide recommendations on bicycle-related works subject to overall considerations (e.g. budgetary, stakeholder, property) identified by the Regional Public Works and Utilities Committee.*

Outside urban areas, off the Bicycling Network, an attempt will be made to continue the current practice of providing an extra 0.5 metres of paved shoulder along Regional roads where possible.

Request that local municipalities and other agencies plan and develop bicycle routes and facilities."

"Regional Niagara should adopt a policy of making all 'Regional Roads' more bicycle friendly by providing 3.5 m travel lanes and 0.5 m to 1.5 m paved shoulders on all new or reconstructed Regional Roads when the opportunity arises."

"When Regional Roads are constructed or reconstructed give consideration to accommodating cyclists, whether or not the road is designated a bikeway route."

"The successful implementation of the Regional Niagara Bike Plan will require balancing the desire to implement the preferred facility type and design with real physical and environmental constraints, as well as the limited financial resources available from both the Regional and local municipal levels of government. Although industry standard bikeway designs are always preferred and are recommended for the Region of Niagara, it must be acknowledged that they cannot always be implemented or accommodated."

This policy reflects the content of the previously described Regional Niagara Bikeways Master Plan, 2003.

3. STRATEGIC TRAIL AND CYCLING NETWORK

This section presents specific recommendations for active transportation facility routes which, in combination, comprise a "***strategic network***" for the built-up areas of the City. This network works in combination with local routes identified in the 1997 Trails & Bikeways Master Plan, and rural and Regional routes identified by the Region, to provide residents and visitors with a fine-grained, hierarchical system of facilities connecting within and beyond the City.

The proposed network should be approached as a single goal for the City to strive towards. This section identifies which routes are or are not present priorities, and a later section provides a more detailed discussion and ranking of those priorities. Routes not identified as priorities at this time should continue to be viewed as necessary components of the network and implemented as needs or opportunities grow.

For the purposes of this report, the off-road routes have all been identified with numbers, and the on-road routes with letters. Multiple routes that combine to form larger routes have been given the same number, followed by identifying letters. It is not intended that these routes be signed or named using this system—a preferable approach would be street names for on-road routes and named trails for off-road routes.

As identified in the City's Trails and Bikeways Master Plan the main objective of the trail and bikeway network is to connect the places where people live to the places where people travel to (i.e. work, school, shopping, etc.) The 2010 supplementary survey for the Sustainable Transportation Master Plan & Study demonstrated an apparent demand for recreational cycling opportunities for both local residents and tourists. The proposed network will satisfy these objectives increasingly as it develops, and may, in turn, increase the use of and demand for active transportation facilities.

Table 1 – Summary List of 'Off-Road' Strategic Network Routes

Route No.	Route Name
1	MILLENNIUM TRAIL – PHASE 1
2	MILLENNIUM TRAIL – PHASE 2
3	MILLENNIUM TRAIL – PHASE 3
4	MILLENNIUM TRAIL – PHASE 4
5	MILLENNIUM TRAIL – PHASE 5
6	MILLENNIUM TRAIL – PHASE 6
7	HAULAGE ROAD TRAIL
8a	HYDRO ONE TRANSMISSION CORRIDOR 8-WEST
8b	HYDRO ONE TRANSMISSION CORRIDOR 8-EAST
9a	HYDRO ONE TRANSMISSION CORRIDOR 9-WEST
9b	HYDRO ONE TRANSMISSION CORRIDOR 8-EAST
10a	NS&T TRAIL-WEST
10b	NS&T TRAIL-CENTRE
10c	NS&T TRAIL-EAST
10d	ERIE AVENUE CONNECTION (On-Road)
11a	OLYMPIC TORCH LEGACY TRAIL
11b	ROBERT STREET CROSSING | BRIDGE | "GATEWAY"
11c	VICTORIA AVENUE PROMENADE
11d	"GRAND BOULEVARD" TRAIL
11e	SENECA ST CONNECTION TO RIVER ROAD (Partly On-Road)
12	HYDRO ONE TRANSMISSION CORRIDOR 12
13	MITCHELL LINE TRAIL
14a	GARY HENDERSHOT MEMORIAL TRAIL
14b	GARY HENDERSHOT MEMORIAL TRAIL EXTENSION
15a	HYDRO ONE TRANSMISSION CORRIDOR 15-WEST
15b	HYDRO ONE TRANSMISSION CORRIDOR 15-EAST

Table 2 – Summary List of 'On-Road' Strategic Network Routes

Route No.	Route Name
A	MOUNTAIN ROAD
Aa	CHURCH'S LANE
B	THOROLD STONE ROAD | BRIDGE STREET
C	MORRISON STREET | ZIMMERMAN AVENUE
Ca	WOODBINE STREET
D	LUNDY'S LANE | FERRY STREET
Da	BARKER STREET | PEER STREET | PEER LANE
E	McLEOD ROAD | MARINELAND PARKWAY
Ea	DUNN STREET
F	OLDFIELD ROAD CROSSING
G	GARNER ROAD
H	KALAR ROAD
I	MONTROSE ROAD
Ia	OAKWOOD DRIVE
J	DORCHESTER ROAD
K	ST. PAUL AVENUE | DRUMMOND ROAD
L	PORTAGE ROAD | MAIN STREET | MARINELAND PARKWAY | WILLOUGHBY DRIVE
M	STANLEY AVENUE
N	VICTORIA AVENUE-NORTH
Na	VICTORIA AVENUE-SOUTH
O	WHIRLPOOL ROAD | NIAGARA PARKWAY/RIVER ROAD

3.1 OFF-ROAD STRATEGIC NETWORK ROUTES

Each of the proposed strategic network links below would connect areas of the city together, intersecting with other off-road routes and on-road routes to cumulatively form a web of active transportation possibilities for the residents of Niagara Falls. Off-road routes will in many instances provide for shorter travel distances for both cyclist and pedestrians.

As a result of the past and present activities of its hydro-electric and railway industries, the City has been blessed with numerous open space corridors, connecting many diverse parts of the city. These corridors, active and abandoned, are a special asset for the City that will provide the basic structure for an off-road active transportation network. Some of these have already been developed as trails for recreational purposes, and these provide specific opportunities for implementing active transportation routes.

Off-road active transportation facilities will do double-duty as transportation and recreational facilities. To meet transportation goals, they should be planned to connect users to destinations in a generally direct fashion, and should accommodate not only two-way traffic, but both transportation and recreational users, with a minimum of conflict. Generally these will be multi-use pathways. In some instances, short on-road segments are included to connect slightly disconnected open spaces.

The proforma entries in Appendix A provide a description of the facility corridor and discussion of opportunities or challenges, significant connections along the route and a note about the priority of the route. A summary of the "priority projects" is included later in the report.

> For easy reference, the final digit in the section numbering can be referenced with the trail numbers on the list above and on the maps forming the appendices of this report.

3.2 ON-ROAD STRATEGIC NETWORK ROUTES

Each of the proposed strategic network links below would connect areas of the city together using the existing roadway network and intersecting with off-road routes to cumulatively form a web of active transportation possibilities for the residents of Niagara Falls.

Most of the city has been constructed on a grid-pattern of arterial routes spaced evenly and running north-south or east west. These transportation corridors provide a backbone for an on-road active transportation system. Enriching this grid network, a number of arterial roads follow off-grid alignments—though generally of lower priority, these will provide the "short-cut" and special connection routes that add character and variety to daily commuting.

On-road active transportation users have the same primary use for roads as drivers. They want to get from one place to another safely and efficiently. It is logical then to prioritize the same roads and routes that are best used by drivers for implementing on-road active transportation facilities. Though not always strictly on-road, facilities in road rights-of-way are a crucial component of any good active transportation network.

For all proposed routes, this study recommends further study for the entire route to determine the best-fitting facility type, to propose options and/or alternatives to overcome challenging conditions, and to evaluate the likely costs of implementation and operation, for each route. Study and design of the routes should take in each route in its entirety. It is a challenge common to all roadways to safely and effectively share the available right-of-way between all users. In limited cases, it may be

necessary to consider changes to the way automobiles use the roadway, to better balance the needs and safety of other users.

Implementation, where possible, is preferably carried out as a single, continuous operation for each route. Where this is not possible, the maximum available length, preferably at least between two connecting facilities should be implemented. Where opportunities such as road re-building are occurring, but are not of sufficient length to implement a useful section of facility, the City should consider only implementing conditions that will allow for the facility to be implemented, but not build out the full facility, because a partial or disconnected facility can present risks and complications for potential users that are best avoided.

The proforma entries in Appendix A provide a description of the facility corridor and discussion of opportunities or challenges, significant connections along the route and a note about the priority of the route. The presence of existing facilities is noted; however there is some disagreement between various inventories, and varying notions about what conditions are required to consider an existing facility acceptable for use. Each route needs to be further evaluated prior to development, so these issues are not specifically pertinent at this level of detail.

For easy reference, the final digit in the section numbering can be referenced with the trail numbers on the list above and on the maps forming the appendices of this report.

3.3 ROUTES, CONNECTIONS, INFRASTRUCTURE & PROJECTS

3.3.1 Routes

Local Routes

Smaller, local connections, such as park pathways, are not included in the strategic network, but remain an important local facility, especially for short trips and for children.

The City's 1997 Trails & Bikeways Master Plan identifies a network of cycling facilities on local roads and in small open spaces. Generally, these provide small loops and connections within and connected to the larger blocks of the Strategic Network. Connecting to local destinations, and providing routes from within neighbourhoods to the Strategic Network, these facilities would generally be shared roadway facilities, unless demand for more fully-developed facilities arises.

Newly-developed areas and areas to be developed that did not exist at the time of the 1997 plan may be easily fitted-out with these local routes.

Rural and Regional Routes

This report does not address facilities in the rural areas of the City. Generally, it is understood that the need for or potential use of active transportation facilities in these areas is not as great as in the more densely-populated urban centre.

The Region has implemented, and continues to implement, useful active transportation facilities on Regional roads that not only serve the City, but connect further to neighbouring municipalities. These are useful tourism routes, and the City should cooperate with the Region to successfully integrate and connect to these routes. This report does not recommend planning additional routes in rural areas beyond those that the Region has constructed or plans to construct.

3.3.2 Connections

Though not dealt with in detail in this report, connections to, from and within the strategic network are a very important factor in successfully implementing the proposed routes. During design, connections should be sought and made to local destinations such as schools, community centres and shopping malls, for example, and also to the major tourist destinations along the Niagara Parkway/River Road and in the city's commercial areas. Connections should also be considered to nearby local active transportation facilities and other Strategic Network facilities, whether existing or planned. Similarly, access points for local and strategic routes should be maximized.

For off-road facilities, often in dedicated corridors, connections should be sought for adjacent park facilities and to areas where local roads about the corridor. These may be developed to a lower standard than the strategic facility, as they will generally see less use. They may follow design standards from the City's Parks department, and may be implemented and managed by them as well.

On road facilities should be planned to connect to other on-road facilities and to crossing off-road facilities, or those ending nearby. These connections will often be more challenging to implement because of site-specific factors such as grade changes, driveways, sidewalks and other conditions requiring unique design solutions.

3.3.3 Supportive Infrastructure

Supportive infrastructure should be considered an integral part of any active transportation facility. Bicycle parking, map signs, shade (trees or built structures) seating, waste receptacles etc. should be planned for and installed strategically. Considerations include maintenance and operations, clearance from travelled surfaces, visibility from roadways and demand.

Supportive infrastructure can also be considered strategic from the point of view of encouraging split-mode trips. Bicycle storage and staging areas near transit stations and stops or at parking lots can be very effective encouragements for drivers to make a portion of their trip by active means.

For off-road facilities, there is significant overlap between parks amenities and supportive infrastructure for active transportation. This synergy could be exploited by sharing responsibility between City departments: Transportation implementing and maintaining travelled surfaces and required components such as signage, and Parks implementing and maintaining the supportive infrastructure. Such an arrangement optimizes the use of resources and expertise from each department.

In some cases, particularly relevant for on-road facilities, the best locations for these facilities may be on private property such as at shopping centres where seating and bicycle parking, for example, are well-located near entrances, rather than in road rights-of-way, which may be some distance away. The city should cooperate with and provide encouragement to businesses or destination operators to provide these facilities.

3.3.4 Marquee Projects

The entries in a number of cases have referred to “Marquee Projects.” These are projects whose scope is generally considered so great that they would require a very significant dedication of resources and funding to implement. To justify such expense, these facilities would have to perform extraordinary functions and provide value-added benefit to the City, possibly as landmarks and tourist attractions in their own right.

This report identifies several such Marquee Projects, generally intended to cross significant barriers such as highways, hydro canals or both. These are envisioned as significant, highly-designed facilities or structures that in some cases act as “gateways” for travellers entering or passing through the City, and as attractions for locals and visitors on account of their exceptional design and ability to provide uncommon views of natural or man-made features such as the hydro canals.

The functions that these would perform as part of the Strategic Network would be to connect parts of the city that would otherwise be very difficult to connect, and to do so outside of road rights-of-way. To accomplish even more, these are usually planned to connect multiple routes across the barriers simultaneously.

Implementing this type of project would require special efforts to secure funding such as a large municipal grants program or private sponsorship, where appropriate. Interest and publicity for the project could be gained through careful marketing and strategies such as design competitions.

Route 11c, VICTORIA AVENUE PROMENADE, and Route 11d, "GRAND BOULEVARD" TRAIL

An exception to the general description above, these routes, combined provide an opportunity for the City to implement a much richer group of facilities within the central tourist areas of the city.

Already proposed and very useful as standard active transportation facilities, these routes (together or individually) could be envisioned and implemented more boldly to become destinations in themselves, connecting and enriching the area. If designed and programmed to accommodate special events, markets, or other tourist facilities, these routes could also generate economic activity and employment for residents of the City.

Route 11b, ROBERT STREET CROSSING | BRIDGE | "GATEWAY"

Connecting the two projects listed above, this project has already been floated as an idea on plans that envision a connected route from the NS&T Trail across the north-central park of the city, through the downtown areas on the Olympic Torch Run Legacy Trail and on through the tourism districts. The most difficult link in this route would be crossing Robert Street/Newman Hill, which this project proposes to do.

An effective and relatively low-cost structure could do the job, but as one of the first things visitors see as they enter Niagara Falls after crossing the Rainbow Bridge, this location presents an opportunity for the City to make a bold statement to welcome visitors.

This project is possibly the most easily achieved and most effective of the proposed Marquee Projects. It is described in more detail in section Appendix A.

Route 10B QEW CROSSING SOUTH OF THOROLD STONE ROAD

This proposed project would provide and off-road facility crossing in the north-central part of the city, directly aligned with and connecting routes 9a & b (Hydro One Transmission Corridor 9 – West & East) and 10a & b (NS&T Trails – West & Centre) and would also be very accessible from Thorold Stone Road (route B), Morrison Street (route C) and Woodbine Street (route Ca) and from local roads. This would connect the northern and central parts of the city for active transportation users in a more effective and comfortable way than would be possible on the existing Thorold Stone Road crossing structure.

This project would also provide a significant landmark for drivers on the QEW and a viewpoint for tourists and local residents.

This route is proposed as an active-transportation facility. If separate proposals to connect the Morrison Street and Woodbine Street roadways across the QEW proceed in advance of development of an active-transportation facility, then

inclusion of active transportation facilities and connection of the active transportation facilities proposed on these streets and connection to adjacent off-road routes should be included, and would supersede this proposal.

Route 12A HIGHWAY 420 CROSSING AT HYDRO ONE TRANSMISSION CORRIDOR 12

This proposed project would remove a disconnection from the most direct north-south off-road route in the central part of the city, permitting easy access between a number of dense residential areas and employment areas. It would also be easily accessible for users of the Stanley Avenue and Portage Road | Main Street active transportation facilities, providing a more comfortable crossing of the highway than the on-road options might offer.

This project would also provide a significant landmark for drivers on the 420 and a viewpoint for tourists and local residents. It could be viewed as a companion piece to the Robert Street Crossing project.

Route, 15B QEW & HYDRO CANAL CROSSING NORTH OF DUNN STREET

This significant project would cross two significant geographical barriers and connect numerous routes extending in all directions to all parts of the city. It would connect the west and east parts of Hydro One Transmission Corridor to each other and to the existing Millennium Trail Phase 1 (route 1) and the Gary Hendershot Memorial Trail (routes 14a & b), and would be easily accessed from Dunn Street (route Ea,) Montrose Road (route I,) and Dorchester Road (route J,) as well as from nearby local roads.

This project would also provide a significant landmark for drivers on the QEW and a unique view of the hydro canal for tourists and local residents.

4. RECOMMENDED CYCLING & PEDESTRIAN FACILITY TYPES

This section provides a detailed overview of a range of active transportation facility types that the City should consider to be generally a palette of facility forms that can be applied to newly-developed facilities, or those existing facilities that may be upgraded. Notes on additional concerns related to facility standards are included at the end of the section.

The facility types presented here are divided into three categories: Off-Road (outside of road rights-of-way), On-road (within road rights-of-way) and Pedestrian. These are facilities designed for transportation purposes, primarily. Facilities such as hiking trails are considered primarily recreational and are not included here.

Facility designs shown in Appendix B have been prepared to reflect current best practices, and should be supplemented by other, more detailed guidelines that are referenced earlier in this report. Detailed design solutions are almost always require to implement any facility, as site-specific conditions or constraints will require interpretation and elaboration of these recommendations. In some cases, these solutions may need to exceed the minimum recommended standards, or include additional features to respond to site-specific conditions, or anticipated high levels of use.

While other standards and best practices do exist for these facilities, their interpretation by road authorities varies greatly in different areas, and in others, habit precedes best practices and facilities continue to be implemented that no longer conform to current thinking. Niagara Falls is ahead of many municipalities in terms of its current standards, but has room to improve. The recommendations of this section reflect current best practices and will contribute to this improvement, however, by late 2012 or early 2013, it is anticipated that the Ontario Traffic Council will publish the Ontario Traffic Manual Book #18: Bicycle Facilities. Many of the recommendations of this section, where applicable, should be superseded by that publication.

4.1 FACILITY TYPES

4.1.1 Off-Road Facility Types (Outside of Road Rights-of-Way)

Facilities outside of road rights-of-way are preferred by individuals who want to be off of the road to enjoy nature or open spaces, and are often preferred by less experienced or recreational cyclists, as compared to facilities within roadway rights-of-way, especially those sharing a travelling surface with motor vehicles.

Off-road active transportation facilities will do double-duty as transportation and recreational facilities. To meet transportation goals, they should always be designed to serve transportation requirements and to meet best practices

for development of such facilities. As this will often exceed typical recreational standards, the resulting facility will not be found lacking. Examples of 'off-road' facilities are provided in Appendix B.

4.1.2 On-Road Facility Types (Within the Roads-Rights-of-Way)

On-road cycling facilities are the preferred facility type for most commuting cyclists. They utilize efficient and orderly street networks to get around the city, and they avoid conflicts with slower pedestrians and recreational cyclists found on off-road pathways.

On-road cycling facilities are generally considered to include only those facilities that share a travelling surface with motor vehicles. This report also includes facilities outside of the roadway, but within the right-of-way, and differentiates these from "off-road" facilities that would exist outside of road rights-of-way.

Each of the facilities in this section contains in its description a note regarding conformance with the standard facility types used and promoted by the Region. In some cases, this report recommends using facilities that do not conform to Regional standards. This reflects, in some cases, improvements in facility design best practices. In other cases these recommendations are intended to broaden the array of tools that the City has available to address challenging situations that are likely to arise. Examples of 'on-road' facilities are provided in Appendix B.

4.1.3 Pedestrian Facility Types

Pedestrian facilities, sidewalks especially, are the most basic and fundamental active transportation facility. They should be present on all streets in the city and on both sides wherever possible. Facilities designed for pedestrians should always be constructed to be barrier-free. The City should regularly up-date an inventory of pedestrian facilities, including facilities like crossings and enhanced crosswalks, while potentially also providing information on condition as well as location.

Earlier sections have dealt with multi-use facilities that mix pedestrians and cyclists, or which segregate the two use types on a single facility. Those facilities are not described again in this section. Examples of 'Pedestrian' facility types are provided in Appendix B.

4.2 GENERAL RECOMMENDATIONS FOR FACILITY DEVELOPMENT

The City should consider the following recommendations that apply generally to the development of active transportation facilities:

- The City should be cautious not to promote the use of facilities (i.e. with designation signage or with promotional programs) that do not meet minimum performance standards. The recommended minimum width of on-road cycling facilities should not be compromised. From a safety and liability perspective, it is preferable to not create or designate any sub-standard facilities.
- Road right-of-way widths will vary by type of roadway, type of facility planned, and other site-specific conditions, including alignment (straight or curved) motor-vehicle speeds, streetscaping features, and others. The Official Plan and zoning by-law should be written such that new development applications include the relevant facility type, recognizing that different situations will required different facility design requirements (e.g. with respect to right-of-way width).
- Before existing paved shoulders or maintenance widening(s) can be designated (i.e. with signs and/or on maps) as cycling facilities, they should be evaluated and upgraded to standard conditions of service. The continuity of paved shoulders and maintenance widening(s) should be reviewed and any specific problem areas amended appropriately.
- The typical operating spaces of on-road cyclists are the outside or curb lanes of municipal roadways. These lanes, shared between motorists and cyclists, should be efficient and comfortable for through-travel by cyclists. The surface of the roadway, the gutter area and utility covers (i.e. manholes and catch basins) should be sound and bicycle-compatible.
- Special attention should be given to anticipating the operating movements of cyclists through multi-lane and signalized intersections. All multi-lane signalized intersections should have adequate lane space for waiting and turning cyclists. Cyclist's needs for road space should not be compromised. Consider the provision of bike boxes". These road spaces are demarcated with painted lines to provide guidance to both cyclists and motorists at the approach to and departure from an intersection.
- Design roadway storm water drainage to avoid the storage of water or snow on cycling areas. Use curb-face inlets as an alternative to gutter catch basins, where possible. Where gutter catch basins are present as an existing condition or where other types are not possible, ensure that grate openings are oriented perpendicular to the direction of travel.
- Attention should be given to how the typical operating space required by cyclists in outside or curb lanes is affected by right turn lanes, highway on / off ramps and major driveways. A continuous operating space is required.
- All intersection signals actuated by under-road sensors should be upgraded to employ activation sensors (i.e. quadruple loops) that respond to bicycles.

- In future traffic calming exercises, the City should exempt cyclists from signed turn restrictions. Cyclists should be "filtered" through traffic diverters and speed humps so as not to adversely affect their access and momentum.
- The recommended minimum width of a public right-of-way corridor intended to include a multi-use pathway is 10 metres. This minimum width allows for the potential inclusion of a 3.0 metre wide pathway, horizontal clearance distances, landscaping (i.e. shade trees), seating areas and property line fencing. Where it is necessary to make a vital off-road connection between existing and/or potential facilities, an absolute minimum corridor width of 5.0 metres would be acceptable.
- Where major multi-use pathways or other high profile pedestrian facilities cross high-traffic-volume, high speed and / or multi-lane arterial roads mid-block it is recommended that only demand-activated signalized crossings (IPS) be installed. This system allows pathway or sidewalk users by use of a push button, to activate a red traffic control signal light to stop vehicular traffic in order that pedestrians can cross.
- Where major multi-use pathways or other high-profile pedestrian facilities cross lower-traffic-volume, lower-speed and / or two-lane collector and local roadways it is recommended that crossing facilities acceptable to the City be installed. The basic facilities for these types of crossings are the "zebra-stripe" for pedestrians, and the "elephant feet" for cyclists.
- The City should expand the program of providing secure bicycle parking facilities. The City should install facilities such as the successful "post and ring" lock-up or other facilities that support the bicycle frame and allows at least one wheel and the bicycle frame to be locked. These facilities should eventually be provided City-wide at appropriate locations along streets, at public transit transfer stations and at major workplace, parkland, education, tourism and shopping destinations. It is further recommended that the City should lead by example and install bicycle-parking facilities at municipal offices and City-owned buildings.
- Additional cycling-supportive infrastructure, such as shade, seating, drinking fountains, orientation maps, etc., should be strategically located at key destination points for cyclists or at other points along facilities where opportunities are identified.
- Where pedestrian or cycling facilities cross major roadways, pedestrian refuges may be considered. This is an elevated boulevard positioned approximately at the centre of the roadway that allows pedestrians to make a two-stage crossing of a wider roadway.
- Where different types of facilities intersect, where one facility type transitions into another, and where facilities start and end, design should focus on the visibility and legibility of the form, from the

perspective of all users, to ensure that these facilities are as safe as possible.

- In urban areas public rights-of-way should have at least one continuous, hard surfaced linear facility for the use of pedestrians. (i.e. a concrete sidewalk on at least one side of the public roadway.)
- Where continuous, paved sidewalks are not feasible along both sides of a roadway, approved standard crossing facilities (such as marked crosswalks at intersections) should be installed to provide access to the continuous sidewalks on the single side. It is not recommended that such a crossing be installed mid-block without very careful consideration.
- Tree planting should be considered as a component to be included in any facility development project. Shade provided by trees helps to keep cyclists cool in hot weather, maximizing the number and range of users who are able to safely use facilities, and the trees also improve the aesthetics of not only the cycling facility, but the entire streetscape.
- Consideration for aesthetic and urban design improvements should be incorporated into any facility development project. Such consideration will encourage use by highlighting the presence and quality of the facilities provided, and will support the impression that these projects are part of a well-thought-out, integrated, improvement project.
- For signage standards, refer to Transportation Association of Canada (TAC) guide for signs and pavement markings. Promote a strong sign/pavement marking program, and especially where new facilities are introduced, exceed the minimum requirements for one to two years.

4.3 ADDITIONAL CONSIDERATIONS

The following sections provide a number of issues that the City should develop approaches towards and apply consistently as they move forward with development of active transportation facilities.

Lighting Off-Road Facilities

Providing lighting as a component of off-road pathway facilities expands the potential use of such facilities and increases perceptions of safety for users. It is, however, very costly to install, operate and maintain lighting systems for pathways.

Winter Maintenance

Demand for active transportation facilities decreases during the winter months, but does not disappear entirely. Many cyclists or pedestrians who do not walk or cycle during the winter may be discouraged from doing so by a lack of winter maintenance on sidewalks, pathways or cycling lanes.

Choosing to keep these free from snow can help to increase the use of and demand for the City's active transportation facilities.

Emergency and Maintenance Access

Access for emergency and maintenance vehicles should be provided along any off-road route. Equipment at entrances and access points intended to prevent unauthorized vehicles from accessing the pathways can delay emergency response teams if not properly implemented and maintained, and can result in maintenance vehicles accessing over landscape areas, causing damage. It is important to consult with emergency services early in the planning and implementation of off-road facilities. Additional expense may be required to reinforce paths and provide adequate facilities for emergency service vehicles.

Enhanced Signage and Road Marking at Initial Implementation

This report recommends that the City make a practice of providing additional numbers of signs and painted symbols for any newly-introduced on-road facility. This cost-effective recommendation can assist greatly with improving the visibility of a new facility, allow drivers to quickly adjust to having cyclists on roads, and help both cyclists and drivers understand where cyclists should be positioned.

After a period of time (several months up to three to five years) the facility should be familiar to most drivers and the need for and benefits of high visibility will have decreased. Increased numbers of signs may remain in-place, or be re-used on other routes after an adjustment period. Painted symbols, when being re-painted, may be repainted in numbers and positions meeting best practices.

4.4 FACILITIES ON REGIONAL ROADS

This report is recommending the use of facilities that do not conform to the Regional standards in some cases. Consideration for non-conforming facility types will be made in keeping the road safety, traffic operations and implementation costs in view and subject to the approval of the appropriate road authorities. As well, signage on the Regional rights-of-way will have to be consistent with the Regional Sign By-Law that is currently under update.

5. IMPLEMENTATION PRIORITIES

This section presents specific recommendations for the priority ranking of proposed active transportation facility routes in the City. It outlines an approach to implementing and studying further the proposed routes based on ease of implementation, usefulness and other factors described in the following sections.

Many of the top-ranked priorities should be easily implemented by the City providing useful facilities. Successive projects will move the City towards a more complete network of active transportation facilities. As later priorities may be more complex, requiring that study of options and feasibility commence while earlier, easier routes are being implemented. The City should develop a coordinated approach to implementing these routes, with achievable targets for future development and an understanding of the time required to develop each project to an implementable design. Local and rural routes are not included in this ranking.

5.1 IMPLEMENTATION PRIORITIES: - 'OFF-ROAD'

The first priorities that this report recommends are the implementation of off-road active transportation facilities forming an interconnected network within and across the existing built-up areas of Niagara Falls. These will tend to be easier to implement: they are dedicated active transportation facilities generally located outside of street rights-of-way. Based upon the feedback received in the public survey and consultations, they are more likely to attract users, increasing demand for active transportation facilities of all types, and may be better supported, politically.

Currently, off-road trails and bikeways are co-ordinated, implemented and funded through the City's Recreation and Culture Section; future consideration should be given to align these active transportation functions within the City's Transportation Services Section. This will ensure that the facilities are developed primarily to meet transportation requirements, and coordination of roadway crossings will be simplified. As a significant partner in the development of these facilities, Parks, Recreation and Culture will provide valuable inputs to the development process:

- Experience negotiating agreements for trails uses adjacent to hydro canals and in transmission corridors
- Experience developing and maintaining trails projects
- Many of these facilities may be located on Parks properties
- As a funding partner, could contribute development of amenities (staging facilities, seating, shade trees, etc.) and/or connections to recreation facilities, local parks and trails

Note that all of these facilities are intended to be implemented as continuous routes, with appropriately-developed crossings for any roadways along the route. Notwithstanding the need to minimize impacts on motor vehicle traffic, directing users to existing intersections is only encouraged where it would not create inconvenience or constitute a barrier to use of the route, as that may result in users crossing unsafely at unmarked locations.

Among the many off-road projects proposed in this report, several have been identified broadly as priority projects. In this section, these are organized into four priority groups based on ease of implementation, and a strategic approach to establishing a wider, connected network that can intensify and expand as uses increase and additional support and opportunities grow.

Table 3 – Priority List of 'Off-Road' Strategic Network Routes

GROUP A: Short Term Implementation (2012-2017)	
Route No.	**Route Name**
10a	NS&T Trail-West
10c	NS&T Trail-Centre
10d	NS&T Trail-East
10e	Erie Avenue Connection (On-Road)
13	Mitchell Line Trail
GROUP B: Short Term Implementation (2012-2017)	
Route No.	**Route Name**
8b	Hydro One Transmission Corridor 8-East
9a	Hydro One Transmission Corridor 9-West
9b	Hydro One Transmission Corridor 9-East
11d	"Grand Boulevard" Trail
15a	Hydro One Transmission Corridor 15-West
15c	Hydro One Transmission Corridor 15-East
GROUP C: Medium Term Implementation (2018-2022)	
Route No.	**Route Name**
5	Millennium Trail – Phase 5
6	Millennium Trail – Phase 6
12	Hydro One Transmission Corridor 12
14b	Gary Hendershot Memorial Trail Extension
GROUP D: Medium Term Implementation (2018-2022)	
Route No.	**Route Name**
11b	Robert Street Crossing | Bridge | "Gateway"
11c	Victoria Avenue Promenade
11e	Seneca Street connection to River Road (Partly On-Road)

5.1.1 Group A: Short Term Implementation (2012-2017)

Group A is composed of two routes that are prioritized primarily because they are generally located on land owned by the City and either already somewhat developed, or are planned to be developed, as trails. These routes are also centrally located within the City and can connect widely to other planned or existing active transportation facilities, both on-road and off.

Route 10a.	**NS&T Trail-West**
The sections between Kalar Avenue and Montrose Road should be prioritized for implementation. Extensions east and west of this segment would only be developed under certain conditions described earlier in this report.	
Route 10c.	**NS&T Trail-Centre**
The sections between Dorchester Road and Stanley Avenue should be prioritized for implementation. Extensions west of this segment would only be developed under certain conditions described earlier in this report.	
Route 10d.	**NS&T Trail-East**
This entire route should be prioritized for implementation.	
Route 10e.	**Erie Avenue Connection (On-Road)**
This is an on-road segment required to connect city-owned lands forming the NS&T Trail route to other city-owned lands comprising the Olympic Torch Run Memorial Trail and a parkette to be developed at the north-east corner of the intersection of Queen Street and Erie Avenue. The entire route should be prioritized for implementation. It may be beneficial to first prepare a feasibility study of various options and alternatives to this connection, including facility transitions, and possibly inclusive of other local, downtown routes that may connect.	
Route 13.	**Mitchell Line Trail**
This entire route should be prioritized for implementation. A connection to the existing Gary Hendershot Memorial Trail should be reviewed in detail early in the development process to ensure that any barriers to connection can be identified and overcome quickly.	

5.1.2 Group B: Short Term Implementation (2012-2017)

Group B is composed of several routes that are within generally unobstructed Hydro One Transmission Corridors, and one route that is located primarily on city-owned lands, similar to group one, but because of additional constraints around access and adjacent uses, likely requires more study to implement.

The length and location of these routes, as well as their potential for connections to existing and planned on and off-road routes, makes each of them very important network connections for the city's active transportation users.

Route 8b.	**Hydro One Transmission Corridor 8-East**
The sections between Olden Avenue and Stanley Avenue should be prioritized for implementation with a short on-road section on Portage to cross the active rail corridor. Extensions east and west of this segment would only be developed under certain conditions described earlier in this report.	
Route 9a.	**Hydro One Transmission Corridor 9-West**
The sections between Kalar Avenue and Montrose Road should be prioritized for implementation. Extensions east and west of this segment would only be developed under certain conditions described earlier in this report.	
Route 9b.	**Hydro One Transmission Corridor 9-East**
The sections between Thorold Stone Road and Stanley Avenue should be prioritized for implementation. Extensions east and west of this segment would only be developed under certain conditions described earlier in this report.	
Route 11d.	**"Grand Boulevard" Trail**
This entire route should be prioritized for implementation, and should be considered a Marquee Project for Niagara Falls, due to its central location and associated potential for heavy tourist use. This means that it would be developed and landscaped to a level of service and quality exceeding the minimum facility requirements, possibly in the form of a separated facility with dedicated cycling facilities parallel to a pedestrian promenade.	
Route 15a.	**Hydro One Transmission Corridor 15-West**
The sections between Garner Avenue and Montrose Road should be prioritized for implementation. Extensions east and west of this segment would only be developed under certain conditions described earlier in this report.	
Route 15c.	**Hydro One Transmission Corridor 15-East**
The sections between Dorchester Road and Hydro One Transmission Corridor 12 should be prioritized for implementation. Extensions west of this segment would only be developed under certain conditions described earlier in this report.	

5.1.3 Group C: Medium Term Implementation (2018-2022)

Group C is composed of three routes within hydro canals and one route in a hydro corridor presently obstructed by other uses. Each of these is either an already-planned route or an extension of an existing route. Although opportunities may appear readily available for these routes, it is expected that coordination related to established uses, user safety, access and arterial road crossings will be significantly more challenging to overcome than the routes within the generally unobstructed hydro corridors.

Route 5.	**Millennium Trail – Phase 5**
This entire route, from near Morrison Street, to the proposed Millennium Trail Phase 6 should be prioritized for development. Crossing highway 420 at the QEW interchange is expected to be a very significant challenge, and in the long-term a	

vision for a more direct, off-road connection is recommended. As an interim solution, using on-road facilities, particularly on Dorchester Road, will be necessary.
Route 6. Millennium Trail – Phase 6 This entire route should be prioritized for implementation, from proposed Millennium Trail Phase 5 to existing Phase 1, south of Lundy's Lane. Connection to Phase 5 is described above; connecting to Phase 1 should similarly be envisioned as a direct, off-road connection, preferably under Lundy's Lane, but again, an interim solution using on-road facilities will likely be necessary.
Route 12. Hydro One Transmission Corridor 12 The sections of this route between the Gale Center and McLeod Road/Marineland Parkway should be prioritized for implementation. Extensions north and south of this segment would only be developed under certain conditions described earlier in this report. Consideration should be given to possible extra-width pathway development including possible "promenade" treatments, as well as to establishing strong connectivity between parking and transit uses existing in the central part of the corridor to improve access for split-mode trips.
Route 14b. Gary Hendershot Memorial Trail Extension This entire route should be prioritized for implementation, from the existing southern limit of the Gary Hendershot Memorial Trail to McLeod Road.

5.1.4 Group D: Medium Term Implementation (2018-2022)

Group D comprises four unique projects, each with its own challenges and benefits.

Route 11b. Robert Street Crossing | Bridge | "Gateway" This would be a significant project with technical and cost challenges. It would provide an extremely useful connection between the downtown and tourist areas of the city and provide a 'gateway' into the city for visitors from the U.S. crossing the Rainbow Bridge. This project should be prioritized as a Marquee Project for Niagara Falls.
Route 11c. Victoria Avenue Promenade This project should be prioritized as a Marquee Project for Niagara Falls. It should be conceived in conjunction with, or as a complimentary facility to on-road route N, Victoria Avenue South. Combined, the two projects would act as complimentary facilities, providing route options for a range of user-types through the centre of the tourist areas of the city. Improvements to the existing promenade should be considered that will be reflective of and connected to the proposed "Grand Boulevard" Trail. Study of options and feasibility should commence immediately, including consideration of combined or separated off-road facilities, or a facility 'split' at each end that would direct cyclists from adjacent facilities onto a potential on-road facility for the length of the promenade

Route 11e.	**Seneca Street connection to River Road (Partly On-Road)**

This short connection will greatly enhance the choices and options for active transportation users, recreationists and tourists, and should be implemented in its entirety. Potential challenges related to land ownership, developing an on-road segment and connecting to River Road/Niagara Parkway, in combination with its modest size, and present existence as an informal route, place it in the lower-end of this report's off-road route priorities.

5.1.5 Longer Term Implementation (2022-2030)

While all of the strategic routes provide valuable connections for recreation and tourism use, some do not present a sufficient transportation opportunity to justify prioritization. These routes includes portions of the Millenium Trail (Routes 2, 3), and the Hydro One Transmission Corridor (Route 8a). These routes represent potential longer term future active transportation route implementation.

Other longer term implementation projects (2022-2030) are considered to be the remaining Marquee Projects (Routes 10b, 12a and 15b).

Route 2.	**Millenium Trail Extension Phase 2**
Route 3.	**Millenium Trail Extension Phase 3**
Route 8a.	**Hydro One Transmission Corridor 8 West**
Route 10b.	**QEW Crossing south of Thorold Stone Road**
Route 12a.	**Highway 420 Crossing at Hydro One Transmission Corridor 12**
Route 15b.	**QEW & Hydro Canal Crossing north of Dunn Street**

5.2 IMPLEMENTATION PRIORITIES: 'ON – ROAD'

On-road active transportation facilities include any active transportation facilities within road rights-of-way. Usually thought of as bicycle lanes or marked routes, they can include a range of forms including shared lames and multi-use pathways. **In the broadest sense, they include even sidewalks although this report focuses on 'cycling' facilities.** These routes, being primarily single-use, dedicated transportation facilities, are the key components of any active transportation network.

This report provides a prioritization of the routes recommended earlier, that is based upon balancing ease-of-achievability with usefulness and realistic understanding of the time and study that will be required to implement complex facilities. Organized in four groups, in order of descending priority, these routes will create a core, on-road network of active transportation facilities that will serve the needs of the City very well, and provide a basis for future development beyond the current built-up areas, and for intensification within, based on local routes.

Some of these are on Regional roads and/or intersect with Regional roads. Of the many partnerships the City will need to form, the Niagara Region Public Works, Transportation Division is among the most important. The network recommended in this report is intended to serve primarily the needs of the City, and the best and most useful transportation corridors in the City are generally owned by the Region, which has different goals than the City and different practices than some which this report recommends. It is important for the City to take a leading role on the development of all the facilities that will serve primarily the City, and to cooperate with the Region to promote and achieve the City's goals for sustainable transportation.

Table 4 – Priority List of 'On-Road' Strategic Network Routes

GROUP 1A: Short Term Implementation (2012-2017)	
Route No.	**Route Name**
C	Morrison Street | Zimmerman Avenue
Ca	Woodbine Street
Da	Barker Street | Peer Street | Peer Lane
Ea	Dunn Street
GROUP 1B: Short-Term Implementation (2012-2017)	
Route No.	**Route Name**
H	Kalar Road
I	Montrose Road
J	Dorchester Road
M	Stanley Avenue
GROUP 1C: Medium Term Implementation (2018-2022)	
Route No.	**Route Name**
B	Thorold Stone Road | Bridge Street
D	Lundy's Lane | Ferry Street
E	McLeod Road | Marineland Parkway
GROUP 1D: Medium Term Implementation (2018-2022)	
Route No.	**Route Name**
A	Mountain Road
Aa	Church's Lane
K	St. Paul Avenue | Drummond Road
L	Portage Road | Main Street | Marineland Parkway | Willoughby Drive
N	Victoria Avenue-North
Na	Victoria Avenue-South

5.2.1 Group 1A: Short Term Implementation (2012-2017)

Group 1A is composed of four routes that are prioritized primarily because each of them should be relatively easy for the City to implement, while providing central, east-west routes that connect well with planned on and off-road routes. Each of these is on a City-owned roadway, reducing the need for coordination, and each is on a less-busy street, exposing both drivers and potential users to this kind of facility in a less-intense environment.

The primary challenges, for design and coordination, will be ensuring that routes are developed continuously and visibly through all intersections. The City must also carefully design facility starts and ends, and accommodations for existing and future connections to ensure that these routes will be successful.

Route C.	**Morrison Street | Zimmerman Avenue**
This route should be prioritized for implementation or completion of existing facilities, from Dorchester to eastern extent, including facility implementation on Zimmerman Avenue from Bridge Street to River Road/Niagara Parkway. The status of any existing or planned facilities should be confirmed immediately. Extension west of this segment would only be developed under certain conditions described earlier in this report.	
Route Ca.	**Woodbine Street**
This route should be prioritized for implementation or completion from Kalar Road to Montrose Road. The status of any existing or planned facilities should be confirmed immediately. Extension east of this segment would only be developed under certain conditions described earlier in this report.	
Route Da.	**Barker Street | Peer Street | Peer Lane**
This route should be prioritized for implementation in its entirety..	
This route is proposed as a less-busy alternative to sections of Lundy's Lane east of the QEW. It cannot replace a continuous facility on that road, because of its lack of continuity across the highway and hydro canal, but it can serve as a very useful route for the denser eastern part of the City and may be implemented while study proceeds for facilities on Lundy's Lane.	
Route Ea.	**Dunn Street**
This route should be prioritized for implementation in its entirety.	
This route is proposed as a less-busy alternative to sections of McLeod Road east of the QEW. It cannot replace a continuous facility on that road, because of its lack of continuity across the highway and hydro canal, but it can serve as a very useful route for the denser eastern part of the City and may be implemented while study proceeds for facilities on McLeod Road.	

5.2.2 Group 1B: Short Term Implementation (2012-2017)

Group 1B is composed of four north-south routes that are prioritized primarily because each provides strong, complimentary connections to the prioritized off-road routes, which are primarily east-west, and to Group 1C routes, in combination with which, this group will create a strong, loop network for the City. Most of these routes have already been developed in-part and completion of facilities on these roads appears to be generally feasible, with fewer challenges than other routes that are prioritized less highly. As with Group 1A, it will be important to ensure that routes are developed continuously and visibly through all intersections, and the City must also carefully design facility starts and ends, and accommodations for existing and future connections.

Route H.	**Kalar Road**
This route should be prioritized for completion of existing facilities, and further implementation From Mountain Road to McLeod Road. Opportunities should be sought to implement new facilities as part of planned roadway upgrades, except where these fall beyond an approximate five-year horizon. In such cases, the City should consider implementing active transportation facilities as a stand-alone project. Development of facilities south of McLeod Road should follow the pace of residential development in that area.	
Route I.	**Montrose Road**
This route should be prioritized for completion of existing facilities, and further implementation between Kalar Road and the shopping centre south of McLeod Road, including consideration of an off-road segment, parallel to the QEW and connecting directly to Mountain Road in the north. Extension south of this segment would only be developed under certain conditions described earlier in this report.	
Route J.	**Dorchester Road**
This route should be prioritized for completion of existing facilities, and further implementation between Mountain and McLeod Roads; southward extension may be considered. Study of the Highway 420 crossing should be prioritized, as it is a crucial component for this route.	
Route M.	**Stanley Avenue**
This route should be prioritized for completion of existing facilities, and further implementation between Church's Lane and McLeod Road. Study of the Thorold Stone Road/Hydro canal crossing, and the Highway 420 intersection should be prioritized, as these are crucial components for this route.	

5.2.3 Group 1C: Medium Term Implementation (2018-2022)

Group 1C is composed of three complex east-west routes that can connect active transportation users across the entire city, from the rural and suburban western areas, across the QEW and/or hydro canal, to the denser residential and employment areas in the east. These are all busy roads and all very

challenging places to build active transportation facilities, but they are also possibly the most important places for the City to build active transportation facilities. Completion of these routes, and the Group 1B routes, will provide Niagara Falls with a comprehensive, connected loop system through the built-up areas of the City. The Group 1A, Group 1D and other routes not prioritized will help to intensify and further connect this core network.

Because of their complexity and constraints, this report recommends that the City commence detailed study of these routes as soon as possible to determine the best-fitting facilities. Implementation is expected to be delayed due to the time required for study and the effort and expense required for implementation. Ensuring strong connections to all existing and future on and off-road routes will also be challenging, i.e. the Gary Hendershot Memorial Trail and Millennium Trail are examples.

Route B. Thorold Stone Road | Bridge Street

This route should be prioritized for implementation or completion in its entirety. The status of any existing or planned facilities should be confirmed immediately. Because of the complexity of the route it will require detailed study of a range of options and alternatives for the entire route.

Construction of an eastward extension of Thorold Stone Road to the Gale Centre, and later to Victoria Avenue and Bridge Street is a key component that is understood to include active transportation facilities, and which will connect the Thorold Stone Road and Bridge Street facilities. It may be possible to prioritise and implement the downtown segments, on Bridge Street while studies of the Thorold Stone Road sections are on-going. This would be advantageous for the downtown area and for routes (especially off-road) that are planned there.

Route D. Lundy's Lane | Ferry Street

This route should be prioritized for implementation however because of the complexity of the route it will require detailed study of a range of options and alternatives for the entire route between Garner Road and Victoria Avenue.

Barker Street is proposed as an alternative route to Lundy's Lane east of the QEW; however it cannot provide the same cross-city connections and is not preferred except as an interim solution or complementary alternative.

Route E. McLeod Road | Marineland Parkway

This route should be prioritized for implementation; however, because of the complexity of the route it will require detailed study of a range of options and alternatives for the entire route between Garner Road and Victoria Avenue.

Dunn Street is proposed as an alternative route to McLeod Road east of the QEW; however it cannot provide the same cross-city connections and is not preferred except as an interim solution or complementary alternative.

5.2.4 Group 1D: Medium Term Implementation (2018-2022)

Group 1D is comprised of six different routes. Two of these combine to create a useful east-west route at the north end of the City, while the other four are useful, but complex routes that, when implemented can provide short-cuts and overall additional capacity for the core active transportation network within the denser, eastern parts of the City.

Route A.	**Mountain Road**
Segments of this route between Mewburn Road in the west and St. Paul Avenue in the west should be prioritized for implementation or completion. The status of any existing or planned facilities should be confirmed immediately. Extension west of this segment would only be developed under certain conditions described earlier in this report.	
Route Aa.	**Church's Lane**
This route should be prioritized for implementation or completion. The status of any existing or planned facilities should be confirmed immediately. Extra priority may be given to implementing safe, designated facility connections near and to St. Paul and Stanley Avenues, Whirlpool Road and across the railroad (it is expected that it would be economical to also complete a designated facility through the balance of this route simultaneously.)	
Route K.	**St. Paul Avenue | Drummond Road**
This route should be prioritized for completion of existing facilities, and further implementation between Mountain and McLeod Roads. Study of the Highway 420 crossing should be prioritized.	
Route L.	**Portage Road | Main Street | Marineland Parkway | Willoughby Drive**
This route should be prioritized for completion of existing facilities, and further implementation between Thorold Stone Road and the southern extent of the community of Chippawa. Study of the Morrison Street/Hydro canal, and Highway 420 crossings should be prioritized.	
Route N.	**Victoria Avenue-North**
This route should be prioritized for completion of existing facilities, and further implementation along the entire corridor.	
Route Na.	**Victoria Avenue-South**
This route should be prioritized for implementation in its entirety. Study of the options for active transportation development in the roadway should be carried out in coordination with study of the off-road route within the Victoria Avenue Promenade, and may result in an increased priority level for this route.	

Longer-term implementation projects (2022-2030) should focus on intensifying the on-road network and extending into new development areas.

In addition, the proposed Morrison Street crossing (designated as Route Cb) is considered to be a longer-term project, if it is to be a stand-alone pedestrian/cycling bridge. Preference should be given to improving crossing opportunities at Lundy's Lane or Thorold Stone Road or at off-road alignments. If a vehicle flyover is constructed, space should be allocated for cyclists and pedestrians with connections to higher priority Routes C and Ca.

6. BUDGET COST ESTIMATES FOR PROPOSED SHORT-TERM OFF-ROAD FACILITIES

These budget estimates are provided to assist the City in budgeting for the proposed improvements. They are order-of-magnitude budget cost estimates only and are based upon approximate unit costs and approximate quantity take-offs. These costs do not reflect actual costs to implement any facility and should be refined as planning and design of the proposed facilities proceeds. Soft costs (e.g. design/engineering fees) and contingency amounts are not included and where applicable, additional consideration should be made for inflation and construction cost increases.

The estimated costs for off-road facilities include factors for pavements, signage, un-signalized roadway crossings and amenities such as shade tree planting, bike locks, trail-heads, benches and waste receptacles. Lighting and signalized mid-block crossings (both recommended) have been separated from basic implementation costs. For some routes with complex situations, a "complex scenario factor" has been applied.

The single on-road pathway in Group A (Route 10e) assumes that the route can be implemented without significant roadway reconstruction or new signalization. This should be tested early in the planning of these routes as it will have a significant impact on the cost to implement the route.

Table 5: Cost Estimates for Short Term Improvements

Group	Route	Quantity	Budget Estimate ($)
A	**10a NS&T Trail – West**		
	Facility implementation budget estimate	1.5km	$600,000
	Signalized, mid-block crossing(s)	1	$125,000
	Additional cost for lighting entire facility	1.5km	$375,000
	Total Budget Estimate		**$1,100,000**
	10c NS&T Trail – Centre		
	Facility implementation budget estimate	3.0km	$1,200,000
	Signalized, mid-block crossing(s)	2	$250,000
	Complex scenario factor *	N/A	$250,000
	Additional cost for lighting entire facility	3.0km	$750,00
	Total Budget Estimate		**$2,450,000**
	* Additional estimated budget costs to construct continuous two-way facility from east of Drummond to west of Portage at "interchange" near Sheldon Street.		
	10d NS&T Trail – East		
	Facility implementation budget estimate	1.5km	$600,000
	Signalized, mid-block crossing(s)	1	$125,000
	Complex scenario factor *	N/A	$150,000
	Additional cost for lighting entire facility	1.5km	$375,000
	Total Budget Estimate		**$1,250,000**
	* Additional estimated budget costs to construct this route segment through a complex,		

Group	Route	Quantity	Budget Estimate ($)
	urbanized area.		
	10e Erie Avenue Connection (On-Road)		
	Facility implementation budget estimate	0.50km	$75,000
	Complex scenario factor*	N/A	$25,000
	Total Budget Estimate		**$100,000**
	* Additional estimated budget costs to construct this route segment through a complex, urbanized area.		
	13 Mitchell Line Trail		
	Facility implementation budget estimate	3.0km	$1,200,000
	Signalized, mid-block crossing(s)	2	$250,000
	Additional cost for lighting entire facility	3.0km	$750,000
	Total Budget Estimate		**$2,200,000**
B	**8b Hydro One Transmission Corridor 8 – East**		
	Facility implementation budget estimate	3.0km	$1,200,000
	Signalized, mid-block crossing(s)	2	$250,000
	Additional cost for lighting entire facility	3.0km	$750,000
	Total Budget Estimate		**$2,200,000**
	9a Hydro One Transmission Corridor 9 – West		
	Facility implementation budget estimate	2.5km	$1,000,000
	Signalized, mid-block crossing(s)	1	$125,000
	Additional cost for lighting entire facility	2.5km	$625,000
	Total Budget Estimate		**$1,750,000**
	9b Hydro One Transmission Corridor 9 – East		
	Facility implementation budget estimate	3.0km	$1,200,000
	Signalized, mid-block crossing(s)	3*	$375,000
	Additional cost for lighting entire facility	3.0km	$750,000
	Total Budget Estimate		**$2,325,000**
	* Alternate approaches should be investigated to negotiate this route across Thorold Stone Road and Dorchester Road because the pathway intersects very near the intersection of these two arterial roads. These might include multi-use pathway facilities within the road rights-of-way to bring users to and from the existing intersection.		
	11d Grand Boulevard Trail		
	Facility implementation budget estimate	1.5km	$600,000
	Complex scenario factor*	N/A	$300,000
	Additional cost for lighting entire facility	1.5km	$375,000
	Total Budget Estimate		$1,275,000
	* Additional estimated budget costs to construct this route segment through a complex, urbanized area		
	15a Hydro One Transmission Corridor 15 – West		
	Facility implementation budget estimate	2.5km	$1,000,000
	Signalized, mid-block crossing(s)	1	$125,000
	Additional cost for lighting entire facility	2.5km	$625,000
	Total Budget Estimate		**$1,750,000**
	15c Hydro One Transmission Corridor 15 – East		
	Facility implementation budget estimate	2.5km	$1,000,000

Group	Route	Quantity	Budget Estimate ($)
	Signalized, mid-block crossing(s)	2	$250,000
	Additional cost for lighting entire facility	2.5km	$625,000
		Total Budget Estimate	**$1,875,000**
		TOTAL	**18,275,000**

7. CONCLUSION

The purpose of the Niagara Falls Sustainable Transportation Study and Master Plan (STMP) is to develop a dynamic, sustainable and scoped multi-modal transportation strategy to accommodate future population and employment growth, in a holistic manner, as opposed to the historically-dominant approach that has been oriented towards personal automobile use.

The Active Transportation – Cycling & Walking report establishes key goals and guidelines for the promotion of an effective active transportation alternative for residents and visitors by proposing an extensive and prioritized Strategic Network for the City, and standard facility designs to assist with implementing the proposals.

APPENDIX A

List of Routes

OFF-ROAD STRATEGIC NETWORK ROUTES

ROUTE 1. MILLENNIUM TRAIL – PHASE 1

Description:

- Existing 2km paved pathway along the west side of Ontario Power Generation canal, extending between Lundy's Lane and McLeod Road
- Access points from Lundy's Lane and near McLeod Road
- Trailhead with seating, parking and signage at McLeod Road access
- Narrow, fenced and sloped access from Lundy's Lane

Connections:

- Off-road: in the future, direct connections should be implemented to Millennium Trail Phase 2, to the south, and Phase 6 to the north
- On-road: connections to Lundy's Lane and McLeod Road need to be improved to make direct connections to future facilities along those corridors; improvements should be made in conjunction with construction of those on-road facilities

Opportunities & Challenges:

- Connections, especially to on-road facilities from both the greatest opportunities and the most significant challenges for this route
- **This route corresponds to route #175 on the Regional Niagara Bikeways Master Plan (RNMBP)**

NOT A PRIORITY PROJECT

Presently, and as adjacent facilities are completed and use increases, the City should consider the following possible improvements:

- Enhanced signage (branding & way-finding)
- Improved amenities (shade, bicycle parking, seating, etc.)
- Possible widening of the trail including possible "promenade" treatments

ROUTE 2. MILLENNIUM TRAIL – PHASE 2
Description: • Proposed paved pathway along the west side of Ontario Power Generation canal, extending south from McLeod Road to approximately the southern terminus of Oakwood Drive *(notably, previous proposals that were cancelled due to community opposition were planned for the east side of the canal)*
Connections: • Off-road: to existing Millennium Trail Phase 1 and proposed Gary Hendershot Memorial Trail extension (via McLeod Road), both to the north; any future pathway development along the north side of Welland River and west of the hydro canal would potentially connect to, or function as, a destination for this route • On-Road: to McLeod Road in the north, and Montrose Road | Oakwood Drive in the south; a proposed westward extension of Oldfield Road would connect mid-way along the route
Opportunities & Challenges: • All segments of the Millennium Trail present opportunities for creating excellent north-south connections between residential and employment areas and with the hydro canal as a backdrop, show great potential as a tourist attraction • The greatest challenges for this alignment may be the connections to McLeod Road, and under it to the Phase 1 Trail; a secondary challenge may be the resolution of a sensible southern connection or terminus
NOT A PRIORITY PROJECT
This facility will become a priority as middle and southern connections are developed, or in the event of a destination or terminus being developed at or near the Welland River This facility should be reviewed or developed in conjunction with the development of any facilities proposed for the Oakwood Drive right-of-way, as both facilities may not be required

ROUTE 3. MILLENNIUM TRAIL – PHASE 3
Description: • Proposed paved pathway along the west side of Ontario Power Generation canal, extending north from Thorold Stone Road to Whirlpool Road
Connections: • Off-road: to existing Millennium Trail Phase 4 in the south, and proposed Hydro One Transmission Corridor 12 pathway in the north • On-Road: to Thorold Stone Road in the south, and Stanley Avenue at a mid-way point, via a spur
Opportunities & Challenges: • All segments of the Millennium Trail present opportunities for creating excellent north-south connections between residential and employment areas and with the hydro canal as a backdrop, show great potential as a tourist attraction • Possible conflict with active railway corridors crossing the route • Connecting to and under Thorold Stone Road and resolving the crossing the route • Connecting to and under Thorold Stone Road and resolving the northern extent of the route (in conjunction with Route 12) will be significant challenges • **This route corresponds to part of route #179 on the RNMBP**
NOT A PRIORITY PROJECT
This facility will become a priority as connecting routes are developed

ROUTE 4. MILLENNIUM TRAIL – PHASE 4
Description: • Existing 1.5km paved pathway along the west side of Ontario Power Generation canal, extending south from Thorold Stone Road to near Morrison Street
Connections: • Off-road: in the future, direct connections should be implemented to Millennium Trail Phase 5, to the south, and Phase 3 to the north, as well as to the NS&T Trail west and centre segments • On-road: connections to Thorold Stone Road, Portage Road and Morrison Street need to be improved to make direct connections to future facilities along those corridors; improvements should be made in conjunction with construction of those on-road facilities
Opportunities & Challenges: • This is a central trail segment with numerous connections available, considering its short length; successful development of those connections will make this one of the City's best-used active transportation facilities • Connections comprise both the greatest opportunities and the most significant challenges for this route • **This route corresponds to part of route #179 on the RNMBP**
NOT A PRIORITY PROJECT
Presently, and as adjacent facilities are completed and use increases, the City should consider the following possible improvements: • Enhanced signage (branding & way-finding) • Improved amenities (shade, bicycle parking, seating, etc.) • Possible widening of the trail including possible "promenade" treatments

ROUTE 5. MILLENNIUM TRAIL – PHASE 5
Description: • Proposed paved pathway along the west side of Ontario Power Generation canal, extending south from Portage Road to near Dorchester Road
Connections: • Off-road: to existing Millennium Trail Phase 4 in the north, and proposed Phase 6 in the south • On-Road: to Dorchester Road in the south, Drummond Road at a mid-way point, and Morrison Street and Portage Road in the north
Opportunities & Challenges: • This is a central trail segment with numerous connections available; successful development of those connections will make this one of the City's best-used active transportation facilities • Connections comprise both the greatest opportunities and the most significant challenges for this route; notably both ends of the route present very significant challenges in connecting to nearby roads and also making direct connections to adjacent Millennium Trail phases • As this section passes behind a residential area, the City should expect significant opposition to development of the facility from homeowners
THIS IS A PRIORITY PROJECT
As an interim solution, by making use of on-road facilities an immediate connection can be established to adjacent phases of the Millennium Trails; however a vision for a direct connection should be developed, in the short-term.

ROUTE 6. MILLENNIUM TRAIL – PHASE 6
Description: • Proposed paved pathway along the west side of Ontario Power Generation canal, extending south from Dorchester Road to Lundy's Lane
Connections: • Off-road: to existing Millennium Trail Phase 1 in the south, and proposed Phase 5 in the north • On-Road: to Dorchester Road in the north and Lundy's Lane in the north
Opportunities & Challenges: • This is a central trail segment with numerous connections available; successful development of those connections will make this one of the City's best-used active transportation facilities • Connections comprise both the greatest opportunities and the most significant challenges for this route; notably both ends of the route present very significant challenges in connecting to nearby roads and also making direct connections to adjacent Millennium Trail phases • As this section passes partially behind a residential area, the City should expect significant opposition to development of the facility from homeowners
THIS IS A PRIORITY PROJECT
As an interim solution, using on-road facilities to connect to adjacent phases of the Millennium Trails may be necessary; however a vision for a direct connection should be developed

ROUTE 7. HAULAGE ROAD TRAIL
Description: • Existing 2km paved pathway at the north end of the city, running diagonally south-east from near the intersection of Mountain and Dorchester Roads, to near the intersection of Church's Lane and St. Paul Avenue; clearly signed, visible trailhead facilities exist on the south side of Mountain Road, immediately east of Dorchester, and on the west side of St. Paul Avenue, just north of Riall Street/Church's Lane
Connections: • Off-road: to proposed Hydro One Transmission Corridor 8-East • On-Road: to Mountain and Dorchester Roads at the intersection of those streets, and to St. Paul Avenue and Church's lane near the intersection of those streets
Opportunities & Challenges: • Connections, especially to on-road facilities, form both the greatest opportunities and the most significant challenges for this route • At the intersection with Hydro One Transmission Corridor 8-East, an opportunity exists for an enhanced park amenity • An opportunity may exist, and should be investigated, to extend the Haulage Road Trail to the north-west; this may also be an opportunity to connect to the Bruce Trail and move part of the Mountain Road section of that trail off-road • **This route corresponds to route #173 on the RNMBP**
NOT A PRIORITY PROJECT
Presently, and as adjacent facilities are completed and use increases, the City should consider the following possible improvements: • Make direct connections between this facility and adjacent or connecting on-road facilities • Enhanced signage (branding & way-finding) • Improved amenities (shade, bicycle parking, seating, etc.) • Possible widening of the trail including possible "promenade" treatments

ROUTE 8A. HYDRO ONE TRANSMISSION CORRIDOR 8-WEST
Description: • Proposed paved pathway in utility corridor at the north-west end of the City, running diagonally north-east from Garner Road north of Thorold Stone Road, to Montrose Road at the point where that road turns westward parallel with the QEW
Connections: • Off-road: potential, long-term development may extend this facility further west as a touring linkage to the Welland Canal Trail, however the actively agricultural nature of utility corridor lands in that direction may restrict the potential for development; Hydro One Transmission Corridor 8-East continues the alignment across the QEW, but has no present way to connect directly • On-road: to Garner Road to the west, Kalar Road, centrally, and Montrose Road in the east, which connects in turn north and east to potentially cross the QEW
Opportunities & Challenges: • Connections to facilities on arterial roads, and crossings of arterial roads (Kalar) will be the most significant internal challenge for this facility • Externally, connecting eastward across the QEW to Hydro One Transmission Corridor 8-East and to on-road routes will be very challenging; in the absence of a bridge or tunnel connection, the best available option for users may be north along the proposed Montrose Road facilities, then a short off-road connection parallel to the highway and connecting to on-road facilities on Mountain Road to connect East; this will serve cyclists, but is unlikely to be attractive for pedestrians
NOT A PRIORITY PROJECT
As development proceeds adjacent to the western parts of this facility, it will become a priority. Overcoming the lack of connectivity eastward will be an important obstacle to resolve in order for this facility to function as a transportation route.

ROUTE 8B. HYDRO ONE TRANSMISSION CORRIDOR 8-EAST
Description: • Proposed paved pathway in utility corridor at the north-east end of the City, running diagonally north-east from the QEW, north of its westward bend, to Stanley Avenue, north of its intersection with Whirlpool Road
Connections: • Off-road: to Hydro One Transmission Corridor 8-West (as discussed above), and a central, direct crossing with the Haulage Road Trail • On-road: to local Olden Road to the west, St. Paul Avenue and Mountain Road, centrally, and Portage Road and Stanley Avenue in the east
Opportunities & Challenges: • This is a central trail segment for the north end of the city, with numerous connections available; successful development of those connections will make this one of the City's best-used active transportation facilities • Connections comprise both the greatest opportunities and the most significant challenges for this route; notably at the east where an active rail corridor exists and diagonal crossings with and connections to two arterial roads would need to be regularized • The challenges and opportunities related to westward extension and connection are discussed in the previous section • At the intersection with the Haulage Road Trail, an opportunity exists for an enhanced park amenity
THIS IS A PRIORITY PROJECT
The sections between Olden Avenue and Stanley Avenue should be prioritized for implementation with a short on-road section on Portage to Cross the active rail corridor; development west of Olden Avenue would only be practical in the event of a direct crossing of the QEW

ROUTE 9A. HYDRO ONE TRANSMISSION CORRIDOR 9-WEST

Description:

- Proposed paved pathway in utility corridor in the west-central part of the City, running diagonally north-east from near the Garner Road and Beaverdams Road intersection, to Montrose Road just south of Gallinger Street, and potentially to Kent Avenue/QEW

Connections:

- Off-road: potential, long-term development may extend this facility further west as a touring linkage to the Welland Canal Trail, however the actively agricultural nature of utility corridor lands in that direction may restrict the potential for development; Hydro One Transmission Corridor 9-East continues this alignment, across the QEW, but has no present way to connect directly (this connection point intersects with the QEW disconnection of the NS&T Trail West and Central alignments and is the subject of a proposed Marquee Project later in this report
- On-road: to Garner Road to the west, Kalar Road, centrally, and Montrose Road in the east, which connects in turn north and east to potentially cross the QEW at Thorold Stone Road

Opportunities & Challenges:

- Connections to facilities on arterial roads, and crossings of arterial roads (Kalar) will be the most significant internal challenge for this facility
- Externally, connecting eastward across the QEW to Hydro One Transmission Corridor 9-East, NS&T Trail Central, and to on-road routes will be very challenging; in the absence of a bridge or tunnel connection, the best available option for users may be north along the proposed Montrose Road facilities and connecting to on-road facilities on Thorold Stone Road to connect East
- The potential connection of two crossing, diagonal trails that is blocked by the QEW presents an opportunity for a Marquee Project crossing that is described later in this report

THIS IS A PRIORITY PROJECT

The sections between Kalar Avenue and Montrose Road should be prioritized for implementation. A section east of Montrose, parallel to Gallinger Avenue to Kent Avenue/QEW would only be practical in the event of a direct crossing of the QEW. As development proceeds adjacent to the western parts of this facility, those will become a priority.

ROUTE 9B. HYDRO ONE TRANSMISSION CORRIDOR 9-EAST
Description: • Proposed paved pathway in utility corridor at the north-east end of the City, running diagonally north-east from the QEW, south of Thorold Stone Road, to Stanley Avenue, south of Church's Lane
Connections: • Off-road: to Hydro One Transmission Corridor 9-West, and to NS&T Trail (both as discussed above), and to the Millennium Trail and Hydro One Transmission Corridor 12 via on-road connections • On-road: to Dorchester Road and Thorold Stone Road to the west, St. Paul Avenue centrally, and Stanley Avenue in the east
Opportunities & Challenges: • This is a central trail segment for the north end of the city, with numerous connections available; successful development of those connections will make this one of the City's best-used active transportation facilities • Connections comprise both the greatest opportunities and the most significant challenges for this route; notably at the east where an active rail corridor exists and diagonal crossings with and connections to two arterial roads would need to be regularized • The challenges and opportunities related to westward extension and connection are discussed in the previous section • The potential connection of two crossing, diagonal trails that is blocked by the QEW presents an opportunity for a Marquee Project crossing that is described later in this report
THIS IS A PRIORITY PROJECT
The sections between Thorold Stone Road and Stanley Avenue should be prioritized for implementation; development south-west of Thorold Stone Road would only be practical in the event of a direct crossing of the QEW

ROUTE 10A. NS&T TRAIL-WEST

Description:

- Proposed paved pathway in abandoned rail corridor in the west-central part of the City, running east from Garner Road south of Thorold Stone Road, to Montrose Road across from Gallinger Street, and potentially to Kent Avenue/QEW; an existing un-paved trail exists along this alignment

Connections:

- Off-road: potential, long-term development may extend this facility further west as a touring linkage to the Welland Canal Trail, however the actively agricultural nature of utility corridor lands in that direction may restrict the potential for development; NS&T Trail Central continues this alignment, across the QEW, but has no present way to connect directly (this connection point intersects with the QEW disconnection of the Hydro One Transmission Corridor 9-East and West alignments and is the subject of a proposed Marquee Project later in this report
- On-road: to Garner Road to the west, Kalar Road, centrally, and Montrose Road in the east, which connects in turn north and east to potentially cross the QEW at Thorold Stone Road

Opportunities & Challenges:

- Connections to facilities on arterial roads, and crossings of arterial roads (Kalar) will be the most significant internal challenge for this facility
- Externally, connecting eastward across the QEW to NS&T Trail Central, Hydro One Transmission Corridor 9-East, and to on-road routes will be very challenging; in the absence of a bridge or tunnel connection, the best available option for users may be north along the proposed Montrose Road facilities and connecting to on-road facilities on Thorold Stone Road to connect East
- The potential connection of two crossing, diagonal trails that is blocked by the QEW presents an opportunity for a Marquee Project crossing that is described later in this report
- **This route corresponds to route #155 on the RNMBP**

THIS IS A PRIORITY PROJECT

The sections between Kalar Avenue and Montrose Road should be prioritized for implementation. A section east of Montrose, parallel to Gallinger Avenue to Kent Avenue/QEW would only be practical in the event of a direct crossing of the QEW. As development proceeds adjacent to the western parts of this facility, those will become a priority.

ROUTE 10B. QEW CROSSING SOUTH OF THOROLD STONE ROAD

This is a Marquee Project. Refer to Section 3.3.4 of main document.

ROUTE 10C. NS&T TRAIL-CENTRE
Description: • Proposed paved pathway in abandoned rail corridor in the central part of the City, running east from the QEW, south of Thorold Stone Road, to Stanley Avenue
Connections: • Off-road: to NS&T Trail-East Hydro One Transmission Corridor 9 (both as discussed above), to the Millennium Trail, and continuing east to downtown via NS&T Trail East • On-road: to Dorchester Road in the west, Drummond and Portage Roads centrally, and Stanley Avenue, in the east
Opportunities & Challenges: • This is a central trail segment for the city, with numerous connections available; successful development of those connections will make this one of the City's best-used active transportation facilities • Connections comprise both the greatest opportunities and the most significant challenges for this route; notably at the east where links to other trails and to downtown areas will be numerous • The challenges and opportunities related to westward extension and connection are discussed in the previous section (route 10a) • The potential connection of two crossing, diagonal trails that is blocked by the QEW presents an opportunity for a Marquee Project crossing that is described later in this report • The crossing of and connection to the existing Millennium Trail section 4 using an existing but disused rail bridge will be a challenge and is also a unique opportunity for a trail feature area that brings out some of the unique characteristics of Niagara Falls' heritage
THIS IS A PRIORITY PROJECT
The sections between Dorchester Road and Stanley Avenue should be prioritized for implementation; development west of Dorchester would only be practical in the event of a direct crossing of the QEW

ROUTE 10D. NS&T TRAIL-EAST
Description: • Proposed paved pathway in abandoned rail corridor in the east-central part of the City, running generally east from Stanley Avenue and continuing downtown along the abandoned rail corridor with short on-road sections as may be required; an existing un-paved trail exists along this alignment
Connections: • Off-road: to NS&T Trail-Central, Hydro One Transmission Corridor 12, and the Olympic Torch Legacy Trail via Erie Avenue (see below) • On-road: to Stanley Avenue in the west, Victoria Avenue and Bridge Street centrally, and downtown streets generally, in the east
Opportunities & Challenges: • This is a central trail segment for the city, with numerous connections available; successful development of those connections will make this one of the City's best-used active transportation facilities • Connections comprise both the greatest opportunities and the most significant challenges for this route; notably in the downtown areas where many local roads intersect or end near or adjacent to the route • The connection to the Olympic Torch Run Legacy Trail near the parkette currently under development at Queen and Erie Streets, downtown is a great opportunity to implement a central loop system comprising a number of other central priority routes
THIS IS A PRIORITY PROJECT
This route should be prioritized for implementation.

ROUTE 10E. ERIE AVENUE CONNECTION (ON-ROAD)
Description: • Proposed on-road facility comprising a connecting facility between two off-road routes via a two-lane local, downtown road with on-street parking in some locations
Connections: • Off-road: to NS&T Trail-Central, and the Olympic Torch Legacy Trail • On-road: local roads, and nearby network facilities via local roads
Opportunities & Challenges: • This is a necessary connecting segment for two vital off-road facilities in downtown Niagara Falls • Connections to the NS&T Trail and Olympic Torch Run Legacy Trail will be challenging, as will implementing an on-road facility in the downtown area
THIS IS A PRIORITY PROJECT
This route should be prioritized for implementation. A feasibility study should be commenced to investigate various options and alternatives to this connection, including facility transitions, and possibly inclusive of other local, downtown routes that may connect.

ROUTE 11A. OLYMPIC TORCH LEGACY TRAIL
Description: • Existing 1.3km paved pathway in an abandoned railway corridor running south from south of Queen Street (west of City Hall) to near Robert Street/Newman Hill • Well-provided with amenities including benches, trees and signage, and a plaza at the north end with public art components • Crossing of Morrison Street includes warning signs and painted pavement markings
Connections: • Off-road: in the future, direct connections should be implemented to NS&T trail to the north and west via Erie Avenue, and to the Victoria Avenue Promenade or related facilities to the south via a proposed bridge identified below as a separate project • On-road: connections to proposed Morrison Street facility, centrally should be implemented in conjunction with the implementation of that facility, and a connection to River Road via Seneca Street is proposed separately below; additional local connections and access points could be implemented
Opportunities & Challenges: • This is a central trail segment with numerous connections available; successful development of those connections will make this one of the City's best-used active transportation facilities • Connections and extensions (identified here as separate projects) form both the greatest opportunities and the most significant challenges for this route
NOT A PRIORITY PROJECT
Except where portions of this facility require adjustment to connect to proposed adjacent facilities, no upgrades are presently required. As adjacent facilities are completed and use increases, the City should consider the following possible improvements: • Additional local connections • Possible widening of the trail including possible "promenade" treatments

ROUTE 11B. ROBERT STREET CROSSING | BRIDGE | "GATEWAY"
Description: • Proposed Bridge Crossing of sunken Robert Street/Newman Hill roadway requiring an approximately 30 to 40 metre span
Connections: • Connects the Olympic Torch Run Memorial Trail and the Victoria Avenue Promenade
Opportunities & Challenges: • This is a necessary connecting segment for two vital off-road facilities that would connect downtown Niagara Falls to the busy tourist areas around Clifton Hill • This potential bridge facility is an opportunity for a very highly-used, Marquee Project that would be seen by visitors from the U.S. as they drove into the city, just after crossing the Rainbow Bridge • Property ownership may be required on the south-east side of the crossing
THIS IS A PRIORITY PROJECT
This project should be prioritized as a Marquee Project for Niagara Falls.

ROUTE 11C. VICTORIA AVENUE PROMENADE
Description: • Proposed off-road, active transportation facility running parallel and on the east side of Robert Street/Newman Hill in the north and Clifton Hill Road in the south • The proposed route includes a recently paved and landscaped "promenade" between Pender Street and Clifton Hill Road
Connections: • Off-road: Connects the Olympic Torch Run Memorial Trail (via the proposed Gateway Bridge) to the "Grand Boulevard Trail" • On-road: Victoria Street to the north and south (Ferry Street/Lundy's Lane) and numerous local connections within tourist area
Opportunities & Challenges: • The recently installed promenade will require careful reconsideration to ensure a safe active transportation facility can be implemented • In conjunction with the proposed gateway project to the north, property ownership may be a challenge • High pedestrian and vehicular traffic in the area
THIS IS A PRIORITY PROJECT
This project should be prioritized as a Marquee Project for Niagara Falls. Study of options and feasibility should commence immediately, including consideration of combined or separated off-road facilities, or a facility 'split' at each end that would direct cyclists from adjacent facilities onto a potential on-road facility for the length of the promenade

ROUTE 11D. "GRAND BOULEVARD" TRAIL
Description: • Proposed off-road, active transportation facility running southwest from west of the Clifton Hill Road and Victoria Avenue intersection, to the north side of Murray Street, across from the Fallsview Casino • The proposed route is on City-owned property, initially parallel, then veering away from Victoria Avenue as it moves south • The southern terminus of this route is the location of an existing pedestrian bridge
Connections: • Off-road: Connects the Victoria Avenue Promenade at the north end, and at the south end to the casino promenade on private property and to nearby active transportation routes using on-street connections • On-road: Victoria Street at the north, with connections on to Ferry Street and Lundy's Lane; Murray Street at the south, with connections on to Stanley Avenue and Portage Road/Main Street, and numerous local connections within tourist area
Opportunities & Challenges: • The generally unoccupied corridor is an excellent opportunity for a high-quality, attraction-type active transportation facility through the tourist areas and connecting north to downtown and west to the residential areas of the city • Resolving the connection and transition from proposed Victoria Avenue facilities will be challenging • Connecting to Murray Street to the south will be a challenge • High pedestrian and vehicular traffic in the area
THIS IS A PRIORITY PROJECT
This project should be prioritized as a Marquee Project for Niagara Falls. Study of options and feasibility should commence immediately, including consideration of a promenade-type facility.

ROUTE 11E. SENECA STREET CONNECTION TO RIVER ROAD (PARTLY ON-ROAD)
Description: • Proposed connecting facility comprising on- and off- road sections to link the Olympic Torch Run Legacy Trail to River Road/Niagara Parkway • Off-road section is on an unoccupied property fronting on Ontario Avenue and backing onto the Olympic Torch Run Legacy Trail, property ownership has not been confirmed • Seneca Street to be used is a two-lane, local road with no on-street parking
Connections: • Connects the Olympic Torch Run Legacy Trail to River Road/Niagara Parkway
Opportunities & Challenges: • This is an excellent opportunity to formalize a connection between River Road/Niagara Parkway and downtown Niagara Falls • Confirming property ownership is a necessary step, and if it is not with the City, acquiring the unoccupied property will be a challenge • Formalizing a safe crossing of Ontario Avenue and River Road/Niagara Parkway are two challenging requirements for this proposed connecting route • Existing bicycle lanes exist on the connecting section of River Road/Niagara Parkway
THIS IS A PRIORITY PROJECT
This short connection will greatly enhance the choices and options for active transportation users, recreationists and tourists.

ROUTE 12. HYDRO ONE TRANSMISSION CORRIDOR 12

Description:

- Proposed paved pathway in utility corridor at running north-south through the entire eastern part of the City from Whirlpool Road in the north to Marineland Parkway in the south with possible future connections further south to Dorchester Road and Chippawa Parkway

Connections:

- Off-road: (from north to south) to Hydro One Transmission Corridors 8 & 9-East via Whirlpool Road and/or Stanley Avenue; to NS&T Trail via direct connection; to Hydro One Transmission Corridor 15-East; and to the Mitchell Line Trail, also via direct connections
- On-road: (from north to south) to Whirlpool Road and Stanley Avenue, Thorold Stone Road (along planned eastward extension), Morrison Street, Ferry Street/Lundy's Lane, Portage Road/Main Street, Barker Street, Dunn Street, and McLeod Avenue/Marineland Parkway

Opportunities & Challenges:

- This is a central trail segment for the north end of the city, with numerous connections available; successful development of those connections will make this one of the City's best-used active transportation facilities
- Connections, especially to on-road facilities comprise both the greatest opportunities and the most significant challenges for this route
- The opportunity to make direct connections to other off-road routes near the northern extent of the alignment is challenged by the intersections of arterial roads and active railways in that area
- There is an opportunity to make a direct connection to the newly-constructed Gale Centre, with nearby connections along the NS&T Trail alignment
- Crossing the 420 will be a significant challenge, which may be overcome by directing users to the Stanley Avenue crossing, or by implementation of a dedicated crossing, noted as a possible Marquee Project later in this report
- Coordinating active transportation uses with parking, public transit and other uses in the hydro corridor will be challenging, but presents an excellent opportunity to maximize access to active transportation for many potential users who may wish or need to split their trips across two or more modes
- Resolving an alignment between Robinson and Dunn Streets—including a connection west to Hydro One Transmission Corridor 15-East will be challenging, but appears possible
- **This route corresponds to route #181 on the RNMBP**

THIS IS A PRIORITY PROJECT

The sections between the Gale Center and McLeod Road/Marineland Parkway should be prioritized for implementation. Connections further north and south may be prioritized as adjacent active transportation facilities are completed (north) or as development proceeds (south). Consideration should be given to possible extra-width pathway development including possible "promenade" treatments

ROUTE 12A. HIGHWAY 420 CROSSING AT HYDRO ONE TRANSMISSION CORRIDOR 12
This is a Marquee Project. Refer to Section 3.3.4 of main document.

ROUTE 13. MITCHELL LINE TRAIL
Description: • Proposed paved pathway in abandoned rail corridor in the south-central part of the City, running east from hydro canal, south of Lundy's Lane near the Stanley Avenue and McLeod Road/Marineland Parkway intersection
Connections: • Off-road: to NS&T Trail-East Hydro One Transmission Corridors 12 and 15-East, and to the existing section of the Gary Hendershot Memorial Trail in the hydro canal lands at the west end of this route, at and north of the intersection of Clare Crescent and Cuviello Court • On-road: to Dorchester Road and barker Street (via Clare Crescent and Brookfield Avenue) in the west, Drummond Road and Dunn Street centrally, and Stanley Avenue, in the east (where on-road facilities already exist), as well as many local roads
Opportunities & Challenges: • This is a central trail segment for the city, with numerous connections available; successful development of those connections will make this one of the City's best-used active transportation facilities • Connections and crossings of local and arterial roads comprise both the greatest opportunities and the most significant challenges for this route; notably at the east where links to other trails and to downtown areas will be numerous • As portions of this route pass in a narrow corridor behind a residential area, the City may expect significant opposition to development of the facility from homeowners, and mitigating these concerns will be a key factor in realizing a successful facility • **This route corresponds to route #176 on the RNMBP**
THIS IS A PRIORITY PROJECT

ROUTE 14A. GARY HENDERSHOT MEMORIAL TRAIL
Description: • Existing 0.5km paved pathway along the east side of Ontario Power Generation canal, extending from Lundy's Lane south to a point behind Cuviello Court north of Clare Crescent • Access points from Lundy's Lane • Narrow, fenced access from Lundy's Lane
Connections: • Off-road: in the future, direct connections should be implemented to the Mitchell Line Trail to the east, as well as the proposed southward extension (see below) • On-road: connection to Lundy's Lane needs improvement for direct connections to future facilities along that corridors; improvements should be made in conjunction with construction of the on-road facilities; connection westward to Barker Street via local roads will be an important facility option in the absence of or as a complimentary facility to proposed facilities on Lundy's Lane
Opportunities & Challenges: • This is a central trail segment for the city, with numerous connections available; successful development of those connections will make this one of the City's best-used active transportation facilities • Connections, especially to on-road facilities form both the greatest opportunities and the most significant challenges for this route, especially at Lundy's Lane and westward to Barker Street
NOT A PRIORITY PROJECT
Presently, and as adjacent facilities are completed and use increases, the City should consider the following possible improvements: • Enhanced signage (branding & way-finding) • Improved amenities (shade, bicycle parking, seating, etc.) • Possible widening of the trail including possible "promenade" treatments

ROUTE 14B. GARY HENDERSHOT MEMORIAL TRAIL EXTENSION
Description: • Proposed pathway along the east side of Ontario Power Generation canal, extending from the south end of the existing Gary Hendershot Memorial Trail, at a point behind Cuviello Court north of Clare Crescent, south to McLeod Road
Connections: • Off-road: in the future, direct connections should be implemented to the Mitchell Line Trail to the east, as well as the existing northern section of this route (see above), additionally, a direct connection to Hydro One Transmission Corridor 15, including a possible Marquee Project to connect west at that location • On-road: connections to westward to Barker Street via local roads, and to Dunn Street, separately will be important facility options in the absence of or as complimentary facilities to proposed facilities on Lundy's Lane and McLeod Road
Opportunities & Challenges: • This is a central trail segment for the city, with numerous connections available; successful development of those connections will make this one of the City's best-used active transportation facilities • Connections, especially to on-road facilities form both the greatest opportunities and the most significant challenges for this route, especially at McLeod Road, and Barker and Dunn Streets • As portions of this route pass in a narrow corridor behind a residential area, the City may expect significant opposition to development of the facility from homeowners, and mitigating these concerns will be a key factor in realizing a successful facility
THIS IS A PRIORITY PROJECT

ROUTE 15A. HYDRO ONE TRANSMISSION CORRIDOR 15-WEST
Description: • Proposed paved pathway in utility corridor in the south-west part of the City, running east from Garner Road (approximately half-way between Lundy's Land and McLeod Road) to Montrose Road, and potentially to the QEW
Connections: • Off-road: potential, long-term development may extend this facility further west as a touring linkage to the Welland Canal Trail, however the actively agricultural nature of utility corridor lands in that direction may restrict the potential for development; Hydro One Transmission Corridor 15-East continues this alignment, across the QEW, but has no present way to connect directly (this connection point coincides with the intersection of 15-East and the extension of the Gary Hendershot Memorial Trail and is the subject of a proposed Marquee Project later in this report, which would also permit connection to the Millennium Trail) • On-road: to Garner Road to the west, Kalar Road, centrally, and Montrose Road in the east
Opportunities & Challenges: • Connections to existing and proposed facilities on arterial roads, and crossings of arterial roads (Kalar) will be the most significant internal challenge for this facility • Externally, connecting eastward across the QEW to Hydro One Transmission Corridor 15-East, Gary Hendershot Memorial Trail, and to on-road routes will be very challenging; in the absence of a bridge or tunnel connection, the best available option for users may be north along the proposed Montrose Road facilities and connecting to on-road facilities on Lundy's Lane to connect East • The potential connection of two crossing trails on the opposite side of the QEW and hydro canal, as well as the Millennium Trail between these presents an opportunity for a Marquee Project crossing that is described later in this report
THIS IS A PRIORITY PROJECT
The sections between Garner Avenue and Montrose Road should be prioritized for implementation. A section east of Montrose would only be practical in the event of a direct crossing of the QEW.

ROUTE 15B. HYDRO ONE TRANSMISSION CORRIDOR 15-WEST
This is a Marquee Project. Refer to Section 3.3.4 of main document.

ROUTE 15C. HYDRO ONE TRANSMISSION CORRIDOR 15-EAST
Description: • Proposed paved pathway in utility corridor in the south-central part of the City, running east from the Ontario Power Generation canal to Hydro One Transmission Corridor 12 near Allendale Avenue
Connections: • Off-road: to proposed southward extension of the Gary Hendershot Memorial Trail in the east, the Mitchell Line Trail, centrally, and to Hydro One Transmission Corridor 12 via on-road connections; Hydro One Transmission Corridor 15-West continues this alignment, across the canal and QEW, but has no present way to connect directly (this connection point coincides with the intersection with the Gary Hendershot Memorial Trail and is the subject of a proposed Marquee Project later in this report, which would also permit connection to the Millennium Trail) • On-road: to Dorchester Road, Drummond Road centrally, and Main Street/Portage Road in the east via Hydro One Transmission Corridor 12
Opportunities & Challenges: • This is a central trail segment for the city, with numerous connections available; successful development of those connections will make this one of the City's best-used active transportation facilities • Connections comprise both the greatest opportunities and the most significant challenges for this route; notably at the east where coordinating a successful connection to Hydro One Transmission Corridor 12 will be a key factor for success • The potential connection to the western part of this route, at the location of the intersection with the proposed extension of the Gary Hendershot Memorial Trail and incorporating a connection to the Millennium trail, presents an opportunity for a Marquee Project crossing that is described later in this report
THIS IS A PRIORITY PROJECT
The sections between Dorchester Road and Hydro One Transmission Corridor 12 should be prioritized for implementation; development west of Dorchester Road would only be practical in coordination with the proposed southward extension of the Gary Hendershot Memorial Trail

ON-ROAD STRATEGIC NETWORK ROUTES

ROUTE A. MOUNTAIN ROAD (REGIONAL ROAD 101)

Description:

- ROADWAY: paved, two-lane, east-west arterial roadway at north end of the city; segment between Dorchester Road to east of St. Paul was recently reconstructed
- EXISTING FACILITIES: segment from West of Dorchester Road to near St. Paul Avenue identified by City as existing, wide edge-line markings that may serve cyclists, however field observations noted painted bicycle lane symbols, but no associated signage
- A central section of the roadway is used as a portion of the Bruce Trail, but has not been specifically developed for that use

Connections:

- Off-road: to north-west end of Haulage Road Trail near intersection with Dorchester Road, and to proposed Hydro One Transmission Corridor 8-East near St. Paul Avenue
- A portion of The Bruce Trail is routed, but not well-developed along a central section of Mountain Road; and a further connection to the Upper Canada Heritage Trail may be explored but has not been studied as part of this report
- On-road: to Garner Road, Kalar Road, Montrose Road (via section of Kalar Road and proposed off-road segment connecting directly between Mountain Road and section of Montrose Road at east end of short east-west section at northern extent), Dorchester Road, St. Paul Avenue, and continuing along Church's Lane via St. Paul Avenue

Opportunities & Challenges:

- This route comprises the most northern east-west grid of the urban network and may be extended westward beyond the urban area to connect rural areas and neighbouring municipalities
- Implementing this route across QEW interchanges and bridge is a significant challenge
- Implementing a consistent facility through intersections, and connecting southward to the north-south grid streets is a key issue for this route
- Implementing safe and effective connections to off-road routes will also be challenging
- Cooperation with Regional Niagara Transportation Department, and possibly MTO to achieve the City's transportation goals will be necessary
- **This route corresponds to parts of routes #157 & 158 on the RNMBP**

THIS IS A PRIORITY PROJECT

Segments of this route between Mewburn Road in the west and St. Paul Avenue in the west should be prioritized for implementation or completion. The status of any existing or planned facilities should be confirmed immediately

Segments west of Mewburn should be implemented as connections southward are developed and/or as development proceeds in the northwest part of the city

Consideration of various facility options across the QEW should include shared lanes and other alternative approaches

In addition to completing the indicated sections, the City should consider the following possible improvements:

- Enhanced pavement markings & signage (branding & way-finding)
- Improved amenities (shade, bicycle parking, seating, etc.)

ROUTE Aa. CHURCH'S LANE
Description: • ROADWAY: paved, two-lane, east-west local roadway at north end of the city; generally residential in character; no barrier curbs at edges, sidewalk on south side only • EXISTING FACILITIES: except for short segment just east of St. Paul Avenue, this street is identified by the City as existing, with wide edge-line markings that may serve cyclists • A central section of the roadway is used as a portion of the Bruce Trail, but has not been specifically developed for that use
Connections: • Off-road: to proposed Hydro One Transmission Corridor 9-East via short section of Stanley Avenue • On-road: to St. Paul Avenue in the west, and Stanley Avenue & Whirlpool Rd in the east
Opportunities & Challenges: • This route comprises the eastern extension of the most northern east-west grid of the urban network • Connecting this route to the proposed facility on Mountain Road via appropriate way-finding facilities and safe, visible connections on St. Paul Avenue is a challenge that must be met to ensure this facility is useful for transportation purposes • Implementing safe and effective connections to other on-road routes and segments will also be challenging • Implementing a safe crossing of the active railway near Whirlpool Road will also be a key factor for success • **This route corresponds approximately to part of route #180 on the RNMBP**
THIS IS A PRIORITY PROJECT
This route should be prioritized for implementation or completion. The status of any existing or planned facilities should be confirmed immediately

ROUTE B. THOROLD STONE ROAD (REGIONAL ROAD 57) | BRIDGE STREET

Description:

- ROADWAY: paved, four-lane, east-west arterial roadway central to the north part of the city; eastward extension to the Gale Centre Arena planned for 2011 construction, to be followed later by further extension curving down to a proposed roundabout at or near the intersection of Victoria Avenue and Bridge Street
- EXISTING FACILITIES: unconfirmed facility present from east of Kalar Road to west of Montrose Road, and a one-block section west of Dorchester Road; these facilities appeared to be recently-installed and included lane separation lines but no painted symbols or signage—they may be in-progress

Connections:

- Off-road: to proposed Hydro One Transmission corridors 9-East near Dorchester Road, to Millennium Trail Phase 4 and proposed Millennium Trail Phase 3 at Stanley, where it jogs along a section of Thorold Stone Road (these facilities may connect as interim or permanent condition via on-road crossing of Thorold Stone Road); and to proposed Hydro One Transmission Corridor 12 near the Gale Centre, west of Stanley Avenue
- On-road: to Garner Road, Kalar Road, Montrose Road, Dorchester Road, St. Paul Avenue, Portage Road, and Stanley Avenue; and upon completion of proposed extension of Thorold Stone Road, to Victoria Avenue and continuing east via Bridge Street to River Road/Niagara Parkway

Opportunities & Challenges:

- This route comprises a central east-west grid line for the north part of the urban network and may be extended westward beyond the urban area to connect rural areas and neighbouring municipalities
- Implementing this route across the QEW interchanges and bridge is a significant challenge
- Implementing a consistent facility through intersections, and connecting to the north-south grid streets is a key issue for this route
- Implementing safe and effective connections to off-road routes and segments will also be challenging, especially in the vicinity of the Stanley Avenue "*Jog*".
- The opportunity may exist to include active transportation facilities as part of the proposed westward extensions of Thorold Stone Road
- Cooperation with Regional Niagara Transportation Department, and possibly MTO to achieve the City's transportation goals will be necessary
- This route crosses an active rail line
- **This route corresponds in part to route #172 on the RNMBP**

THIS IS A PRIORITY PROJECT

This route should be prioritized for implementation or completion. The status of any existing or planned facilities should be confirmed immediately

Consideration of various facility options across the QEW should include shared lanes and other alternative approaches

Coordination with development of facilities on Stanley Avenue (route M) is recommended to ensure that the facility is able to cross the hydro canal using Thorold Stone Road

In addition to completing the indicated sections, the City should consider the following possible improvements:

- Enhanced pavement markings & signage (branding & way-finding)
- Improved amenities (shade, bicycle parking, seating, etc.)

ROUTE C. MORRISON STREET | ZIMMERMAN AVENUE

Description:

- ROADWAY: paved, two-lane, east-west roadway north of the central part of the city, approximately half-way between Thorold Stone Road and Highway 420, extending from east of the QEW to River Road/Niagara Parkway, passing south of downtown Niagara Falls; generally residential in character; no barrier curbs at edges; Zimmerman Avenue is a north-south local road near River Road/Niagara Parkway, east of downtown, residential in character
- EXISTING FACILITIES: segment from east of Portage Road to near Victoria Avenue identified by City as existing, wide edge-line markings that may serve cyclists

Connections:

- Off-road: to Millennium Trail Phase 4 and proposed Millennium Trail Phase 5 at Stanley, near intersections with Drummond and Portland Roads (these facilities may connect as interim or permanent condition via on-road crossings/connections using sections of these three streets); to proposed Hydro One Transmission Corridor 12 west of Stanley Avenue; and to the existing Olympic Torch Run Legacy Trail
- On-road: Dorchester Road, Drummond Road, Portage Road, Stanley Avenue, and Victoria Avenue; at the east end, Morrison terminates at Zimmerman Road, which connects south to River Road/Niagara Parkway and north to Bridge Street
- West of the QEW, Woodbine Street (see Route "Ca" below) continues the Morrison Street Alignment to the west but does not connect across the highway

Opportunities & Challenges:

- This is route comprises a central east-west grid line for the centre of the urban network
- Implementing a consistent facility through intersections, and connecting to the north-south grid streets is a key issue for this route
- Implementing safe and effective connections to off-road routes and segments will also be challenging, especially in the vicinity of the "Jog" between Drummond and Portage Roads
- This route crosses an active rail line
- **This route corresponds in part to route #178 on the RNMBP**

THIS IS A PRIORITY PROJECT

This route should be prioritized for implementation or completion from Dorchester to eastern extent, including facility implementation on Zimmerman Avenue from Bridge Street to River Road/Niagara Parkway. The status of any existing or planned facilities should be confirmed immediately

Coordination with development of facilities on Portage Road | Main Street (route L) is recommended to ensure that facility is able to cross the hydro canal using Morrison Street

In addition to completing the indicated sections, the City should consider the following possible improvements:

- Enhanced pavement markings & signage (branding & way-finding)
- Improved amenities (shade, bicycle parking, seating, etc.)

If proposals to connect Morrison Street to Woodbine Street, across the QEW, should ever proceed, inclusion of active transportation facilities and connection of the active transportation facilities proposed on these streets should be incorporated

ROUTE Ca. WOODBINE STREET
Description: • ROADWAY: paved, two-lane, east-west roadway north of the central part of the city, south of Thorold Stone Road, extending from Kalar Road to west of the QEW; generally residential in character except east of Montrose Road where employment areas exist; barrier curbs are present on both edges, and sidewalk on the south side only; frequent speed bumps exist between Kalar and Montrose Roads • EXISTING FACILITIES: segment between Kalar and Montrose Roads identified by City as existing, wide edge-line markings that may serve cyclists
Connections: • Off-road: to proposed Hydro One Transmission Corridor 9 West at west end via short section on Kalar Road or short off-road extension straight west from Kalar Road • On-road: Kalar road at west end and Montrose Road at East • East of the QEW, Morrison Street (see Route "C" above) continues the Woodbine Street Alignment to the east but does not connect across the highway
Opportunities & Challenges: • This route comprises a central east-west grid line for the western part of the urban network • Implementing a consistent facility through constrained intersections and areas of limited roadway width, and connecting to the north-south grid streets are key issues for this route • Implementing a route not obstructed by speed humps is an added challenge
THIS IS A PRIORITY PROJECT
This route should be prioritized for implementation or completion from Kalar Road to Montrose Road. The status of any existing or planned facilities should be confirmed immediately In addition to completing the indicated sections, the City should consider the following possible improvements: • Enhanced pavement markings & signage (branding & way-finding) • Improved amenities (shade, bicycle parking, seating, etc.) If proposals to connect Woodbine Street to Morrison Street, across the QEW, should ever proceed, inclusion of active transportation facilities and connection of the active transportation facilities proposed on these streets should be incorporated

ROUTE D. LUNDY'S LANE (REGIONAL ROAD 20) | FERRY STREET

Description:

- ROADWAY: paved, four-lane, east-west arterial roadway in the centre of the city; barrier curbs, gutters and sidewalks on both sides, with varying boulevard widths; exclusive left-turn lanes at most controlled intersections; character of roadway is primarily commercial with significant driveway and utility constraints as well as bridges over QEW and hydro canal; Lundy's Lane becomes Ferry Street east of Main Street and takes on a more urban character with on-street parking (sections currently being re-constructed) and at the eastern extent, Ferry Street transitions directly into Victoria Avenue through a diagonal turn, 45-degrees to the north ; west of Garner, the roadway is rural two-lane road with unpaved shoulders
- EXISTING FACILITIES: there are no cycling facilities within the right-of-way on any part of this route

Connections:

- Off-road: to existing Millennium Trail Phase 1 and Gary Hendershot Memorial Trail and proposed Millennium Trail Phase 6 between QEW and Dorchester; to proposed Hydro One Transmission Corridor 12, west of Stanley Avenue, and to the proposed "Grand Boulevard" Trail near the eastern end of Ferry Street where it transitions into Victoria Avenue
- On-road: to Garner Road, Kalar Road, Montrose Road, Dorchester Road, Drummond Road, Portage Road/Main Street, Stanley Avenue, and transitioning directly to Victoria Avenue to continue northbound

Opportunities & Challenges:

- This route comprises a central east-west grid line for the urban network and may be extended westward beyond the urban area to connect rural areas and neighbouring municipalities
- Implementing this route across the QEW interchanges and bridge, and the hydro canal bridge are very significant challenge
- Implementing a consistent facility through various cross-sections with a range of significant constraints (driveways, parking, utilities) and across many busy arterial and local intersections is a key issue for this route
- Implementing safe and effective connections to off-road routes and segments will also be challenging
- Cooperation with Regional Niagara Transportation Department, and possibly MTO to achieve the City's transportation goals will be necessary

THIS IS A PRIORITY PROJECT

This route should be prioritized for implementation however because of the complexity of the route it will require detailed study of a range of options and alternatives for the entire route between Garner Road and Victoria Avenue

Consideration of various facility options across the QEW should include shared lanes and other alternative approaches

Barker Street *is proposed below as an alternative route to Lundy's Lane east of the QEW, however it cannot provide the same cross-city connections and is not preferred except as an interim solution or complementary alternative*

ROUTE Da. BARKER STREET | PEER STREET | PEER LANE

Description:

- ROADWAY: paved, two-lane, east-west roadway south of Lundy's Lane, extending from west of Dorchester Road to Stanley Avenue; generally residential in character; barrier curbs at edges only in limited areas, and sidewalks on both sides throughout; Peer Street extends the route eastward via a jog across main street, terminating at Allendale Avenue; Peer Lane extends the route eastward to Stanley Avenue via a narrow laneway
- EXISTING FACILITIES: there are no cycling facilities within the right-of-way on any part of this route

Connections:

- Off-road: to existing Gary Hendershot Memorial Trail and the Mitchell Line Trail via connections on local roads beyond the eastern extent of Barker Street (Brookfield Avenue & Clare Crescent); and to proposed Hydro One Transmission Corridor 12 west of Stanley Avenue
- On-road: Dorchester Road, Drummond Road, Portage Road/Main Street, and Stanley Avenue

Opportunities & Challenges:

- This route comprises a central east-west grid line for the eastern part of the urban network
- Implementing a consistent facility through intersections, and connecting to the north-south grid streets is a key issue for this route; especially connections facilitating use of this route as an alternative to Lundy's Lane
- Implementing safe and effective connections to off-road routes at the west end of this route is a challenge for this alignment
- A possible Marquee Project connecting across the hydro canal and QEW in the vicinity of the connection with the Gary Hendershot Memorial Trail and the Mitchell Line Trail could connect Barker Street eastward to the existing Millennium Trail Phase 1 and further to Montrose Avenue; a possible alternative Marquee Project further south (in alignment with Hydro One Transmission Corridor 15, could achieve the same end, but less directly for users of the Barker Street Route, who may then prefer to cross these obstacles using Lundy's Lane

THIS IS A PRIORITY PROJECT

This route should be prioritized for implementation in its entirety.

At the east end an alternative to Peer Lane may be to connect to Robinson Street via Allendale Avenue or Hydro One Transmission Corridor 12 and continue eastward through a controlled intersection at Stanley Avenue to its eastern extent near the Niagara Tower, with a connection nearby to the proposed "Grand Boulevard" Trail

Barker Street *is proposed below as an alternative route to Lundy's Lane east of the QEW, however it cannot provide the same cross-city connections and is not preferred except as an interim solution or complementary alternative*

ROUTE E. MCLEOD ROAD | MARINELAND PARKWAY (REGIONAL ROAD 49)

Description:

- ROADWAY: McLeod Road is a paved, four-lane, east-west arterial roadway in the south end of the city; barrier curbs, gutters and sidewalks occur in on both sides of the roadway in most areas, with varying boulevard widths, including raised boulevards in the vicinity of the QEW interchanges; exclusive left-turn lanes at occur only at intersections with Kalar, Dorchester and Drummond Roads; character of roadway developing residential west of Montrose, and primarily commercial to the east, with significant driveway and utility constraints as well as bridges over QEW and hydro canal; McLeod Road, at its east end, becomes Marineland Parkway and follows a curved alignment before merging with Portage Road, which continues south ; west of Kalar Road, the roadway is a rural two-lane road with unpaved shoulders
- EXISTING FACILITIES: there are no cycling facilities within the right-of-way on any part of this route

Connections:

- Off-road: to existing Millennium Trail Phase 1 and proposed Gary Hendershot Memorial Trail between QEW and Dorchester; to proposed Hydro One Transmission Corridor 12, west of Stanley Avenue, and to the proposed Mitchell Line Trail at Stanley Avenue
- On-road: to Garner Road, Kalar Road, Montrose Road, Dorchester Road, Drummond Road, Stanley Avenue, Portage Road to the north, and transitioning directly to Portage Road further east to continue southbound

Opportunities & Challenges:

- This route comprises a key east-west grid line for the urban network and may be extended westward beyond the present urban area in coordination with planned developments and to connect rural areas and neighbouring municipalities
- Implementing this route across the QEW interchanges and bridge, and the hydro canal bridge are very significant challenges
- Implementing a consistent facility through various cross-sections with a range of significant constraints (driveways, parking, utilities) and across many busy arterial and local intersections is a key issue for this route
- Implementing safe and effective connections to off-road routes and segments will also be challenging
- Cooperation with Regional Niagara Transportation Department, and possibly MTO to achieve the City's transportation goals will be necessary

THIS IS A PRIORITY PROJECT

This route should be prioritized for implementation however because of the complexity of the route it will require detailed study of a range of options and alternatives for the entire route between Garner Road and Victoria Avenue

Consideration of various facility options across the QEW should include shared lanes and other alternative approaches

Dunn Street *is proposed below as an alternative route to McLeod Road east of the QEW, however it cannot provide the same cross-city connections and is not preferred except as an interim solution or complementary alternative*

ROUTE Ea. DUNN STREET
Description: • ROADWAY: paved, two-lane, east-west roadway north of McLeod Road, extending from west of Dorchester Road to Fallsview Boulevard; generally residential in character; barrier curbs at edges only in limited areas, and sidewalks on both sides throughout • EXISTING FACILITIES: segment between Dorchester Road and Stanley Avenue identified by City as existing, wide edge-line markings that may serve cyclists
Connections: • Off-road: to proposed Gary Hendershot Memorial Trail Extension via connections on Dorchester Road to proposed facility in Hydro One Transmission Corridor 15 East, which runs parallel to the western part of Dunn Street; to proposed Mitchell Line Trail, crossing diagonally west of Drummond Road; and to proposed facility in Hydro One Transmission Corridor 12 west of Stanley Avenue (additional connections via Hydro One Transmission Corridor 15 East are described under that route) • On-road: Dorchester Road, Drummond Road, and Stanley Avenue
Opportunities & Challenges: • This route comprises a central east-west grid line for the eastern part of the urban network • Implementing a consistent facility through intersections, and connecting to the north-south grid streets is a key issue for this route; especially connections facilitating use of this route as an alternative to Lundy's Lane • Implementing safe and effective connections to off-road routes at the west end of this route is a challenge for this alignment
THIS IS A PRIORITY PROJECT
This route should be prioritized for implementation in its entirety. **Dunn Street** *is proposed below as an alternative route to McLeod Road east of the QEW, however it cannot provide the same cross-city connections and is not preferred except as an interim solution or complementary alternative*

ROUTE F. OLDFIELD ROAD CROSSING

Description:

- NOTE: this route is based upon proposals for a new roadway crossing of the QEW and hydro canal approximately aligned with the existing Oldfield Road roadway running east-west south of McLeod Road, between Dorchester and Drummond Roads. Depending upon the final location of that crossing, and the shape of new residential developments on either side of the QEW, this route may comprise portions on Dorchester Road, east of the hydro canal and likely one of Brown's Road or Canadian Drive, if that road were extended west with new developments. Westward development would depend upon the extent of development to the west, and preferably connecting to potential southward extensions of Garner and/or Kalar Roads, should those occur.
- EXISTING FACILITIES: there are no cycling facilities within the right-of-way on any part of this route

Connections:

- Off-road: to proposed Millennium Trail Phase 2 on west side of hydro canal
- On-road: potentially to Garner Road, Kalar Road, Montrose Road, Oakwood Drive, Dorchester Road and Drummond Road

Opportunities & Challenges:

- This route is a future opportunity to connect new development areas in the south-west part of the city to the eastern and central parts of the city directly and to design new overpasses and interchanges that integrate active transportation facilities from the start

NOT A PRIORITY PROJECT

This route would only become a priority in the event that the proposed highway and hydro canal crossing are implemented, or for the western sections, as development occurs. In either scenario, it is anticipated that any roadways forming part of this route would be improved and active transportation facilities integrated at that time

ROUTE G. GARNER ROAD
Description: • ROADWAY: paved, two-lane, north-south arterial roadway west of the existing built-up areas of the city; the proposed route extends from Mountain Road in the north to McLeod Road in the south, and beyond in coordination with future residential development; generally rural in character at present, improvement of the area north of McLeod Road is anticipated to accommodate increased traffic as the area is developed • EXISTING FACILITIES: there are no cycling facilities within the right-of-way on any part of this route
Connections: • Off-road: to proposed Hydro One Transmission Corridor 8 West, north of Thorold Stone Road; to proposed NS&T Trail western sections south of Thorold Stone Road; to proposed Hydro One Transmission Corridor 9 West, between Thorold Stone Road and Lundy's Lane, and to proposed Hydro One Transmission Corridor 15 West, between Lundy's Lane and McLeod Road • On-road: to proposed facilities on Mountain Road, Thorold Stone Road, Lundy's Lane, McLeod Road and possibly a future westward extension of Canadian Drive or to Brown's Road, as well as a number of local streets
Opportunities & Challenges: • This route presents an opportunity as the need for the active transportation facility has yet to develop; it will comprise a key north-south route at the west end of the city, in the future, closing urban loops with off-road and other on-road loops and serving the residents of areas only now being developed • Implementing safe and effective connections to all on- and off-road routes and segments will be challenging • Cooperation with Regional Niagara Transportation Department to achieve the City's transportation goals will be necessary • This route crosses an active rail line
NOT A PRIORITY PROJECT
As the area develops and roadways are improved to accommodate additional transportation demands, it is anticipated that Garner Road will be urbanized and active transportation facilities incorporated at each stage. This report recommends completing new facilities in significant portions, bridging the nearest arterial connections where on-road facilities are planned.

ROUTE H. KALAR ROAD

Description:

- ROADWAY: paved north-south arterial roadway through the west end of the existing built-up areas of the city; the proposed route extends from Mountain Road in the north to McLeod Road in the south, and beyond in coordination with future residential development; the north part of the route is generally rural in character on the east side and residential on the west, with the southern part of the route a residential arterial; north of Rideau Street (south of Lundy's Lane) the roadway is two lanes, with unpaved shoulders, and to the south of this point it is a four lane roadway with barrier curbs and sidewalks; south of McLeod, the road is of a rural character
- EXISTING FACILITIES: there are signed, marked cycling lanes in the section of roadway south of Rideau Street; these facilities end abruptly at mid-block, without termination or connecting facilities, they are also not implemented through intersections

Connections:

- Off-road: to proposed Hydro One Transmission Corridor 8 West, north of Thorold Stone Road; to proposed NS&T Trail western sections south of Thorold Stone Road; to proposed Hydro One Transmission Corridor 9 West, near the west end of Woodbine Street, and to proposed Hydro One Transmission Corridor 15 West, between Lundy's Lane and McLeod
- On-road: to proposed facilities on Mountain Road, Thorold Stone Road, Woodbine Street, Lundy's Lane, McLeod Road and possibly a future westward extension of Canadian Drive or to Brown's Road, as well as a number of local streets

Opportunities & Challenges:

- This route presents an opportunity to build upon an existing facility to complete an effective north-south grid route for the western part of the City
- Implementing safe and effective connections to all on- and off-road routes and segments will be challenging
- Implementing safe and effective facilities through intersections, especially arterial intersections will also be a challenge
- Cooperation with Regional Niagara Transportation Department to achieve the City's transportation goals will be necessary
- This route crosses an active rail line

THIS IS A PRIORITY PROJECT

This route should be prioritized for completion of existing facilities, and further implementation in its entirety, especially in conjunction with any planned roadway upgrades in the areas where a rural cross-section persists.

South of McLeod Road, the active transportation facilities should be implemented in conjunction with future developments

In addition to completing the indicated sections, the City should consider the following possible improvements:

- Enhanced pavement markings & signage (branding & way-finding)
- Improved amenities (shade, bicycle parking, seating, etc.)

ROUTE I. MONTROSE ROAD (REGIONAL ROAD 98)

Description:

- ROADWAY: Montrose Road is a paved north-south arterial roadway through the east part of the west end of the existing built-up areas of the city, running parallel to and just west of the QEW; the proposed route extends from Mountain Road in the north to south of McLeod Road, and beyond

  the very north part of the route is generally rural in character as the roadway turns west to intersect Kalar ; the southern part of the route an arterial roadway with residential areas to the west and primarily employment areas and the highway to the east; approaching McLeod Road in the south, the roadway curves westward and a significant attraction, the new McBain Community Centre and YMCA nestles between Montrose and McLeod Roads and the highway; south of McLeod Road, the roadway jogs east around a shopping complex and runs parallel and adjacent to the QEW to beyond the intersection with Oakwood Drive

  Montrose Road is a two-lane roadway from Kalar Road to near Thorold Stone Road where it expands to four lanes and continues southward as far as just beyond Lundy's Lane, with dedicated left-turn lanes at busy intersections; south of Lundy's Lane, the roadway reverts to a two-lane urban roadway with barrier curbs and sidewalks, which then reverts to a rural cross-section as the road tends westwards approaching and past the McBain Community Centre; a dedicated left-turn lane appears north of McLeod Road and to the south, the roadway returns to a four-lane urban cross-section until past the shopping centre, where it reverts to a two-lane rural cross-section
- EXISTING FACILITIES: segment between Lundy's Lane and badger Road identified by City as existing, wide edge-line markings that may serve cyclists (a section of the roadway between Monastery Drive and Thorold Stone Road appears to be in the same condition, but has not been identified as such by the City); adjacent to the McBain Community Centre and terminating on the north side of the south driveway, an asphalt facility is present, parallel to the roadway but likely on community centre property—this may be intended as a multi-use pathway but does not appear to meet any minimum standard and does not connect usefully to any facilities beyond the community centre

Connections:

- Off-road: to proposed Hydro One Transmission Corridor 8 West, north of Thorold Stone Road, where Montrose Road begins to curve westward; to proposed NS&T Trail and proposed Hydro One Transmission Corridor 9 West, south of Thorold Stone Road, and to the proposed Millennium Trail Phase 2
- On-road: to proposed facilities on Mountain Road (via Kalar Road and/or a proposed off-road connection), Thorold Stone Road, Woodbine Street, Lundy's Lane, McLeod Road and possibly in future to Canadian Drive or to Brown's Road (in conjunction with a connection across the QEW (Oldfield) and/or future development; to proposed facilities on Oakwood Drive; as well as to a number of local streets

Opportunities & Challenges:

- This route presents an opportunity to build upon existing, partly-developed facilities to complete an effective north-south grid route for the western part of the City
- This route also presents an opportunity, albeit awkward, for a connection across the QEW at Oakwood Drive (see below) that serves the south part of the city and is off of the existing McLeod Road crossing; making this crossing under the highway will be challenging, but appears possible in the field
- Implementing safe and effective connections to all on- and off-road routes and segments will be challenging
- Implementing safe and effective facilities through intersections, especially arterial intersections will also be a challenge
- Cooperation with Regional Niagara Transportation Department to achieve the City's transportation goals will be necessary
- This route crosses an active rail line
- **This route corresponds approximately to route #170 on the RNMBP**

THIS IS A PRIORITY PROJECT

This route should be prioritized for completion of existing facilities, and further implementation between Kalar Road and the shopping centre south of McLeod Road.

Study of the crossing at the south end of Oakwood Drive to determine how a feasible connection can be made should precede prioritizing implementation of the Montrose Road sections south of McLeod Road; in this area, there may be further opportunities as residential development proceeds

In addition to completing the indicated sections, the City should consider the following possible improvements:

- Enhanced pavement markings & signage (branding & way-finding)
- Improved amenities (shade, bicycle parking, seating, etc.)

ROUTE Ia. OAKWOOD DRIVE

Description:

- ROADWAY: Oakwood Drive intersects with the east side of Montrose Road; heading eastbound, it passes under the QEW and turns north, parallel and adjacent to the east side of the QEW on the west side of employment areas west of the hydro canal; it continues northbound to beyond McLeod Road, jogging east around highway interchanges; the proposed active transportation facility would terminate in connections to McLeod Road

  Oakwood Drive is a two-lane, rural roadway throughout
- EXISTING FACILITIES: there are existing bike lanes on Oakwood Drive from McLeod southwards past the second curve in the roadway; the level of development of these facilities has not been verified in the field

Connections:

- Off-road: the Oakwood Drive route would run parallel to, and may be developed in conjunction with, the proposed Millennium Trail Phase 2, connecting further north across McLeod Road to existing Millennium Trail Phase 1
- On-road: to proposed facilities on Montrose Road, via connection below existing QEW crossing structure; and to proposed facilities on McLeod Street east of the QEW

- Opportunities & Challenges:
- This route presents an opportunity to build upon existing, partly-developed facilities to complete an effective north-south grid route for the western part of the City
- This route also presents an opportunity, albeit awkward, for a connection across the QEW that serves the south part of the city and is off of the existing McLeod Road crossing; making this crossing under the highway will be challenging, but appears possible in the field
- Cooperation with Regional Niagara Transportation Department and MTO to achieve the City's transportation goals will be necessary
- **This route corresponds approximately to route #174 on the RNMBP**

NOT A PRIORITY PROJECT

Study of the crossing at the south end of Oakwood Drive to determine how a feasible connection can be made should precede prioritizing implementation this route; the northern part of the route should be prioritized, if undeveloped, in conjunction with development of the Oldfield Road Crossing.

The Oakwood Drive sections north of the crossover should be reviewed in conjunction with the development of Millennium Trail Phase 2, as both facilities may not be required

In addition to completing the indicated sections, the City should consider the following possible improvements:

- Enhanced pavement markings & signage (branding & way-finding)
- Improved amenities (shade, bicycle parking, seating, etc.)

ROUTE J. DORCHESTER ROAD

Description:

- ROADWAY: paved, north-south arterial roadway through the centre of the existing built-up areas of the city, east of the QEW; the proposed route extends from Mountain Road in the north to McLeod Road in the south, and beyond in coordination with possible future development of a highway crossing at Oldfield Road

  from Mountain Road south to near the Thorold Stone Road intersection, the roadway is residential in character with sidewalks and wide boulevards on both sides, as well as frequent residential driveways, but no barrier curbs and inconsistently paved shoulders; on either side of the Thorold Stone Road, the roadway widens to four lanes plus dedicated left-turn lanes; moving south, the roadway reverts to the two-lane residential cross-section; on either side of the Morrison Street intersection, the roadway again increases to four lanes, but this time with dedicated right-turn lanes, and reverts again to two lanes further south.

  Interchange ramps and additional lanes occur as Dorchester crosses Highway 420 and intersects with Federica Street to the south, past which it reverts again to the two-lane residential cross-section; it maintains the same character for the rest of the route, except near both Lundy's Lane and McLeod Road, where a dedicated left-turn lane and paved shoulders are present
- EXISTING FACILITIES: segment between Riall and Isaac Streets (north of Thorold Stone Road) identified by City as existing, wide edge-line markings that may serve cyclists; field observations noted that the facility is marked by a double white line and has non-standard bicycle lane painted symbols and that on-street parking is permitted within the facility

Connections:

- Off-road: to existing Haulage Road Trail at the intersection with Mountain Road; to proposed Hydro One Transmission Corridor 8 East, south of Mountain Road; to proposed Hydro One Transmission Corridor 9 East, near Thorold Stone Road; to proposed NS&T Trail, south of Thorold Stone Road, to proposed Millennium Trail Phases 5 and 6, north and south of Highway 420, respectively; to the proposed Mitchell Line Trail, south of Lundy's Lane; and to proposed Hydro One Transmission Corridor 15 East, between Lundy's Lane and McLeod Road

  A connection to the Upper Canada Heritage Trail and Bruce Trail beyond the northern extent of this route may be explored but has not been studied as part of this report
- On-road: to proposed facilities on Mountain Road, Thorold Stone Road, Morrison Street, Lundy's Lane, Barker Street, Dunn Street, McLeod Road and possibly in future to Oldfield Road (in conjunction with a connection across the QEW (Oldfield) and/or future development, as well as to a number of local streets

Opportunities & Challenges:

- This route presents an opportunity to build upon existing, partly-developed facilities to complete an effective north-south grid route for the City
- This route also presents an opportunity, for a connection across Highway 420, a significant barrier for active transportation uses in the east part of the city—implementing a facility across this structure may be a challenge
- Implementing safe and effective connections to all on- and off-road routes and segments will be challenging
- Implementing safe and effective facilities through intersections, especially arterial intersections will also be a challenge
- Cooperation with Regional Niagara Transportation Department to achieve the City's transportation goals will be necessary
- This route crosses an active rail line
- **This route corresponds approximately to route #171 on the RNMBP**

THIS IS A PRIORITY PROJECT

This route should be prioritized for completion of existing facilities, and further implementation between Mountain and McLeod Roads; southward extension may be considered.

Study of the Highway 420 crossing should be prioritized. Consideration of various facility options across this highway should include shared lanes and other alternative approaches

In addition to completing the indicated sections, the City should consider the following possible improvements:

- Enhanced pavement markings & signage (branding & way-finding)
- Improved amenities (shade, bicycle parking, seating, etc.)

ROUTE K. ST. PAUL AVENUE (REGIONAL ROAD 49) | DRUMMOND ROAD

Description:

- ROADWAY: paved, north-south arterial roadway through the centre of the existing built-up areas of the city, east of the QEW; the proposed route extends from Mountain Road in the north to McLeod Road in the south; the character of the roadway varies from local residential to employment areas

  Throughout the route, the roadway condition changes frequently, with various configurations of two and four lanes, dedicated left- and right-turn lanes, paved or grassed boulevards, etc.; notable sections include a short, one-way (southbound) section south of the northern intersection with Portage Road, overpasses for the hydro canal (with wide shoulders & sidewalks) and Highway 420 (with narrow shoulders & sidewalks) as well as an active rail crossing north of Morrison Street
- EXISTING FACILITIES: segment between Mountain Road and O'Niell Street (northern merge with Portage Road) identified by City as existing, wide edge-line markings that may serve cyclists; field observations noted that the facility is not marked or signed and ends abruptly

Connections:

- Off-road: to proposed Hydro One Transmission Corridor 8 East, at intersection with Mountain Road; to existing Haulage Road Trail near intersection with Church's Lane; to proposed Hydro One Transmission Corridor 9 East, north of Thorold Stone Road; to proposed NS&T Trail, south of Thorold Stone Road, to existing Millennium Trail Phases 4 and proposed Phase 5, north and south of Morrison Street, respectively; to proposed Hydro One Transmission Corridor 15 East, between Lundy's Lane and McLeod Road; and to the proposed Mitchell Line Trail, north of McLeod Road

  A connection to the Upper Canada Heritage Trail and Bruce Trail beyond the northern extent of this route may be explored but has not been studied as part of this report
- On-road: to proposed facilities on Mountain Road & Church's Lane, Thorold Stone Road, Portage Road, Morrison Street, Lundy's Lane, Barker Street, Dunn Street, and to McLeod Road, as well as to a number of local streets

Opportunities & Challenges:

- This route presents an opportunity to build upon existing, partly-developed facilities to complete an effective north-south grid route for the centre of the City
- This route also presents an opportunity, for a connection across Highway 420 and the hydro canal, significant barriers for active transportation uses in the east part of the city—implementing a facility across the canal bridge should be relatively straight-forward, but across the 420 structure may be a challenge
- Implementing a consistent and continuous facility through varying roadway conditions, and through driveway and utility constraints will be challenging
- Implementing safe and effective connections to all on- and off-road routes and segments will be challenging
- Implementing safe and effective facilities through intersections, especially arterial intersections will also be a challenge

- Cooperation with Regional Niagara Transportation Department to achieve the City's transportation goals will be necessary
- This route crosses an active rail line
- **This route corresponds approximately to part of route #177 on the RNMBP**

THIS IS A PRIORITY PROJECT

This route should be prioritized for completion of existing facilities, and further implementation between Mountain and McLeod Roads.

Study of the Highway 420 crossing should be prioritized. Consideration of various facility options across this highway should include shared lanes and other alternative approaches

In addition to completing the indicated sections, the City should consider the following possible improvements:

- Enhanced pavement markings & signage (branding & way-finding)
- Improved amenities (shade, bicycle parking, seating, etc.)

ROUTE L. PORTAGE ROAD (REGIONAL ROAD 49) | MAIN STREET (REGIONAL ROAD 49) | MARINELAND PARKWAY (REGIONAL ROAD 49) | WILLOUGHBY DRIVE
Description: • ROADWAY: paved, diagonal (approximately north-south) arterial roadway through the centre of the existing built-up areas of the city, east of the QEW; the proposed route extends from Thorold Stone Road in the north to Marineland Parkway in the south, the route follows Marineland Parkway and Portage Road further south, becoming Willoughby Drive through the community of Chippawa and beyond into rural areas; the character of the roadway varies from local residential to employment and tourism, to rural areas Throughout the route, the roadway condition changes frequently, with various configurations of two, or four lanes, dedicated left- and right-turn lanes, on-street parking, paved or grassed boulevards, etc.; notable sections include the jog at Morrison Street and bridge shared with that road to cross the hydro canal immediately east of the jog, the bridge crossing of Highway 420 (two, wide lanes with sidewalks), a number of diagonal arterial intersections; the crossing of Fallsview Boulevard in the tourist area and transition southward at t-intersection with a hotel parking ramp; the t-intersection at Marineland Parkway; and the recently re-constructed bridge crossing to Chippawa • EXISTING FACILITIES: segment between Thorold Stone Road and Gallinger Street (northern merge with Portage Road) identified by City as existing, wide edge-line markings that may serve cyclists; field observations noted that the facility is not marked or signed and ends abruptly
Connections: • Off-road: to proposed NS&T Trail, south of Thorold Stone Road, to existing Millennium Trail Phases 4 and proposed Phase 5, north and south of Morrison Street, respectively; to proposed Hydro One Transmission Corridor 12, near intersection of Main Street and Stanley Avenue; to proposed Hydro One Transmission Corridor 15 East, terminating at Stanley near the intersection with Main Street; and to the proposed Grand Boulevard Trail, near Fallsview Boulevard • On-road: to proposed facilities on Thorold Stone Road, Morrison Street, Lundy's Lane/Ferry Street, Barker Street, Stanley Avenue, Murray Street, Dunn Street, and to River Road/Niagara Parkway via several possible connections, as well as to a number of local streets
Opportunities & Challenges: • This route presents an opportunity to build upon existing, partly-developed facilities to complete an effective north-south grid route for the centre of the City • Implementing a consistent and continuous facility through varying roadway conditions, and through driveway and utility constraints will be challenging • Implementing safe and effective connections to all on- and off-road routes and segments will be challenging • Implementing safe and effective facilities through intersections, especially arterial intersections will also be a challenge • Cooperation with Regional Niagara Transportation Department to achieve the City's transportation goals will be necessary

- This route crosses an active rail line
- **This route corresponds approximately to part of route #177 on the RNMBP**

THIS IS A PRIORITY PROJECT

This route should be prioritized for completion of existing facilities, and further implementation between Thorold Stone Road and the southern extent of the community of Chippawa.

Study of the hydro canal crossing, using Morrison Street (route C) should be prioritized.

Study of the Highway 420 crossing should be prioritized. Consideration of various facility options across this highway should include shared lanes and other alternative approaches

In addition to completing the indicated sections, the City should consider the following possible improvements:

- Enhanced pavement markings & signage (branding & way-finding)
- Improved amenities (shade, bicycle parking, seating, etc.)

ROUTE M. STANLEY AVENUE (REGIONAL ROAD 102)

Description:

- ROADWAY: paved, north-south arterial roadway through the centre of the existing built-up areas of the city, east of the QEW; the proposed route extends from Whirlpool Road in the north to Marineland Parkway in the south; the character of the roadway varies from local residential to employment and tourism areas

  Throughout the route, the roadway condition changes frequently, with various configurations of two, four or more lanes, dedicated left- and right-turn lanes, on-street parking, paved or grassed boulevards, etc.; notable sections include the jog at Thorold Stone Road and the uniquely curving bridge that Stanley Road shares with that road to cross the hydro canal immediately east of the jog, the intersection with Highway 420, a number of diagonal arterial intersections; and the t-intersection at Marineland Parkway
- EXISTING FACILITIES: segment between Dunn Street and Marineland Parkway identified by City as existing, wide edge-line markings that may serve cyclists; field observations noted that the facility is not marked or signed and ends abruptly in both directions

Connections:

- Off-road: to proposed Hydro One Transmission Corridor 8 East, south of Mountain Road; to proposed Hydro One Transmission Corridor 9 East, south of Church's Lane; to proposed Millennium Trail Phase 3 and existing Phase 4, near Thorold Stone Road; to proposed NS&T Trail, south of Thorold Stone Road, to proposed Hydro One Transmission Corridor 12, crossing Stanley diagonally south of Morrison Street; to proposed Hydro One Transmission Corridor 15 East, terminating at Stanley near the intersection with Main Street; and to the proposed Mitchell Line Trail, north of McLeod Road

  A connection to the Upper Canada Heritage Trail and Bruce Trail beyond the northern extent of this route may be explored but has not been studied as part of this report
- On-road: to proposed facilities on Whirlpool Road, Church's Lane, Thorold Stone Road, Morrison Street, Lundy's Lane/Ferry Street, Barker Street, Portage Road/Main Street, Dunn Street, and to McLeod Road, as well as to a number of local streets

Opportunities & Challenges:

- This route presents an opportunity to build upon existing, partly-developed facilities to complete an effective north-south grid route for the centre of the City
- Implementing a consistent and continuous facility through varying roadway conditions, and through driveway and utility constraints will be challenging
- Implementing safe and effective connections to all on- and off-road routes and segments will be challenging
- Implementing safe and effective facilities through intersections, especially arterial intersections will also be a challenge
- Cooperation with Regional Niagara Transportation Department and the Niagara Parks Commission to achieve the City's transportation goals will be necessary
- This route crosses active rail lines in two locations
- **This route corresponds approximately to route #198 on the RNMBP**

THIS IS A PRIORITY PROJECT

This route should be prioritized for completion of existing facilities, and further implementation between Church's Lane and McLeod Road.

Study of the hydro canal crossing, using Thorold Stone Road (route B) should be prioritized.

Study of the Highway 420 crossing should be prioritized. Consideration of various facility options across this highway should include shared lanes and other alternative approaches

In addition to completing the indicated sections, the City should consider the following possible improvements:

- Enhanced pavement markings & signage (branding & way-finding)
- Improved amenities (shade, bicycle parking, seating, etc.)

ROUTE N. VICTORIA AVENUE-NORTH

Description:

- ROADWAY: paved, north-south arterial roadway through the centre of the existing built-up areas of the city, the proposed route extends from Whirlpool Road in the north to Palmer Avenue in the central tourist district (the continuation of Victoria Avenue, to Ferry Street is dealt with separately below); the character of the roadway varies from generally undeveloped and employment areas in the north to tourism areas further south

  Throughout the route, the roadway condition changes frequently, with various configurations of two or more lanes, dedicated left- and right-turn lanes, on-street parking or taxi bays, paved or grassed boulevards, etc.; notable sections include the t-intersection with Whirlpool Road, at the northern extent of Victoria Avenue; the bridge over active rail facilities north of Bridge Street; the bridge over Robert Street/Newman Hill; and a number of diagonal arterial intersections
- EXISTING FACILITIES: segment between Whirlpool Road and Morrison Street identified by City as existing, wide edge-line markings that may serve cyclists

Connections:

- Off-road: to proposed NS&T Trail, near Bridge Street, to the existing Olympic Torch Run Legacy Trail, via on or off-road connections near Palmer Avenue; and to the existing Victoria Street Promenade (parallel to continuation of proposed Victoria Street facilities)
- On-road: to proposed facilities on Whirlpool Road, Thorold Stone Road (via proposed Thorold Stone Road extension), Bridge Street, Morrison Street, and via continuation (see below) to Lundy's Lane/Ferry Street, as well as to a number of local streets

Opportunities & Challenges:

- This route presents an opportunity to build upon existing, partly-developed facilities to complete an effective north-south grid route for the centre of the City that provides direct access to busy tourist area of Clifton Hills
- Implementing a consistent and continuous facility through varying roadway conditions, and through driveway and utility constraints will be challenging
- Implementing safe and effective connections to all on- and off-road routes and segments will be challenging
- Implementing safe and effective facilities through intersections, especially arterial intersections will also be a challenge
- Cooperation with Regional Niagara Transportation Department and the Niagara Parks Commission to achieve the City's transportation goals will be necessary

THIS IS A PRIORITY PROJECT

This route should be prioritized for completion of existing facilities, and further implementation along the entire corridor.

In addition to completing the indicated sections, the City should consider the following possible improvements:

- Enhanced pavement markings & signage (branding & way-finding)
- Improved amenities (shade, bicycle parking, seating, etc.)

ROUTE Na. VICTORIA AVENUE-SOUTH
Description: • ROADWAY: paved, diagonal arterial roadway through the central tourist district, connecting north-south along sections of Victoria Avenue to east-west towards Ferry Street; the proposed route extends Victoria Avenue south-westerly from Palmer Avenue, and transitions directly into Ferry Street at a 45-degree turn in the roadway The roadway condition is generally two-lanes, with additional, dedicated turning lanes at intersections and limited areas of on-street parking or taxi stands • EXISTING FACILITIES: the Victoria Avenue Promenade has recently been developed along the east side of this route section, outside of the right-of-way ***Connections:*** • Off-road: to the existing Olympic Torch Run Legacy Trail, via on or off-road connections near Palmer Avenue; and to the existing Victoria Street Promenade; and to the proposed 'Grand Boulevard' Trail continuing south from near where Victoria Avenue becomes Ferry Street • On-road: to proposed facilities to the north on Victoria Avenue; and to Lundy's Lane/Ferry Street, as well as to a number of local streets
Opportunities & Challenges: • This route presents an opportunity to build upon existing, partly-developed facilities to connect major north-south and east-west on-road routes through the central tourist district, and to implement an on-road alternative parallel to the Victoria Avenue Promenade that could reduce potential conflicts between pedestrians and cyclists on that facility • Implementing safe and effective connections to all on- and off-road routes and segments will be challenging • Implementing safe and effective facilities through intersections, especially arterial intersections will also be a challenge • Cooperation with Regional Niagara Transportation Department to achieve the City's transportation goals will be necessary
THIS IS A PRIORITY PROJECT
This route should be prioritized for implementation in its entirety. Study of the options for active transportation development in coordination with the recently developed Victoria Avenue Promenade should be commenced as soon as possible. In addition to completing the basic route, the City should consider the following possible improvements: • Enhanced pavement markings & signage (branding & way-finding) • Improved amenities (shade, bicycle parking, seating, etc.)

ROUTE O. WHIRLPOOL ROAD | NIAGARA PARKWAY/RIVER ROAD (REGIONAL ROAD 27)

Description:

- ROADWAY: Whirlpool Road is a generally north-south, two-lane, rural-type roadway to the north-west of the built-up area of the city; it connects between the north part of Stanley Avenue and River Road/Niagara Parkway; it features a bridge crossing over the hydro canal with sidewalk on the east side only and two wide vehicular lanes; north of the bridge it runs parallel to an active railway corridor and has access driveways on both sides for exclusive use by rail workers (west side) and hydro workers (east side)

  River Road/Niagara Parkway is a tourist drive, maintained by the Niagara Parks Commission, that runs parallel to the Niagara River from north of the City to the Welland River where it terminates at Portage Road, just north of the bridge to the community of Chippawa; the character of the roadway changes significantly along its length; at the north end, it is less busy, two-lanes with no sidewalks, and through the heavily-developed tourist areas it becomes a busy, separated, four-lane road with turning lanes, parking, complex intersections, sidewalks and paths
- EXISTING FACILITIES: the entire length of Whirlpool Road has been identified by City as existing, wide edge-line markings that may serve cyclists; on River Road/Niagara Parkway, cycling lanes are present from north of Glenview Avenue south to near John Street—these facilities terminate abruptly mid-block and are discontinuous near intersections with Bridge and Queen Streets; multi-use trails are also present at various points, running approximately parallel to the roadway on the east side; none of the existing facilities include pavement symbols or signage

Connections:

- Off-road: possibly to the proposed Millennium Trail Phase 3 and/or proposed Hydro One Transmission Corridor 12 at the north end of each; the route for connecting these facilities requires further study, however an historic structure passing beneath the rail corridor just north of the hydro canal may serve to connect both trails, with the Hydro One Transmission Corridor Trail additionally requiring a crossing on the rail bridge over the hydro canal; and to the Olympic Torch Run Memorial Trail via the proposed Seneca Street Connection (see 7.2.11e, above)
- On-road: to proposed facilities on Church's Lane, Stanley Avenue, Bridge Street, Morrison Street, and Portage as well as to a number of local streets in the downtown area

Opportunities & Challenges:

- This route presents an opportunity to build upon existing, partly-developed facilities to connect major north-south and east-west on-road routes through the central tourist district, and to implement an on-road alternative that could reduce potential conflicts between pedestrians and cyclists in the heavily-used tourist areas
- Implementing successful connections to the city-proper in and south of the tourist areas may be challenging, due in part to the slopes of roadways and traffic volumes
- Implementing safe and effective connections to all on- and off-road routes and segments will be challenging
- Implementing safe and effective facilities through intersections, especially arterial intersections will also be a challenge

• Cooperation with Niagara Parks Commission and Regional Niagara Transportation Department to achieve the City's transportation goals will be necessary
NOT A PRIORITY PROJECT
From a transportation standpoint, this route is not a critical connection and functions more as a destination. Further study is required to determine a preferred balance between different uses along this corridor. The City may consider upgrading existing facilities on Whirlpool Road and completing connections to on and off-road routes as adjacent routes are developed.

APPENDIX B

List of Facility Types

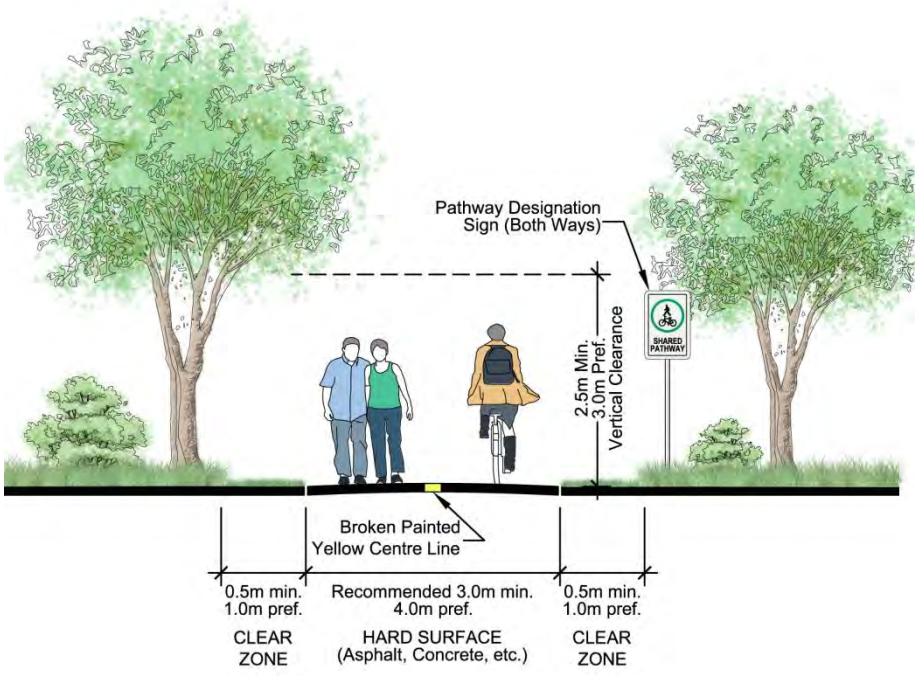
STANDARD MULTI-USE PATHWAY

Multi-use pathways are shared-use facilities accommodating cyclists and a range of pedestrians including walkers, joggers, in line skaters, etc. Current practices indicate that 3.0-metres is the minimum recommended width for this type of facility, and suggest that a preferred width of 4.0-metres or greater should be used where possible, and depending on the level of use expected. A minimum 0.5-metre, preferred 1-metre, clear space should be present on both sides of the pathway. Asphalt pavement is the preferred surface, however in some situations concrete or granular surfacing may be acceptable.

Consistent route designation signage is recommended for multi-use pathways. These facilities typically do not have any designation markings on the pavement, however a broken painted yellow centre line is recommended for separating the two directions of travel.

Drawbacks of this facility type include the significant amount of space required for adequate widths and setbacks. More experienced, commuter cyclists also may prefer not to use these facilities as they are more likely to meet conflicts with slower cyclists and pedestrians.

This design conforms approximately to Niagara Region's standard Class 1 facility, "Multi-use Trail."



Typical cross-section of a standard multi-use pathway

Pros: Multi-use pathways are shared-use facilities that can accommodate a wide range of users. The separation of different users provides a safe, off-road route, and is desirable for less-experienced and slower cyclists and pedestrians.

Cons: Drawbacks of this facility type include the significant amount of space required for adequate widths and setbacks. More experienced, commuter cyclists also may prefer not to use these facilities as they are more

likely to meet conflicts with slower cyclists and pedestrians.

Applicability to Region of Niagara Standard: This design conforms approximately to Niagara Region's standard Class 1 facility, "Multi-use Trail."

Primary Facility Use: This facility is used for both commuter and recreational cyclists and pedestrians, and provides valuable off-road linkages between open spaces and other local destinations.

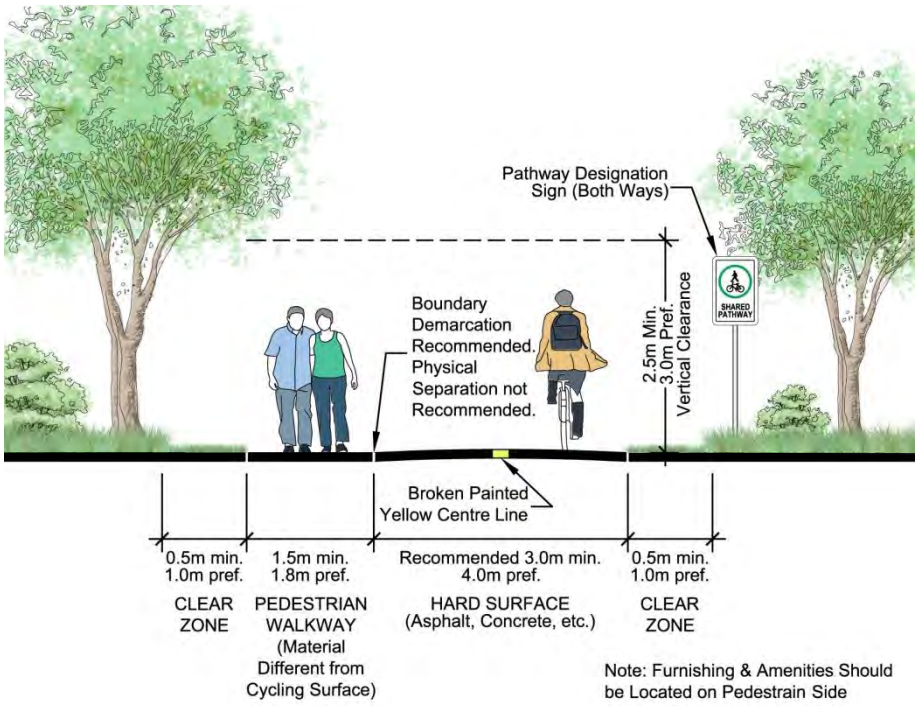
ROW and Lane Width: Current practices indicate that 3.0-metres is the minimum recommended width for this type of facility, and suggest that a preferred width of 4.0-metres or greater should be used where possible, and depending on the level of use expected. A minimum 0.5-metre, preferred 1-metre clear space should be present on both sides of the pathway.

SEPARATED MULTI-USE PATHWAY

In some situations, where greater overall use or an exceptional volume of pedestrians or slower traffic is anticipated, or where an attraction or amenity exists adjacent to the facility alignment, a separated version of the multi-use pathway may be considered. Often referred to as a "promenade," this facility provides a separate surface for pedestrians or slower traffic.

It is important when planning this type of facility to ensure that the separation is clear—differing surface treatments are preferred—and that sight-lines remain open. The slower facility should be planned on the side of the facility where attractions or amenities are present, and any supportive infrastructure planned (seating, waste receptacles, etc.) should also be located on the slower side.

This design conforms approximately to Niagara Region's standard Class 1 facility, "Multi-use Trail," or exceeds it.



Typical cross-section of a separated multi-use pathway

It is also possible to imagine situations where a two-sided version of this facility or a more urban version would be appropriate (passing through a plaza or wider promenade situation, for example.) These should be carefully designed to fit specific site conditions.

Pros: Often referred to as a "promenade," this facility provides a separate surface for pedestrians or slower traffic. This facility can be used to accommodate a higher volume of pedestrians or where slower traffic is anticipated, such as where an attraction or amenity exists adjacent to the facility alignment.

Cons: Drawbacks of this facility type include the significant amount of space required for adequate widths and setbacks.

Applicability to Region of Niagara Standard: This design conforms approximately to Niagara Region's standard Class 1 facility, "Multi-use Trail," or exceeds it.

Primary Facility Use: This facility is used for both commuter and recreational cyclists and pedestrians, and provides valuable off-road linkages between open spaces and other local destinations.

ROW and Lane Width: Current practices indicate that 3.0-metres is the minimum recommended width for this type of facility, and suggest that a preferred width of 4.0-metres or greater should be used where possible, and depending on the level of use expected. The pedestrian walkway should be a minimum of 1.5-metre width, with 1.8-metre being the preferred width. A minimum 0.5-metre, preferred 1-metre clear space should be present on both sides of the pathway.

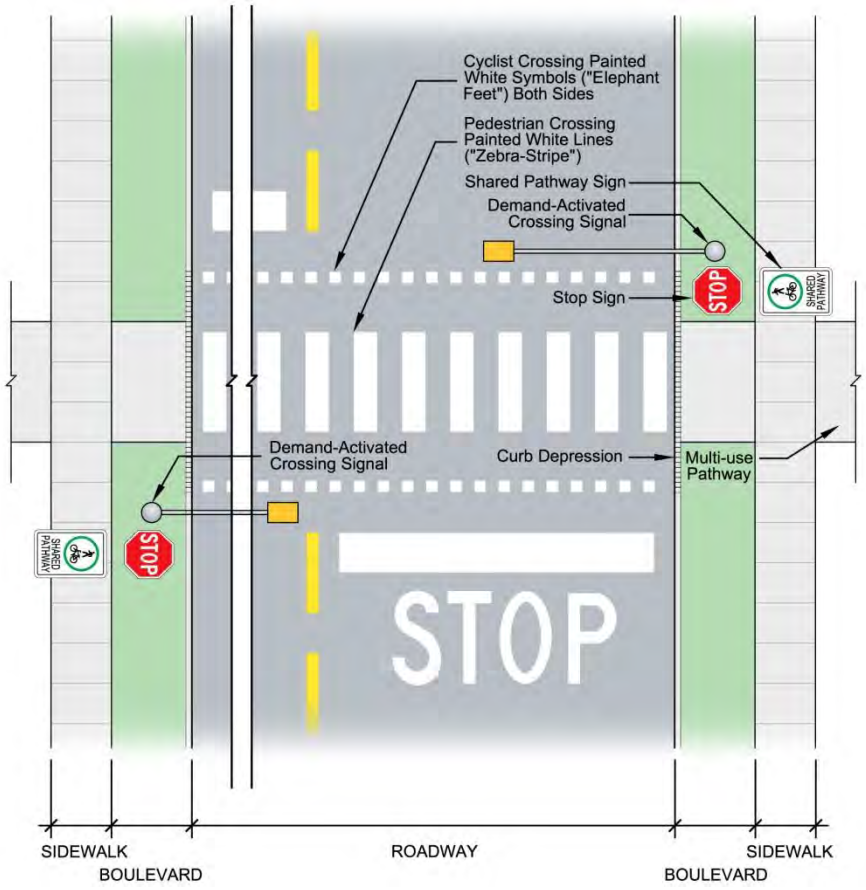
Roadway Crossings

In Niagara Falls, off-road pathways used for active transportation often follow linear corridors. While this improves the utility of the pathway for transportation purposes, it also results in a higher number of situations where off-road facilities cross roadways. The safety and general success of the facilities recommended in this report relies on the proper development of these crossings.

Where signalised intersections exist near to pathway crossings, designers are reasonably tempted to direct pathway users to that location to cross. In practice, users of these facilities do not accept the inconvenience and choose instead to put themselves at risk crossing away from any marked facility. This report recommends using nearby intersections only under very demanding circumstances, and in such cases to install warning signs and maintain lines-of-sight for motorists and pathway users.

ROADWAY CROSSING - SIGNALIZED CROSSING OF ROADWAY

Where an off-road facility crosses a busy roadway, the preferred crossing design features a traffic signal that may be demand activated (preferable) or timed (for situations where pathway users' use of the signal has, or is anticipated to have an adverse impact on vehicular traffic.)



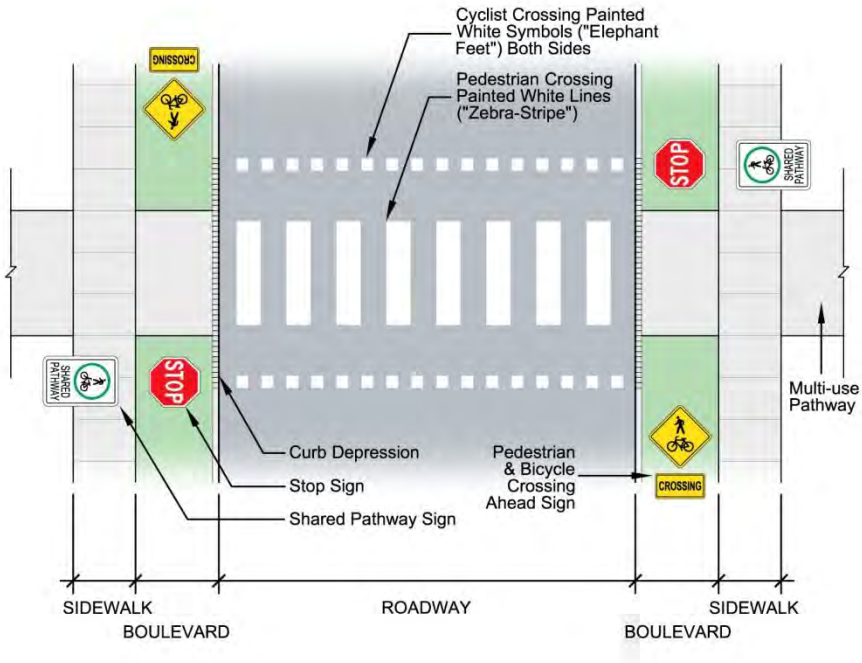
Typical plan drawing of a signalized crossing of a roadway

Providing a continuous surface (no barrier curbs) and maintaining clear sight-lines for motorists and pathway users alike is required. Providing a refuge for cyclists to wait that is not in conflict with any sidewalks is recommended where possible.

Roadway Crossings contd.

ROADWAY CROSSING - SIGNED CROSSING OF ROADWAY

Where an off-road facility crosses a less-busy, local roadway, the preferred crossing design features warning signage directed to on-coming traffic and stop signs for pathway users.



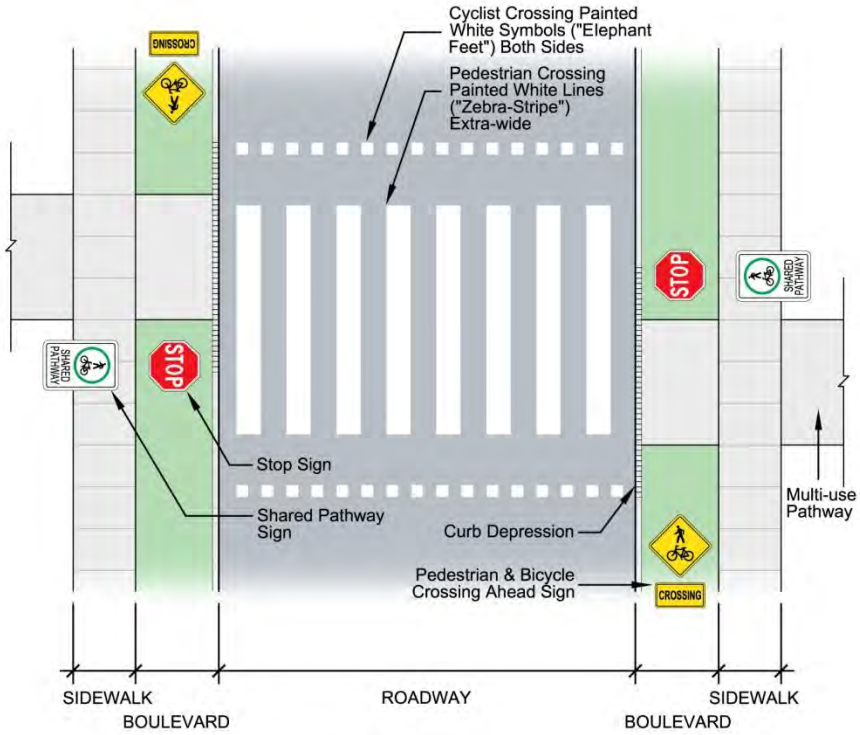
Typical plan drawing of a signed crossing of a roadway

As with signalized crossings, providing a continuous surface and maintaining clear sight-lines for is required; and providing a refuge for cyclists to wait that is not in conflict with any sidewalks is recommended.

Roadway Crossings contd.

ROADWAY CROSSING – OFFSET CROSSING OF ROADWAY

Where an off-road facility crosses a roadway at an angle or is otherwise not directly aligned across the road, the preferred crossing design is widened to include the full range of crossing movements that may occur.



Typical plan drawing of an offset crossing of a roadway

Although the figure above illustrates a signed crossing, the approach applies to signalized crossings as well. As with other crossing types, providing a continuous surface and maintaining clear sight-lines is required; and providing a refuge for cyclists to wait that is not in conflict with any sidewalks is recommended. Consideration may also be given to widening the curb depressions and refuges to match the widened crossing dimension.

'On-Road' Facility Types (within of road rights-of-way)

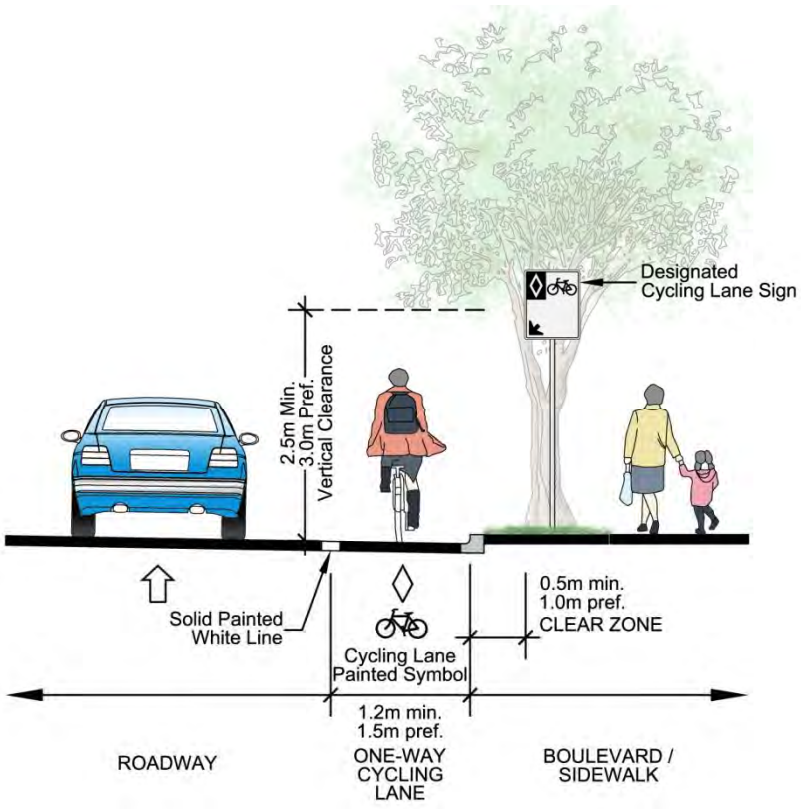
On-road cycling facilities are the preferred facility type for most commuting cyclists. They utilise efficient and orderly street networks to get around the city, and they avoid conflicts with slower pedestrians and recreational cyclists found on off-road pathways.

On-road cycling facilities are generally considered to include only those facilities that share a travelling surface with motor vehicles. This report also includes facilities outside of the roadway, but within the right-of-way, and differentiates these from "off-road" facilities that would exist outside of road rights-of-way.

Each of the facilities in this section contains in its description a note regarding conformance with the standard facility types used and promoted by Niagara Region. In some cases, this report recommends using facilities that do not conform to Regional standards. This reflects, in some cases, improvements in facility design best practices. In other cases these recommendations are intended to broaden the array of tools that the City has available to address challenging situations that are likely to arise.

DESIGNATED BICYCLE LANE (WITHOUT ON-STREET PARKING)

Designated bicycle lanes are an exclusive-use, on-road facility. Current practices indicate that 1.2 metre lanes are the minimum width for this type of facility. A preferred width of at least 1.5 metre lanes (measured to the front of the gutter pan) is recommended where there are curbs and gutters. Where used, cycling lanes should occur on both sides of the road. The preferred treatment to the right of the cycling lane is a barrier curb with a sidewalk or landscaped boulevard, or in less urban situations, a paved or unpaved shoulder



Typical cross-section of a designated bicycle lane in a roadway

Designated bicycle lanes are to be separated from other vehicular lanes by a solid white painted line, and should have the diamond and bicycle symbols painted within the lane at the beginning and ending, and at regular, close intervals along the facility. Reserved bicycle lane signs (TAC, RB-91) should be used along the length of the facility, with “Begins” and “Ends” tabs in the appropriate locations. Additional way-finding and branding signage is also recommended.

This design conforms approximately to Niagara Region’s standard Class 2 facility, “Paved Shoulder / Bike Lane.”

Designated bicycle lanes are one of the preferred facilities for on-road cycling. It is a generously wide, facility for the exclusive use of cyclists, and in-practice is useable for less-experienced or general cyclists, and for experienced commuter cyclists. Its high visibility and ample space are often cited as reasons why many cyclists feel more comfortable here than in a shared lane situation, for example. It is also usually considered the fastest, most direct way for cyclists to travel, and is free of conflicts with pedestrians.

Drawbacks of this facility include the amount of space required and the associated costs.

Pros: Designated bicycle lanes are an exclusive-use, on-road facility and are one of the preferred facilities for on-road cycling. Its high visibility and ample space are often cited as reasons why many cyclists feel more comfortable here than in a shared lane situation, for example. It is also usually considered the fastest, most direct way for cyclists to travel, and is free of conflicts with pedestrians.

Cons: Drawbacks of this facility type include the significant amount of space required and the associated costs.

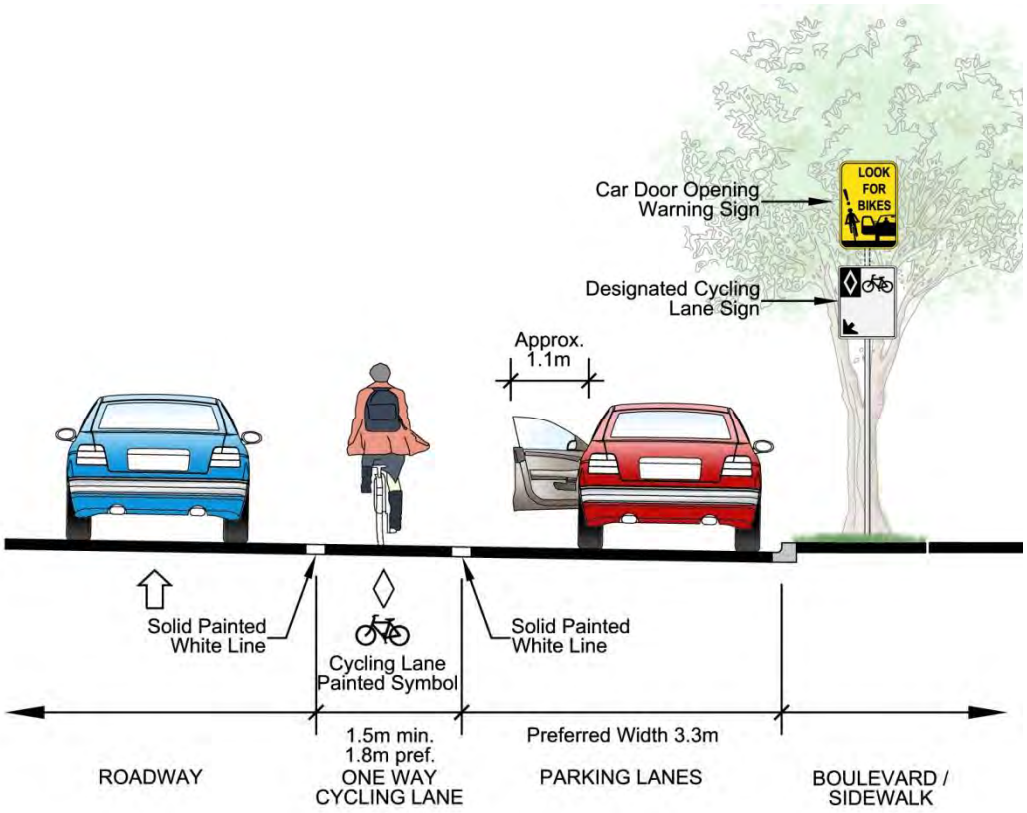
Applicability to Region of Niagara Standard: This design conforms approximately to Niagara Region's standard Class 2 facility, "Paved Shoulder / Bike Lane."

Primary Facility Use: This facility is used for both commuter and less-experienced cyclists, where adequate space is available.

ROW and Lane Width: Current practices indicate that 1.2 metre lanes are the minimum width for this type of facility. A preferred width of at least 1.5 metre lanes (measured to the front of the gutter pan) is recommended where there are curbs and gutters.

DESIGNATED BICYCLE LANE (WITH ON-STREET PARKING)

On-street parking to the right of a cycling lane can occur, and would require a wider cycling facility to prevent conflicts between cyclists and car doors. A black-on-yellow, door-opening-warning sign should be included where this situation occurs. Otherwise, the design considerations are similar



Typical cross-section of a designated bicycle lane with on-street parking

This design conforms approximately to Niagara Region's standard Class 2 facility, "Paved Shoulder / Bike Lane."

Designated bicycle lanes with parking share many of the same "pro's and con's" of those not adjacent to parking. The additional drawbacks associated with being adjacent to parking include conflicts with automobiles crossing the lane to access or leave parking spaces, and risks to cyclists associated with opening car doors. A painted line between the cycling lane and parking spaces, and a greater width of cycling lane is usually recommended as a means to reduce these hazards, but they will also increase the space required and associated costs

Pros: Designated bicycle lanes with parking share many of the same "pro's and con's" of those not adjacent to parking.

Cons: The additional drawbacks associated with being adjacent to parking include conflicts with automobiles crossing the lane to access or leave parking spaces, and risks to cyclists associated with opening car doors. A painted line between the cycling lane and parking spaces, and a greater width of cycling lane is usually recommended as a means to reduce these hazards, but they will also increase the space required and

associated costs.

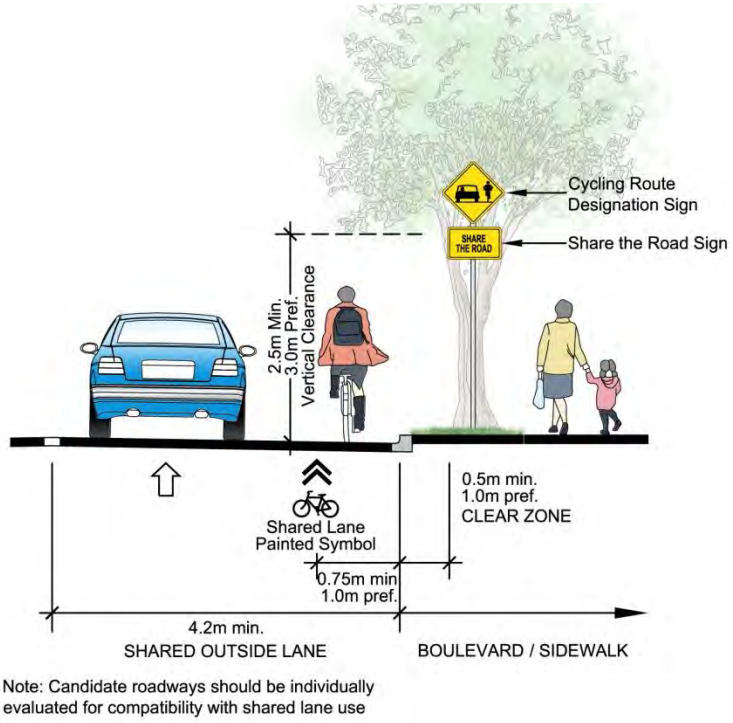
Applicability to Region of Niagara Standard: This design conforms approximately to Niagara Region's standard Class 2 facility, "Paved Shoulder / Bike Lane."

Primary Facility Use: This facility is used for both commuter and less-experienced cyclists, on roads where on-street parking exists, and where adequate space is available.

ROW and Lane Width: Current practices indicate that 1.5 metre lanes are the minimum width for this type of facility, with a preferred width of 1.8 metres.

SHARED OUTSIDE LANE (OFTEN IDENTIFIED AS "SHARROW" WITHOUT ON-STREET PARKING)

Shared outside lanes are shared-use facilities where the right-most travel lane of the roadway is designed to accommodate both cyclists and motorists together. Current practices indicate that 4.2 metre lane measured from the outside of the gutter pan for lanes without parking is the minimum widths for this type of facility. This would be increased in accordance with the traffic speed on the roadway. Where used, this facility should occur on both sides of the road. The preferred treatment to the right of the cycling lane is a barrier curb with a sidewalk or landscaped boulevard, or in less urban situations, an unpaved shoulder



Typical cross-section of a shared outside lane in a roadway

Shared outside lanes are designated by a bicycle symbol and chevrons, or "shadow" painted within the lane at the beginning and ending, and at regular, close intervals along the facility. Generally these symbols are positioned to be centered approximately 1-metre offset from the edge of the lane or from the curb. The black-on-yellow "share the road" sign (TAC, WC-47) and supplementary tab (TAC, WC-475), should be used along the length of the facility, with "Begins" and "Ends" tabs in the appropriate locations. Additional way-finding and branding signage is also recommended.

This facility does not conform to Niagara Region's facility standards. It should be considered for use on City roads; and where restrictive conditions exist, the Region should be encouraged to make use of this facility design.

Shared outside lanes are useful facilities for on-road cycling where space or budget are constrained, or where nearby facilities can accommodate less-experienced cyclists. Being shared with motorists, it is more suited to confident, experienced commuter cyclists. It is considered highly visible and safe for these users, who usually consider them to be equally as fast and direct as designated cycling lanes. Being free of conflicts with pedestrians is also an important benefit to these users

Pros: This is a useful facility for on-road cycling where space or budget are constrained, or where nearby facilities can accommodate less-experienced cyclists. It is considered highly visible and safe for experienced cyclists, who usually consider them to be equally as fast and direct as designated cycling lanes.

Cons: As this facility is shared with motorists, it is not as desirable for less-experienced cyclists.

Applicability to Region of Niagara Standard: This facility does not conform to Niagara Region's facility standards. It should be considered for use on City roads; and where restrictive conditions exist, the Region should be encouraged to make use of this facility design.

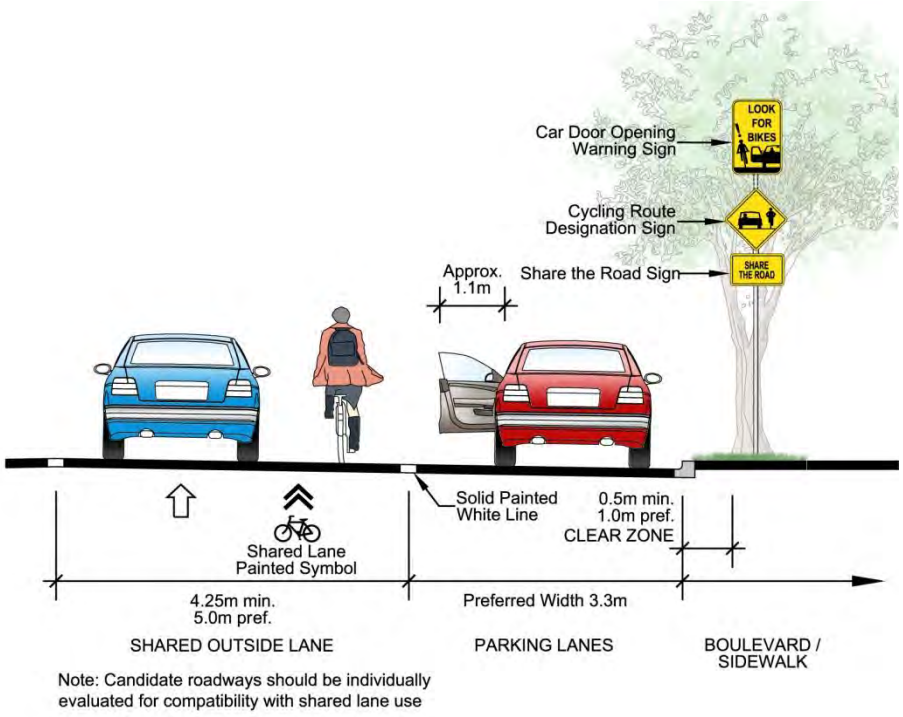
Primary Facility Use: This facility is used for commuter and more-experienced cyclists, where adequate space for a designated bicycle lane is not available.

ROW and Lane Width: Current practices indicate that 4.2 metre lane measured from the outside of the gutter pan for lanes without parking is the minimum widths for this type of facility. This would be increased in accordance with the traffic speed on the roadway.

SHARED OUTSIDE LANE (OFTEN IDENTIFIED AS "SHARROW" WITH ON-STREET PARKING)

On-street parking to the right of a shared outside lane can occur, and would require a wider cycling facility to prevent conflicts between cyclists and car doors. A black-on-yellow, door-opening-warning sign should be included where this situation occurs. Otherwise, the design considerations are similar.

[**Note:** This is a marked facility with minimum dimension that may be used on busier, faster roadways; the Signed Cycling Route (without on-street parking) facility is un-marked and recommended for use only on low-speed, low-traffic roadways]



Typical cross-section of a shared outside lane in a roadway, adjacent to and separated from on street parking

Shared outside lanes with parking share many of the same "pro's and con's" of those not adjacent to parking. The additional drawbacks associated with being adjacent to parking include conflicts with automobiles crossing the lane to access or leave parking spaces, and risks to cyclists associated with opening car doors. A painted line between the cycling lane and parking spaces, and a greater width of cycling lane is usually recommended as a means to reduce these hazards, but they will also increase the space required and associated costs.

Two approaches are used to implement a shared outside lane adjacent to parking. The preferred approach is identical to the standard facility, with the exception of a slightly larger minimum required width. This design requires a solid painted line between the shared lane and the parking lane, which should be of a minimum 3.3-metre width.

This facility does not conform to Niagara Region's facility standards. It should be considered for use on City roads; and where restrictive conditions exist, the Region should be encouraged to make use of this facility design.

The facility design described above is preferred because it separates moving and stationary traffic and may be implemented continuously with shared outside lanes not adjacent to on-street parking.

The down-side of this facility is that it requires more space than the alternative described below, which is often implemented

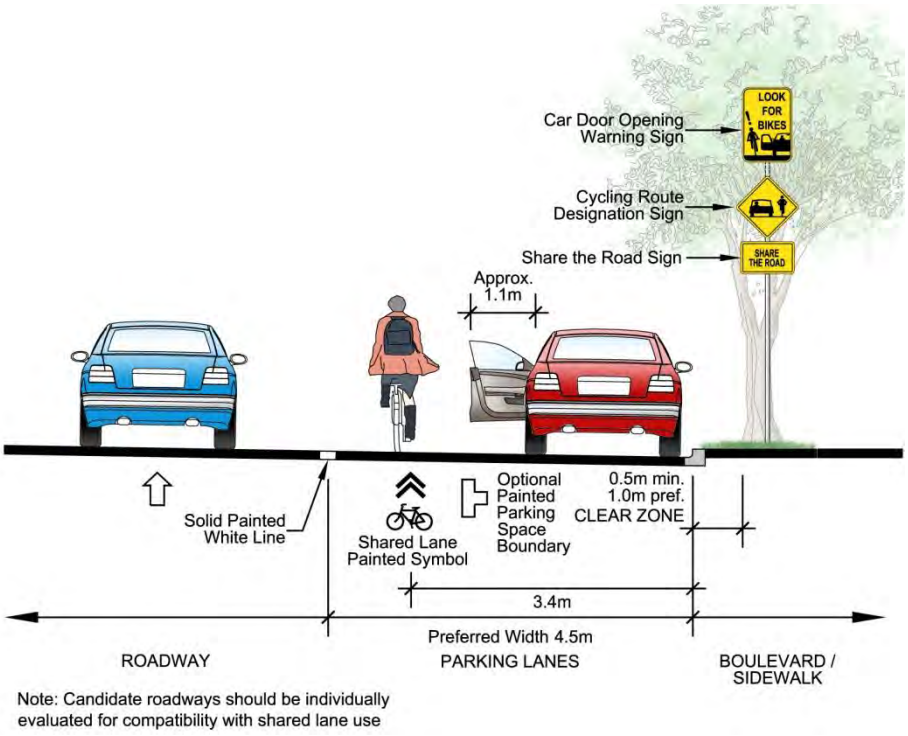
Pros: Shared outside lanes with parking share many of the same “pro’s and con’s” of those not adjacent to parking.

Cons: The additional drawbacks associated with being adjacent to parking include conflicts with automobiles crossing the lane to access or leave parking spaces, and risks to cyclists associated with opening car doors. A painted line between the cycling lane and parking spaces, and a greater width of cycling lane is usually recommended as a means to reduce these hazards, but they will also increase the space required and associated costs.

Applicability to Region of Niagara Standard: This facility does not conform to Niagara Region’s facility standards. It should be considered for use on City roads; and where restrictive conditions exist, the Region should be encouraged to make use of this facility design.

Primary Facility Use: This facility is used for commuter and more-experienced cyclists, where adequate space is available and on-street parking exists.

ROW and Lane Width: Current practices indicate that the shared outside lane be a minimum of 4.25-metre width and a preferred 5.0-metre width. The parking lane should be a minimum of 3.3-metre width.

SHARED PARKING LANE (OFTEN IDENTIFIED AS "SHARROW" WITH ON-STREET PARKING)
 **Typical cross-section of a shared outside lane in a roadway, shared with on-street parking**
The facility design above is narrower than the preferred option, but requires the moving cyclist to share a lane with stationary vehicles, and increases the risk of "door-ing," where cyclists collide with car doors suddenly opening in front of them. This design is not recommended except in situations where no other solution can be fit. If this design is used, parking spots should be marked with a small white painted symbol that will encourage vehicles to park very close to the curb, and warning signage should be implemented excessively.

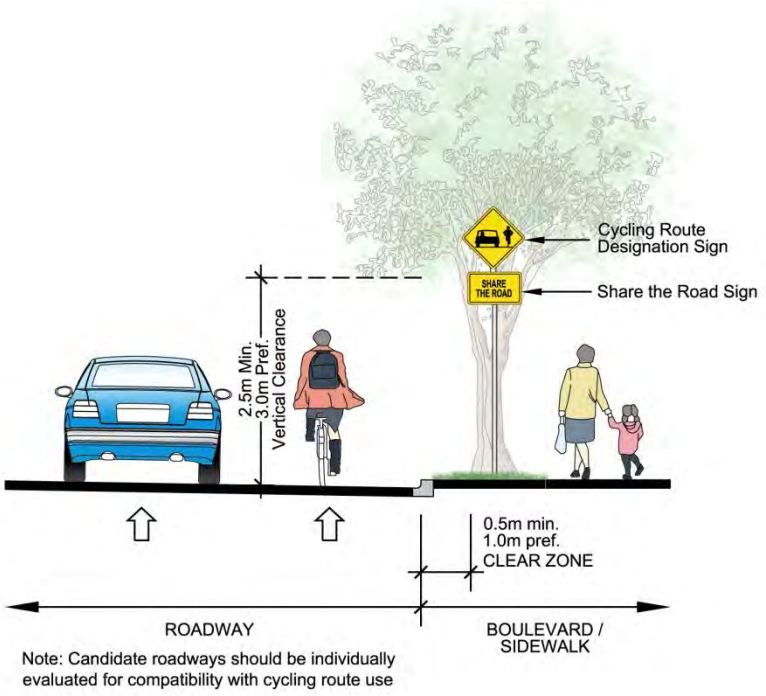
SIGNED CYCLING ROUTE (WITHOUT ON-STREET PARKING)

Signed cycling routes are the outside lanes of a roadway designated by roadside signage and possibly indicated on maps, for shared use by cyclists and motorists. The signage is used to remind motorists that cyclists are to be anticipated to share the lane with motor vehicle traffic. This facility form requires cyclists to be fully integrated with motorists. Prior to establishing a signed cycling route, candidate roadways should be evaluated to ensure that adequate lane and shoulder widths are available and that traffic volumes are compatible with this type of use. This facility is usually reserved for low-traffic, local and rural roads.

"Signed Cycling Routes" should not be confused with the "Shared Outside Lane" facility type. These are differentiated by the lack of pavement markings on the former and the "sharrow" marking on the latter, as well as by the amount of roadway space that may be required.

This design conforms approximately to Niagara Region's standard Class 3 facility, "Signed Cycling Route," however it may be confused with the "Paved Shoulder" version of the Class 2 facility.

[**Note:** This is a is un-marked and recommended for use only on low-speed, low-traffic roadways;; the Shared Outside Lane (with on-street parking) facility is a marked facility with minimum dimension that may be used on busier, faster roadways]



Typical cross-section of a signed cycling route

For Niagara Falls, this is recommended as the primary facility type for local roads, within the wider grid areas of the Strategic Network. They serve well for local trips, especially by children going to nearby schools, playgrounds or other destinations, and they also serve to connect cyclists from within neighbourhoods to the Strategic Network routes

Pros: This facility type serves well for local trips, and to connect cyclists from within neighbourhoods to the Strategic Network routes.

Cons: This facility form requires cyclists to be fully integrated with motorists, making it less desirable for inexperienced cyclists. As well, it is limited in applicability as it requires the evaluation of candidate routes to ensure that adequate lane and shoulder widths are available and that traffic volumes are compatible with this type of use.

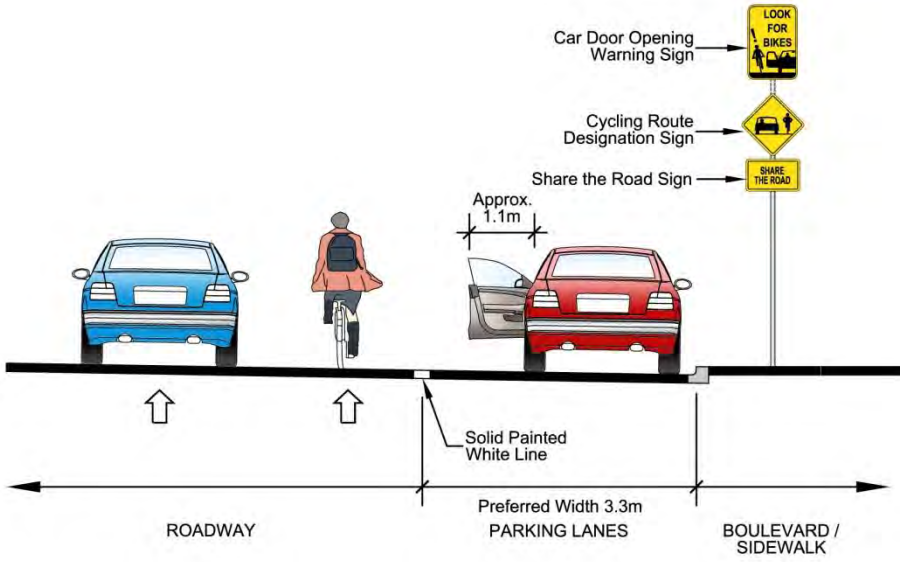
Applicability to Region of Niagara Standard: This design conforms approximately to Niagara Region's standard Class 3 facility, "Signed Cycling Route," however it may be confused with the "Paved Shoulder" version of the Class 2 facility.

Primary Facility Use: This facility is usually reserved for low-traffic, local and rural roads.

ROW and Lane Width: N/A

SIGNED CYCLING ROUTE (WITH ON-STREET PARKING)

Roadways with on-road parking can be made compatible with a signed cycling route if adequate space is available to accommodate the opening of automobile doors without interfering with cycling traffic. "Door Opening Warning" signs and an awareness program to prevent "dooring" are recommended. These signs would be spaced to alternate with "Cycling Route" designation signs.



Typical cross-section of a signed cycling route adjacent to on-street parking

Pros: Signed cycling routes with parking share many of the same "pro's and con's" of those not adjacent to parking.

Cons: The additional drawbacks associated with being adjacent to parking include conflicts with automobiles crossing the lane to access or leave parking spaces, and risks to cyclists associated with opening car doors. A painted line between the cycling lane and parking spaces, and a greater width of cycling lane is usually recommended as a means to reduce these hazards, but they will also increase the space required and associated costs.

Applicability to Region of Niagara Standard: This design conforms approximately to Niagara Region's standard Class 3 facility, "Signed Cycling Route," however it may be confused with the "Paved Shoulder" version of the Class 2 facility.

Primary Facility Use: This facility is usually reserved for low-traffic, local and rural roads, where on-street parking exists.

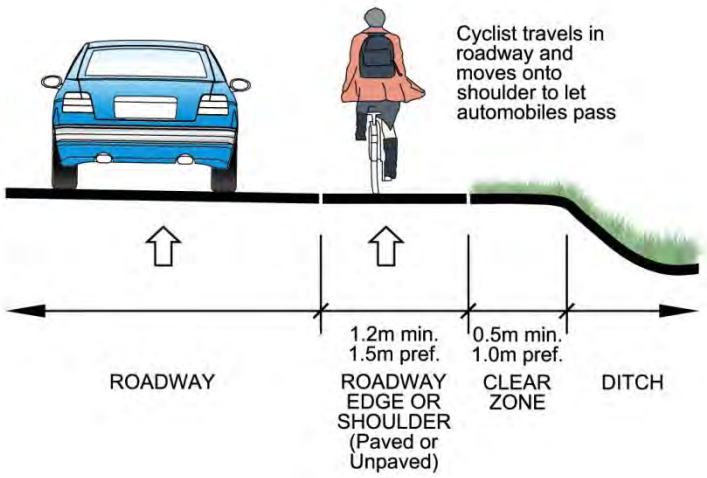
ROW and Lane Width: N/A

PAVED ROADWAY EDGE (OFTEN IDENTIFIED AS "PAVED SHOULDER")

On uncurbed roadways (typically associated with rural areas or large parks) the provision of additional space for a dedicated cycling facility is often not feasible. In these situations users will often travel on the roadway itself, moving to the edge or shoulder to allow motor vehicles to pass.

The Highway Traffic Act requires cyclists to use the right lane and to make room for passing motor vehicles. Pedestrians may be present on the same facility, travelling in opposite directions. The nature of rural roads usually prevents conflicts by allowing long, wide views, however care should be given near intersections and curves to ensure that lines-of-sight are maintained and warning signs are posted.

This design conforms approximately to Niagara Region's standard Class 2 facility, "Paved Shoulder / Bike Lane," however it may be confused with the "partially paved shoulder" version of the Class 3 facility. This report recommends that the City not make use of any type of a "partially-paved-shoulder" facility as it does not provide a safe, continuous facility for cyclists.



Typical cross-section of cyclist on a paved roadway edge

Similar to the Signed Cycling Route, this facility form requires cyclists to be fully integrated with motorists, but signage is considered optional due to concerns in some areas for promoting use of this type of facility. Prior to establishing this type of route, candidate roadways should be evaluated to ensure that adequate lane and shoulder widths are available and that traffic volumes are compatible with this type of use. This facility is usually reserved for low-traffic, rural roads.

Pros:

Cons: The lack of signage makes this type of facility less visible, and therefore perceived as less safe for cyclists than the Signed Cycling Route.

Applicability to Region of Niagara Standard: This design conforms approximately to Niagara Region's standard Class 2 facility, "Paved Shoulder / Bike Lane," however it may be confused with the "partially paved shoulder" version of the Class 3 facility. This report recommends that the City not make use of any type of a "partially-paved-shoulder" facility, as it does not provide a safe, continuous and visible facility for cyclists.

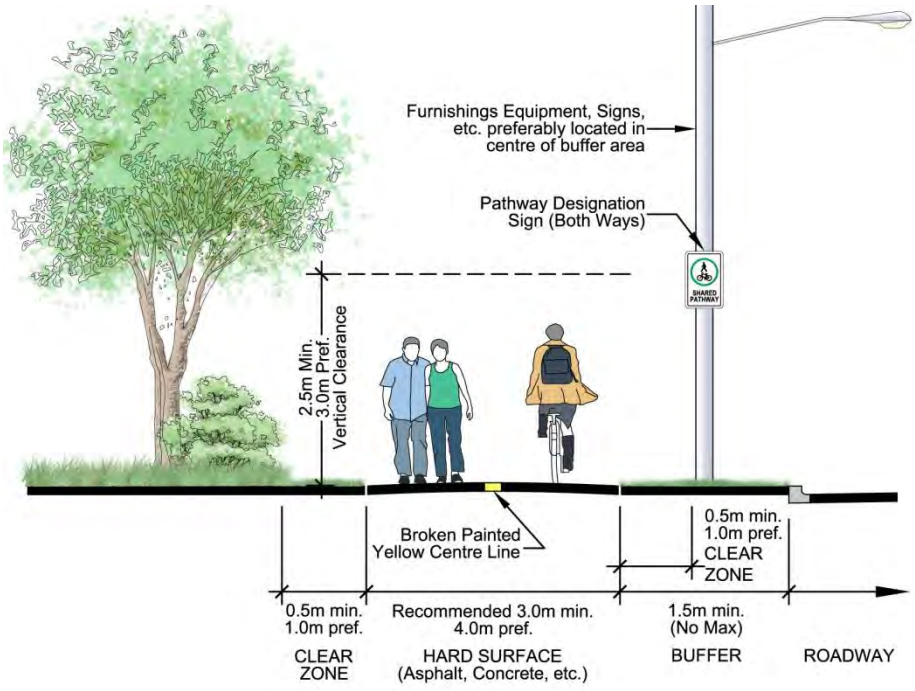
Primary Facility Use: This facility is usually reserved for low-traffic, rural roads.

ROW and Lane Width: Current practices indicate that 1.2-metres is the minimum recommended width for this type of facility, and suggest that a preferred width of 1.5-metres should be used where possible.

MULTI-USE PATHWAY (OFTEN IDENTIFIED AS "BOULEVARD TRAIL")

Multi-use pathways within road rights-of-way are almost identical to those outside of roadways. They are shared-use facilities accommodating cyclists and a range of pedestrians including walkers, joggers, in line skaters, etc, and many of the same design considerations apply. The following description only deals with the conditions unique to roadway scenarios

This design conforms approximately to Niagara Region's standard Class 1 facility, "Multi-use Trail.".



Typical cross-section of a multi-use pathway within a road right-of-way

A landscape boulevard or buffer with a minimum width of 1.5-metres is required, and this may be required to be wider depending on what type of equipment (signs, lighting, utility structures, trees, etc.) has been installed adjacent to the roadway, and where the equipment is to be installed. The 1.5 metre minimum buffer standard assumes that within this area, all equipment would be a minimum of 0.50 metres, or preferably a full metre away from the travelled surface. In some cases, it may be possible to move this equipment to optimal positions as part of the facility implementation. Where numerous driveways exist and space is available, it is recommended that the buffer is of sufficient width to accommodate waiting motor vehicles turning on or off of the roadway.

Pros: This is a shared-use facility accommodating cyclists and a range of users. The separation of different users provides a safe route, that is both visually and spatially separated from on-road traffic, making it desirable for less-experienced and slower cyclists and pedestrians.

Cons: Drawbacks of this facility type include the significant amount of space required for adequate widths and setbacks, as well as the increased associated costs.

Applicability to Region of Niagara Standard: This design conforms approximately to Niagara Region's standard Class 1 facility, "Multi-use Trail."

Primary Facility Use: This facility is used for commuter and recreational cyclists and pedestrians, where adequate space within the road right-of-way exists.

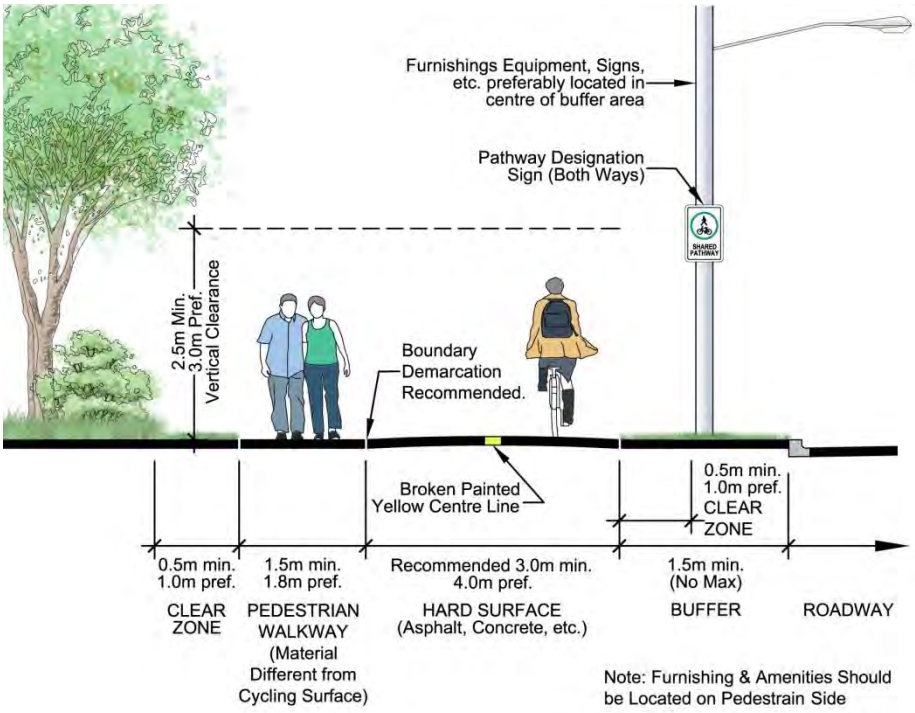
ROW and Lane Width: A landscape boulevard or buffer with a minimum width of 1.5-metres is required, and this may be required to be wider depending on what type of equipment (signs, lighting, utility structures, trees, etc.) has been installed adjacent to the roadway, and where. The 1.5 metre minimum buffer standard assumes that within this area, all equipment would be a minimum of 0.50 metres, or preferably a full metre away from the travelled surface. In some cases, it may be possible to move this equipment to optimal positions as part of the facility implementation. Where numerous driveways exist and space is available, it is recommended that the buffer is of sufficient width to accommodate waiting motor vehicles turning on or off of the roadway.

SEPARATED MULTI-USE PATHWAY (OFTEN IDENTIFIED AS "BOULEVARD TRAIL")

In some situations, where greater overall use or an exceptional volume of pedestrians or slower traffic is anticipated, or where an attraction or amenity exists adjacent to the facility alignment, a separated version of the multi-use pathway may be considered. Although this may take the form of a "promenade" as described in the similar off-road facility, it would be more likely seen as a sidewalk and a pathway.

It is important when planning this type of facility to ensure that the separation is clear—differing surface treatments are preferred—and that sight-lines remain open. The slower facility—the sidewalk—should generally be planned further away from the roadway than the pathway. Otherwise, all of the same design considerations exist as for the standard version of this facility.

This design conforms approximately to Niagara Region's standard Class 1 facility, "Multi-use Trail," or exceeds it.



Typical cross-section of a separated multi-use pathway within a road right-of-way

It is also possible to imagine situations where a two-sided version of this facility or a more urban version would be appropriate (passing through a plaza or wider promenade situation, for example.) These should be carefully designed to fit specific site conditions.

Pros: This facility can be used where greater overall use or an exceptional volume of pedestrians or slower traffic is anticipated, or where an attraction or amenity exists adjacent to the facility alignment.

Cons: Drawbacks of this facility type include the significant amount of space required for adequate widths and setbacks, as well as the increased associated costs.

Applicability to Region of Niagara Standard: This design conforms approximately to Niagara Region's standard Class 1 facility, "Multi-use Trail," or exceeds it.

Primary Facility Use: This facility is used for both commuter and recreational cyclists and pedestrians, where adequate space in the road right-of-way exists.

ROW and Lane Width: A landscape boulevard or buffer with a minimum width of 1.5-metres is required. A separated cycling pathway is recommended at 3.0-metre minimum width and 4.0-metre preferred width. The adjacent pedestrian walkway should be a minimum 1.5-metre width and 1.8-metre preferred width.

Sidewalks

Municipal sidewalks are intended for the shared use of pedestrians, in-line skaters and child cyclists. Where required, signage is recommended to communicate the exclusion of cyclists; however it is preferable to provide some type of designated on-road facility as a clear, positive alternative for these users.

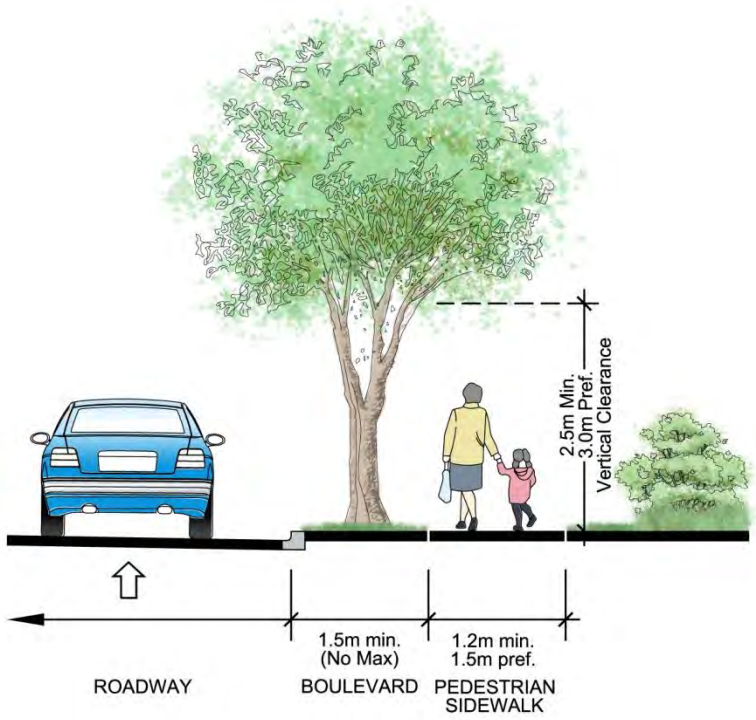
Sidewalks are typically two-way facilities located on one or both sides of a roadway. Where sidewalks are located on only one side of a roadway, consideration should be given to pedestrians who will use the un-serviced side (to access homes or destinations thereon) and on how users will cross the roadway to access the sidewalk. Sidewalks can be designated by signage and possibly indicated on maps if they are part of a designated pedestrian route.

Sidewalks should be a minimum of 1.2 metres wide, though 1.5 metres or greater is preferred, especially where heavy use may be encountered. Accessible curb ramps should be provided at all intersections or crossings.

Generally, sidewalks of the minimum dimensions noted above should be considered as a minimum pedestrian facility. They may be replaced by a multi-use pathway, or enlarged and 'finessed' in response to urban design and aesthetic considerations.

SIDEWALKS ON RESIDENTIAL ROADS

Sidewalks on residential roads should be provided with a boulevard or buffer having a minimum width of 1.5 metres, to separate the sidewalk from traffic. Signs, street furniture and other utility or traffic equipment should be installed within the boulevard or behind the sidewalk, at a minimum distance of 0.5-metres.



Typical cross-section of a sidewalk on a residential road

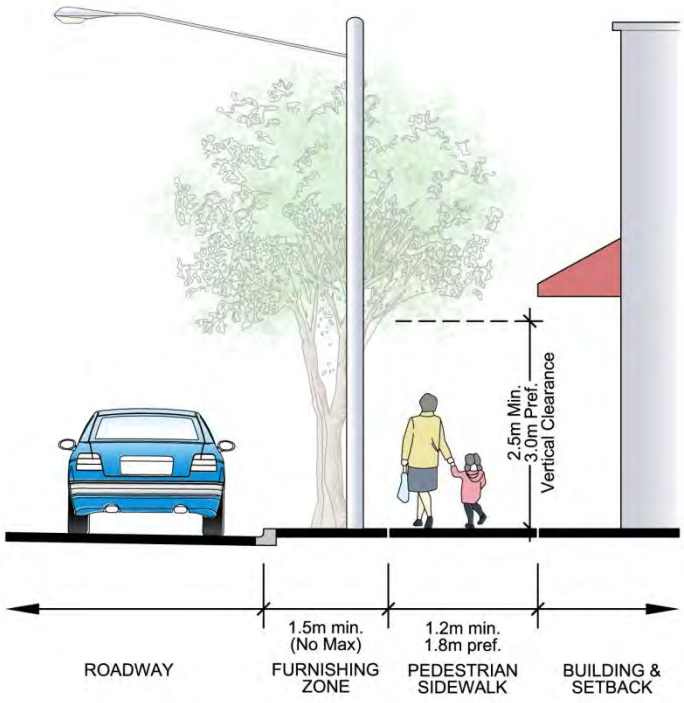
Where roadways are un-curbed, as is common in Niagara Falls, a wider boulevard area is preferred. Sidewalks exist that abut roadways and/or paved boulevards without barrier curb separation. When re-building these facilities, they should be moved away from roadways and separated by a planted or sodded boulevard, or separated from paved boulevards by a barrier curb.

SIDEWALKS IN URBAN AREAS

Sidewalks in urban areas should also be provided with a boulevard or buffer having a minimum width of 1.5 metres, to separate the sidewalk from traffic, but this is recommended to be primarily a paved surface, and may be indistinguishable from the sidewalk surface.

Signs, street furniture and other utility or traffic equipment should be installed within the boulevard (often referred to as a "furniture zone" in this situation) or behind the sidewalk, at a minimum distance of 0.5-metres.

The furniture zone is ideally provided with street trees at six to ten metre spacing, and with other aesthetic enhancements such as planting beds, however, access to any adjacent parking should be ensured, and views within and across the streetscape should be preserved.



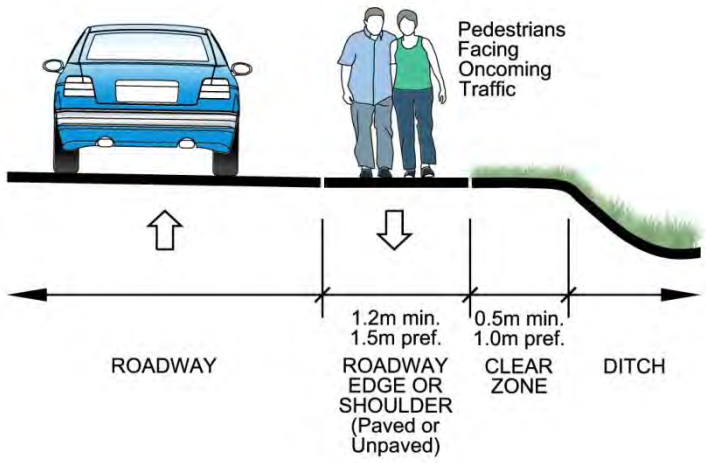
Typical cross-section of a sidewalk in an urban area

Urban amenities such as sidewalk cafés, newsstands, street markets and others should be restricted to the area behind the sidewalk, and should be encouraged to preserve a clear zone equal to that provided in the furniture zone.

PAVED ROADWAY EDGE (OFTEN IDENTIFIED AS "PAVED SHOULDER")

On uncurbed roadways (typically associated with rural areas or large parks) the provision of additional space for sidewalks is often not feasible, and would restrict the use of surface drainage. In these situations pedestrians will often travel on the roadway itself, moving to the edge or shoulder to allow motor vehicles to pass.

This design conforms approximately to Niagara Region's standard Class 2 facility, "Paved Shoulder / Bike Lane," however it may be confused with the "partially paved shoulder" version of the Class 3 facility.

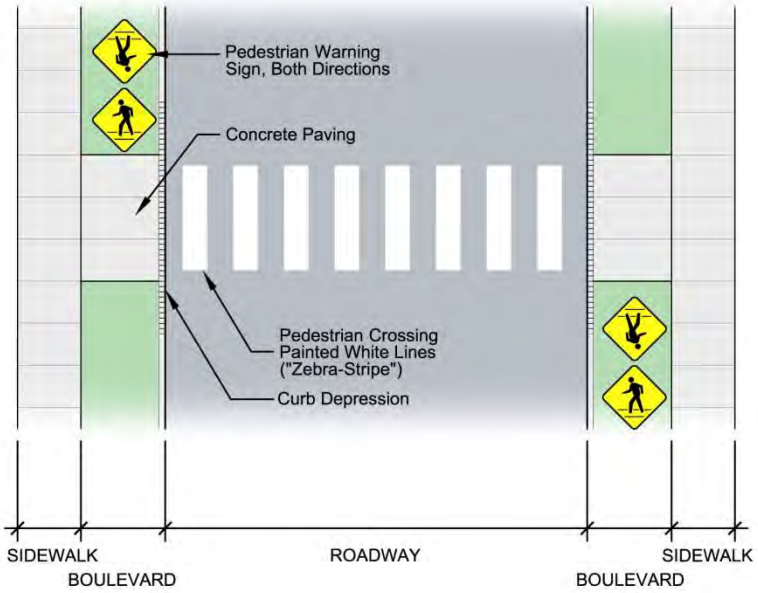


Typical cross-section of pedestrians on a paved roadway edge

The Highway Traffic Act requires pedestrians to use the left lane, facing oncoming traffic. Cyclists may be present on the same facility, travelling in opposite directions. The nature of rural roads usually prevents conflicts by allowing long, wide views, however care should be given near intersections and curves to ensure that lines-of-sight are maintained and warning signs are posted.

MID-BLOCK CROSSINGS

The City of Niagara Falls has successfully implemented numerous mid-block crossings for pedestrians throughout the city. This report recommends that this practice be continued and extended to include areas not yet served. Further, this report recommends consideration of an improved design of these crossings.



Plan of recommended improved mid-block crossing design

The improved design makes use of curb depressions (or accessible curb ramps) to achieve a continuous, barrier free travel surface, and standard “zebra-stripe” markings to improve the visibility of the facility, compared to the current practice of two lines marking the edges of the crossing area only.

In busy areas, the City may consider signalizing these crossings, along with including stop bars and lettering painted on the roadway.

APPENDIX C

1998 – City of Niagara Cycling Routes

2003 Regional Niagara Cycling Plan

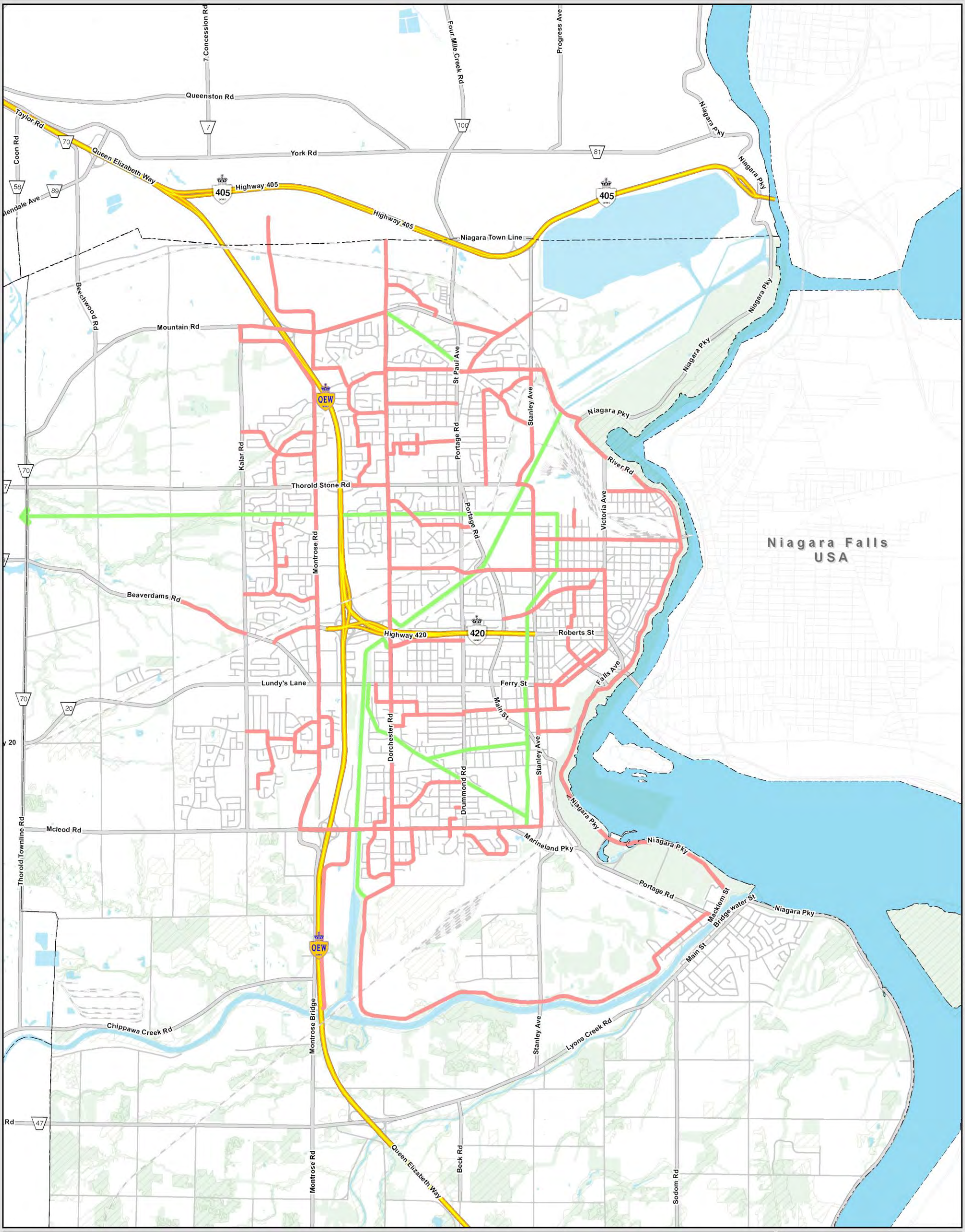
Existing Sidewalks and Trails

Active Transportation

Proposed Active Transportation

Proposed Off-Road Active Transportation

Proposed On-Road Active Transportation



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UTM Zone 17N, NAD 83

Legend

- On-Road Cycling Facilities-1998
- Off-Road Cycling Facilities-1998
- Highways
- Arterial Roads
- Ramps
- Local Roads
- Railway
- Water
- Environmental Protection Area
- Environmental Conservation Area
- Municipal Boundary

0 625 1,250 2,500 3,750 5,000 M

Niagara Falls STMP
60119125

1998 - City of Niagara Falls Cycling Routes

AUG-2011

AECOM

Map Document: (C:\Projects\NiagaraTMP\August2011\Cycling\98_Cycle.mxd)
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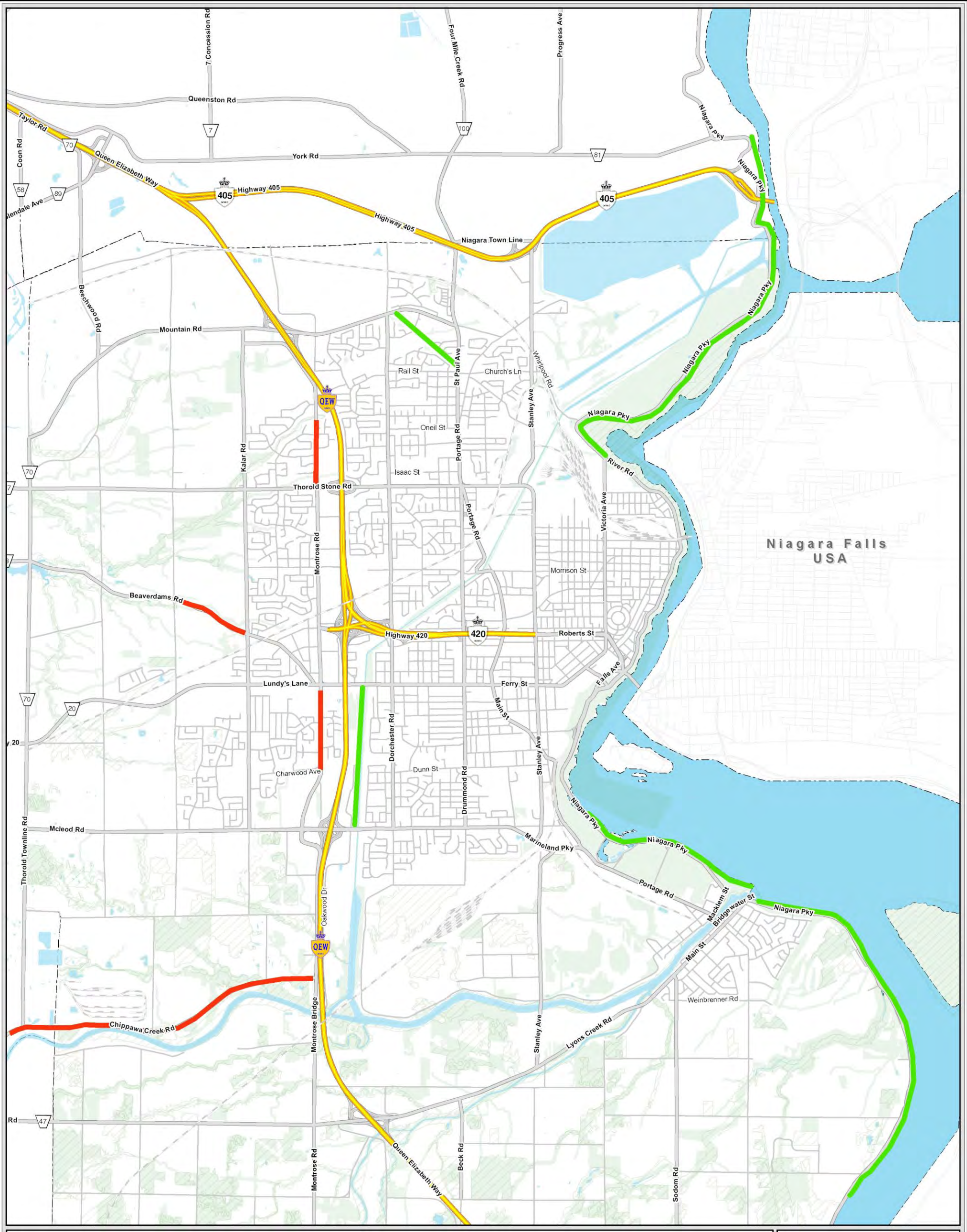

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UTM Zone 17N, NAD 83

Legend

- DesignatedLanes
- Off-Road
- On-Road
- Highways
- Arterial Roads
- Ramps
- Local Roads
- Railway
- Water
- Environmental Protection Area
- Environmental Conservation Area
- Municipal Boundary

0 625 1,250 2,500 3,750 5,000 M

Niagara Falls STMP
60119125

2003 Regional Niagara Cycling Plan

AUG-2011

AECOM

Map Document: (C:\Projects\NiagaraTMP\August2011\Cycling\p2.mxd)
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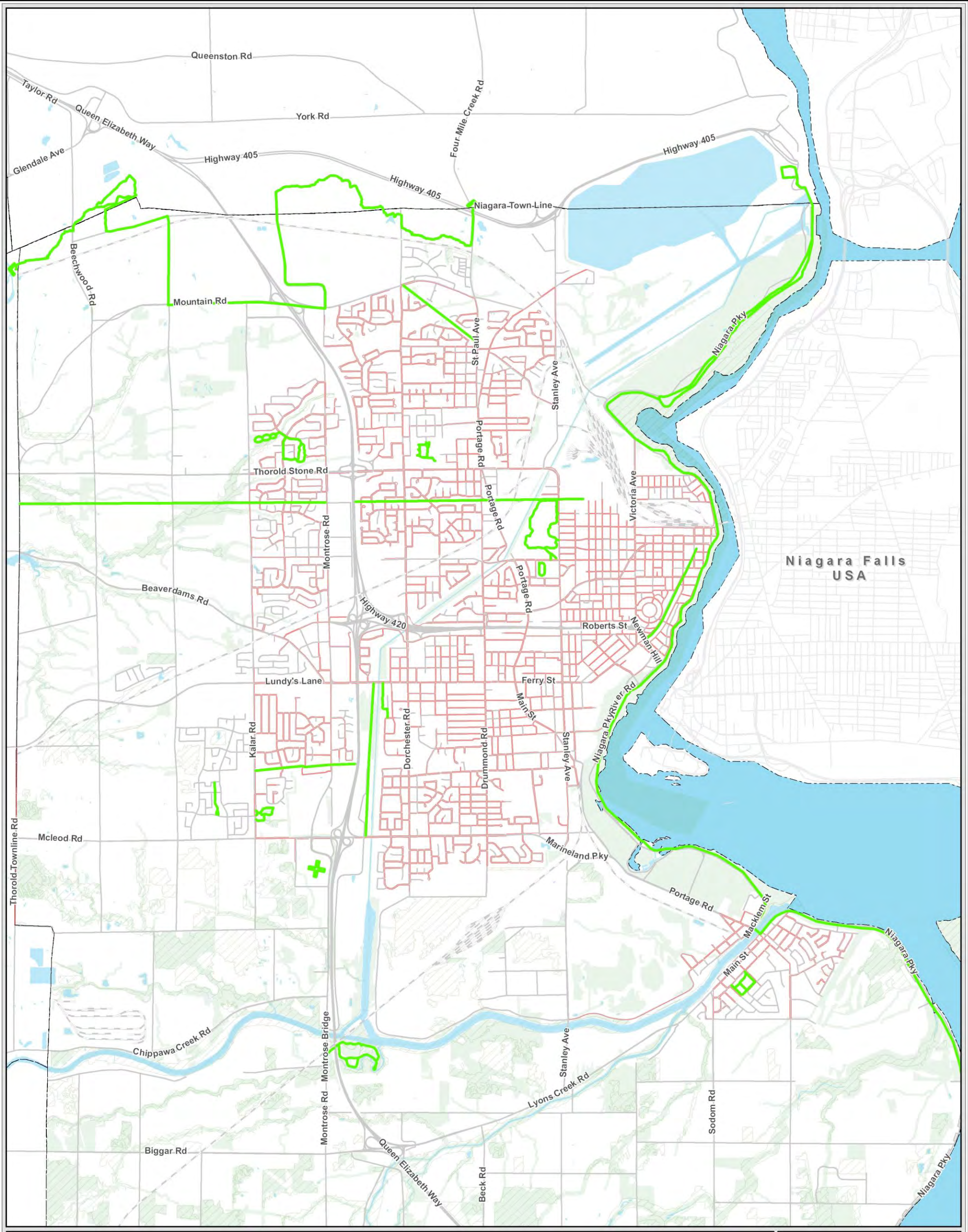

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UTM Zone 17N, NAD 83

Legend

- Existing Trails
- Existing Sidewalks
- Railway
- Local Roads
- Water
- Environmental Protection Area
- Environmental Conservation Area
- Municipal Boundary

0 625 1,250 2,500 3,750 5,000 M

Niagara Falls STMP
60119125

Existing Sidewalks & Trails

AUG-2011

AECOM

Map Document: (C:\Projects\NiagaraTMP\City of Niagara Falls\ActiveTransport_11x17.mxd)
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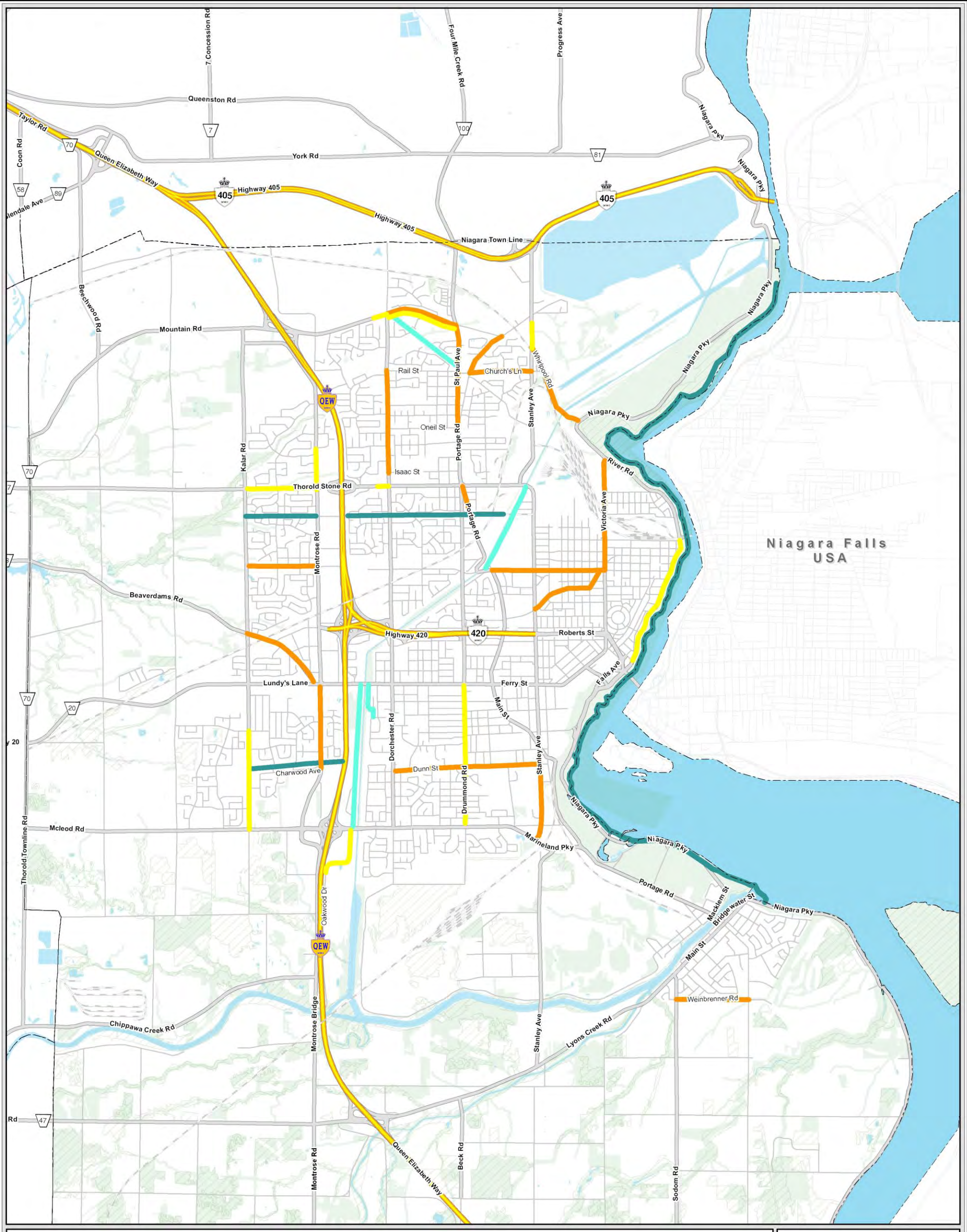

Legend

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1:52,000

UTM Zone 17N, NAD 83

- On-Road Facilities Not Yet Completed/Sub-standard Form
- On-Road Possible Services
- Off-Road Facility Upgrades Required
- Off-Road Usable Facilities
- Highways
- Arterial Roads
- Local Roads
- Railway
- Water
- Environmental Protection Area
- Environmental Conservation Area
- Municipal Boundary

0 625 1,250 2,500 3,750 5,000 M

Niagara Falls STMP
60119125

Active Transportation

AUG-2011

AECOM

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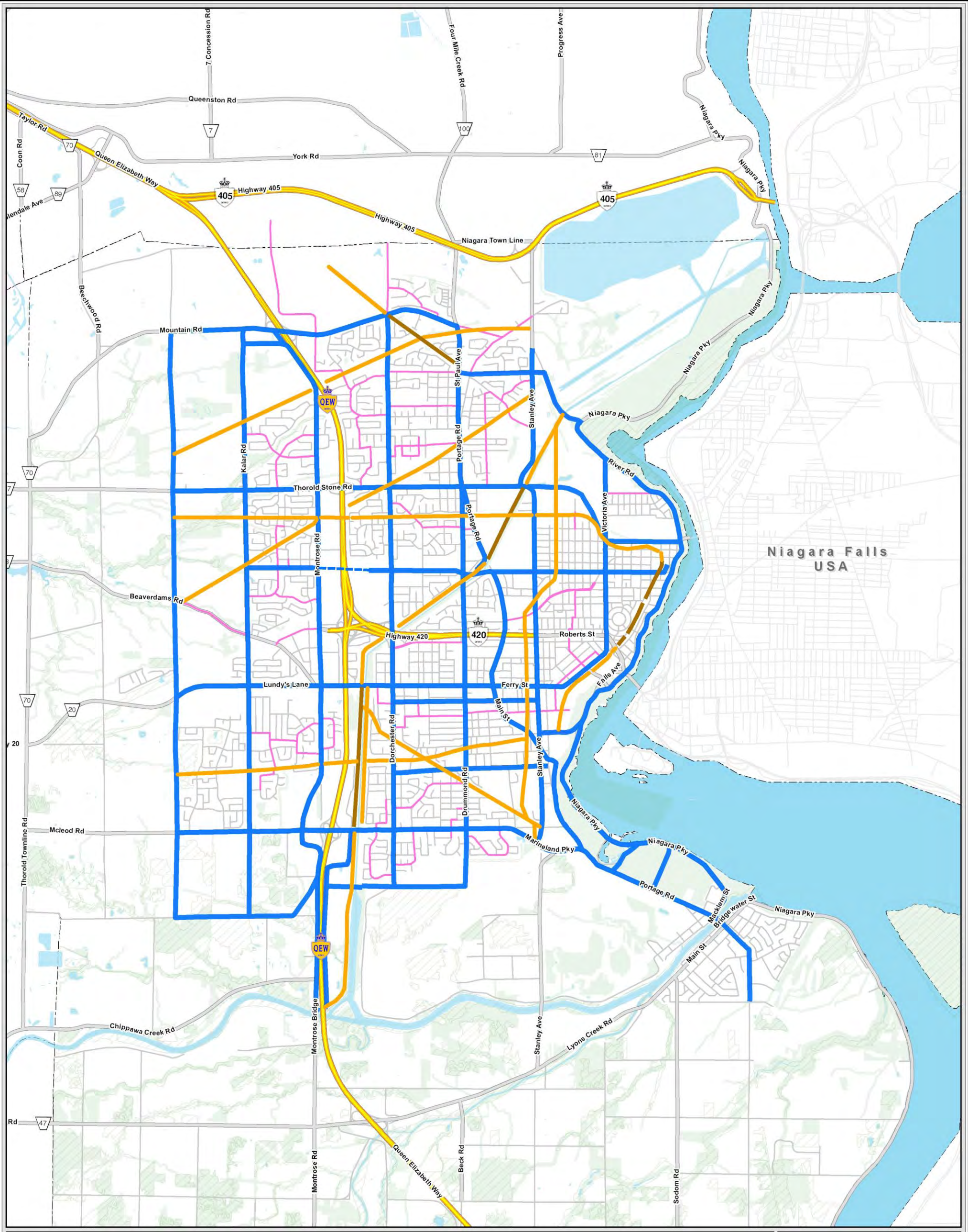

Niagara Falls STMP
60119125

Proposed Active Transportation

AUG-2011

AECOM

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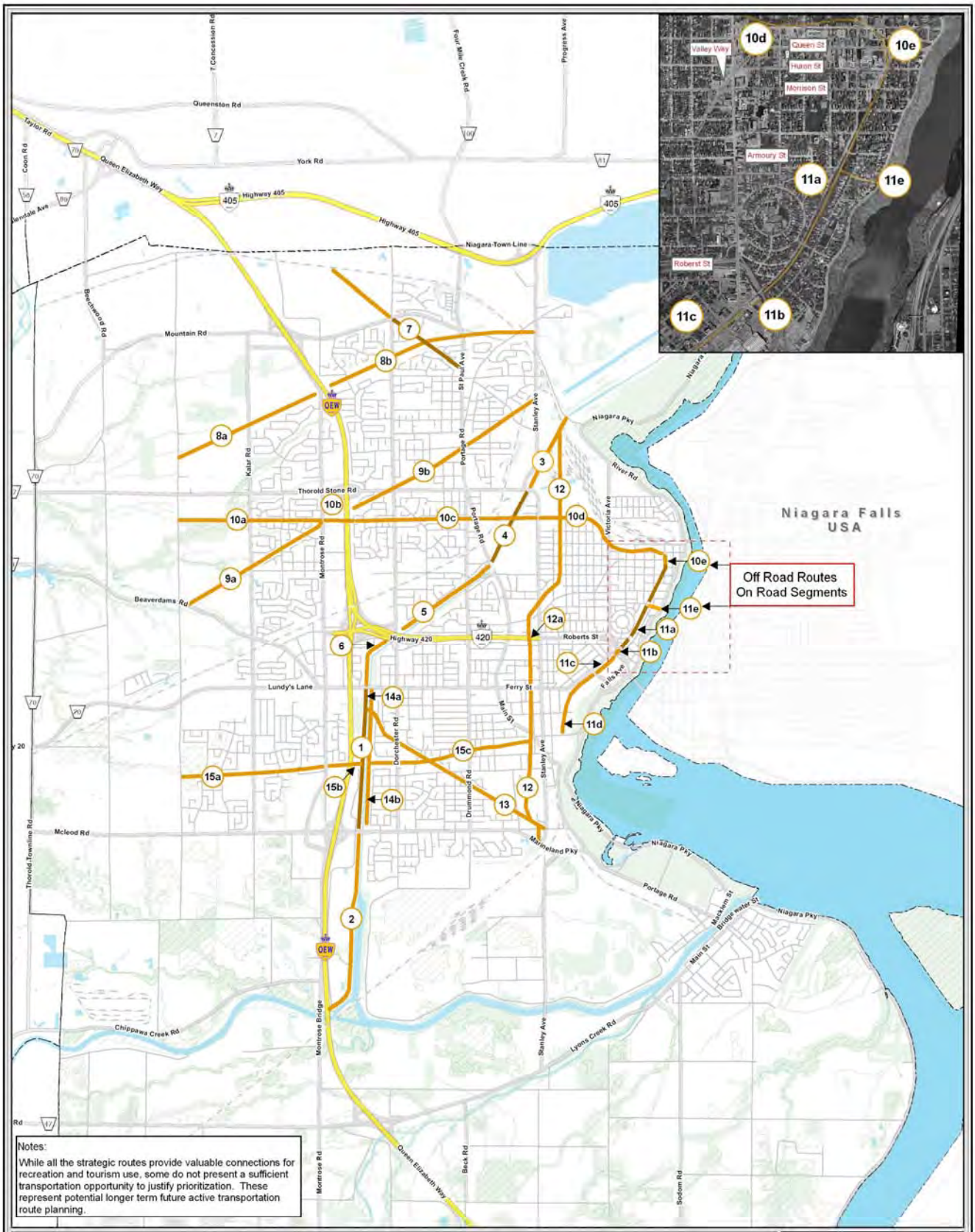
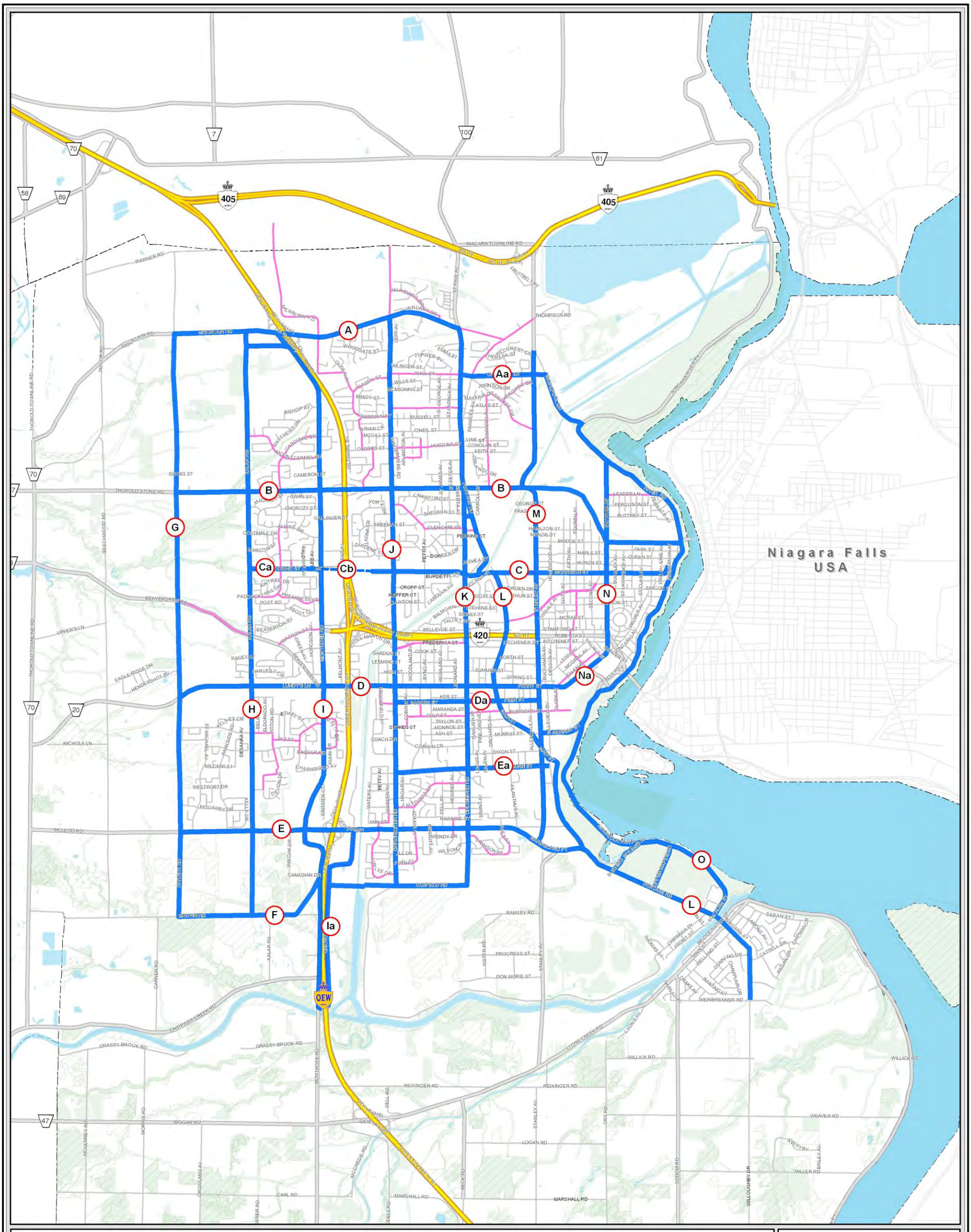

Queenston Rd
York Rd
Highway 405
Niagara-Town Line
Mountain Rd
Beaverdams Rd
Thorold Stone Rd
Lundy's Lane
Highway 420
Roberts St
Ferry St
Mcleod Rd
Chippawa Creek Rd
Queen Elizabeth Way
Niagara Pkwy
Portage Rd
Lyons Creek Rd
Niagara Falls USA
Off Road Routes
On Road Segments
Notes:
While all the strategic routes provide valuable connections for recreation and tourism use, some do not present a sufficient transportation opportunity to justify prioritization. These represent potential longer term future active transportation route planning.
Legend
Existing Off-Road Network
Proposed Off-Road Network
Highways
Arterial Roads; Ramps
Railway
Local Roads
Water
Environmental Protection Area
Environmental Conservation Area
Municipal Boundary
0 625 1,250 2,500 3,750 5,000 M
UTM Zone 17N, NAD 83
Niagara Falls STMP
60119125
Proposed Off-Road Active Transportation
AUG-2011
AECOM



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UTM Zone 17N, NAD 83

Legend

- Proposed Arterial
- Proposed Collector
- Highways
- Arterial Roads
- Ramps
- Local Roads
- Environmental Protection Area
- Environmental Conservation Area
- Morrison Street Connection (QEW overpass)

0 625 1,250 2,500 3,750 5,000 M

Niagara Falls STMP
60119125

Proposed On-Road Active Transportation

AUG-2011

AECOM

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AECOM

NiagaraFalls CANADA

TRANSPORTATION BEYOND TOMORROW 2031

City of Niagara Falls

SUSTAINABLE TRANSPORTATION MASTER PLAN

TRANSPORTATION BEYOND TOMORROW 2031

Transportation Demand Management

January 2011

NiagaraFalls CANADA

Niagara Parks

Niagara Region
Building Community. Building Lives.

Ontario

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Executive Summary

An important part of the Niagara Falls Sustainable Transportation Study and Master Plan (STMP) is sustainable transportation, including strategies to support sustainable growth, reduce dependence on the private automobile and create an active, liveable community. This paper outlines the Transportation Demand Management (TDM) element of the STMP and identifies and recommends enhancements and expansion of current municipal and Regional TDM initiatives to create an integrated, sustainable and accessible transportation system.

Transportation Demand Management

Essentially, TDM is a range of policies, programs and mobility services and products that influence whether, why, when, where and how people travel. It works to optimize the movement of people, rather than that of motor vehicles, and it typically refers to passenger movements, such as commuter, school and non-work related travel. Most TDM programs include objectives such as reducing single occupant vehicle (drive alone) trips. Where TDM is applied successfully, the community can benefit in several ways, including; improved quality of life; reduced traffic congestion, air and noise emissions; and improved public health and safety. It can also enable communities to meet transportation needs without the significant additional road infrastructure requirements.

TDM in the City of Niagara Falls

A variety of TDM initiatives have been developed and put into place by the City of Niagara Falls and Niagara Region, led by departments including transportation, parks and recreation, and public health. These initiatives include, but are not limited to, the following:

- Walking and cycling trails system;
- Trails information and City walking and cycling initiatives on City web site (http://www.niagarafalls.ca);
- Trails and Bikeway Master Plan and Master Plan Update;
- Cycle Safety Clinic;
- Trail restoration activities;
- Trails database and mapping, including on-line information;
- Guide to Walking Routes in Niagara Falls Ontario;
- Provision of public transit routes;
- Winter bus stop maintenance;
- Signage and wayfinding project;
- Provision of bike racks on buses;
- Participation in Active and Safe Routes to School (ASRTS); and
- Niagara International Transportation Technology Coalition (NITTEC).

Lessons Learned from TDM Experience Elsewhere

Based on a review of TDM programs and initiatives in different types of cities and metropolitan areas, important lessons have been learned for Niagara Falls:

- Land use and transportation are fundamentally linked. In order to successfully promote sustainable transportation, transit oriented development (TOD), transit improvements and smart growth initiatives should co-exist to achieve significant results.
- Some people will still need/feel the need to drive, particularly where alternative travel modes are not practical or available. Effective TDM programs should focus on providing choices to those who could use non-car modes frequently or occasionally.
- Commute trip reduction and ride sharing programs are important parts of successful TDM programs, e.g., promoting better travel options to discourage increasing rates of single occupancy vehicle (SOV) use, and providing incentives for SOV reductions.
- Collaboration with different public and private sector partners and stakeholders is an important factor in the success of TDM, including City departments (Parks, Recreation and Culture, and Planning and Development), Niagara Region, area municipalities and groups such as Transportation Management Associations (TMAs), car-sharing and ride-matching services, etc.
- Economic incentives and associated disincentives can be powerful motivators and effective in promoting change and gaining interest in TDM efforts (e.g., parking management reforms, transit pass subsidies, etc.).
- Maintenance of active transportation facilities is needed to ensure that they are used; damaged and unmaintained routes are of little use to the travelling public, including during the winter months.
- Target-specific marketing strategies are highly beneficial. Individualized marketing approaches can effectively reach out to residents, employers and employees in ways that are meaningful to each individual. Such techniques can be resource-intensive, but can lead to significant shifts in transportation behaviour.
- The public needs easy access to information about transportation choices before any behavioural changes can be made. Successful TDM and active transportation initiatives often include strong presence on municipal web sites and promotions throughout municipalities, with consistent branding and frequent information updates to keep the public engaged.

Moving Forward on TDM – Recommendations

In order to progress TDM in Niagara Falls, overarching recommendations are provided as well as an outline of initiatives by implementation horizon and target market. Recommended measures are generally grouped into four

categories: Education, Promotion and Outreach; Travel Incentives; Land Use and Transportation Integration; and Transportation Supply.

Overarching Recommendations

- Appoint/hire a dedicated TDM Co-ordinator for the City, and source support resources to prepare a program business plan, co-ordinate program marketing, monitor results, organize public outreach programs, and implement TDM strategies (further discussion is required regarding budget implications). There may be opportunities to partner with the Region and/or neighbouring municipalities to "share" a TDM Co-ordinator on a part-time basis.
- Market TDM throughout the community as part of the TDM program and incorporate marketing approaches and outreach tools and programs that target specific markets, including the tourist sector.
- Update the Niagara Falls Official Plan to include and be in line with the City's TDM strategies. The City is encouraged to include in its Official Plan the model local bicycle transportation policies developed by the Regional Niagara Bicycling Committee.
- Initiate discussions with Niagara Region and the Province of Ontario with respect to modifications to the Development Charges Act to recognize efforts to promote TDM (transit). Recommendations should be identified for an equitable funding approach within the Development Charge framework to recognize both the costs and potential benefits of various TDM measures and investments in transit and other non-auto infrastructure.
- Develop a separate infrastructure capital program within the annual budget to implement TDM-related initiatives.
- Develop an approach to rationalize the need to resolve all existing and anticipated areas of congestion in the community, considering but not limited to the following issues:
    - The desire to improve the competitiveness of transit service;
    - The nature and duration of congestion;
    - The impact of congestion on walking and cycling;
    - Safety issues arising from current and anticipated congestion; and
    - Impact on economic, social and sustainability considerations as documented in the Goals, Principles and Objectives Working Paper.
- Reassess Traffic Impact Study guidelines, and if necessary formalize changes and requirements to be published and broadly disseminated to the community.
- Consider TDM in the context of all development reviews. One way to consider TDM in the context of all development reviews is to create a standard checklist by which engineers and planners can review proposals and offer opportunities to enhance the proponent's commitment to accommodating all modes of transportation. This

could be a quickly implementable approach to increase awareness and support for TDM.

- Continue participation in Niagara Region's Regional TDM development work as part of the TDM Advisory Committee and other future opportunities.

It is important to note that a successful TDM program needs a champion in the municipality and in the wider community. Promotion, preparation of marketing material, securing funding and coordinating community programs require an individual to take a leadership role and ensure that the TDM program is implemented as planned.

The recommended TDM initiatives, target markets and implementation timing are provided below. The following initiatives will be further evaluated for cost-benefit comparison in the final TMP.

	TDM Initiative	Target Market
SHORT TERM PLANNING HORIZON		
Education, Promotion and Outreach		
1	Appoint/hire a dedicated TDM Co-ordinator for the City.	Program Management
2	Continue participation in Niagara Region's Regional TDM development work.	Program Management
3	Explore the creation and support of Niagara Falls Transportation Management Associations (TMAs).	Commuters
4	Provide strong TDM presence on City web site and develop a TDM brand.	Community-Wide
5	Develop a joint TDM marketing program for the City, Niagara Parks Commission and private sector.	Program Management/ Community-Wide
6	Provide walking, cycling and transit information on Niagara Falls' tourism web sites. It is understood that a Google map-based trip planner is currently under development by the City of Niagara Falls transit.	Tourists
7	Provide information on City web site about City's carbon dioxide (CO2) emissions and reduction measures.	Community-Wide
8	Promote carpooling initiatives and investigate partnership with a private carpool/ride-matching service.	Commuters
9	Develop TDM program for City of Niagara Falls staff.	Commuters
10	Promote compressed work weeks, teleworking, flexible hours for City employers.	Commuters
11	Promote and expand the Active and Safe Routes to School (ASRTS) program.	Students
12	Promote secondary and post-secondary institutions and student groups' adoption of TDM programs.	Students
13	Promote awareness of GO Transit services from Toronto, including the Bike	Tourists/

	TDM Initiative	Target Market
	Train.	Commuters
14	Provide education program to increase general awareness of benefits of walking and cycling.	Community-Wide
15	Complete a goods movement and delivery transportation management plan.	Shippers
16	Continue cycling events and initiate TDM events (e.g., car free day).	Community-Wide
17	Provide cycling safety clinics for all ages.	Community-Wide
18	Initiate community walking events for all ages.	Community-Wide
19	Develop and implement Regional and Municipal TDM monitoring program.	Program Management
20	Develop web-based trip planners for cycling and walking.	Community-Wide
Travel Incentives		
21	Develop employer transit pass program.	Commuters
22	Promote employee transportation allowance (private sector).	Commuters
23	Review current public parking supply and pricing and develop a City-wide parking implementation plan.	Community-Wide
24	Promote City-wide emergency ride home programs for sustainable mode users.	Commuters
25	Examine the feasibility of a “smart card” program with Niagara Region.	Community-Wide
26	Encourage dedicated, preferential parking spaces for carpools, car shares in both public and private lots.	Community-Wide
27	Expand winter bus stop maintenance program to include all bus stops.	Community-Wide
Land Use and Transportation Integration		
28	Provide bike parking at City facilities, major destinations, schools and tourist attractions.	Community-Wide
29	Require bike parking, change room and shower facilities at all major workplaces.	Commuters
30	Require pedestrian- and transit-friendly road networks.	Community-Wide
31	Expand scope of ‘Traffic Impact Studies’ to include consideration of all modes – for all developments, with a focus on accessibility rather than capacity.	Residential and Commercial Developments
32	Promote shared parking practices/facilities at commercial retail and mixed use developments.	Community-Wide
33	Establish maximum parking requirements, and parking exceptions, for residential, commercial, industrial and institutional developments.	Community-Wide
34	Fully wire all new homes for high-speed internet access, to facilitate telecommuting.	Households
35	Create a standardized list of TDM policies/initiatives to enable developers to reduce automobile trips.	Community-Wide
36	Partner with the private sector to provide transit shelters and station facilities throughout the City.	Community-Wide
37	Review development staging in new communities to ensure higher densities are contained in initial phasing.	Community-Wide
38	Use trees and other green elements to provide shelter, aesthetic benefits,	Community-Wide

	TDM Initiative	Target Market
	shade and separation from motorized traffic.	
39	Pursue changes to LEED rating systems transportation and parking credits.	Community-Wide
40	Amend Development Charges Act to enable municipalities to levy charges for all transportation-related infrastructure.	Program Management
Transportation Supply		
41	Develop a core cycle network, including addressing gaps in the current network of on- and off-street bike routes.	Community-Wide/Cyclists
42	Develop a network of pedestrian pathways/sidewalks at places of residence, employment, key destinations and transit stops.	Community-Wide/ Pedestrians
43	Establish pathway maintenance standards that are focused on the needs of pedestrians, cyclists and those requiring accessibility.	Community-Wide
44	Conduct a survey of all sidewalks in the City, including inventory and condition.	Community-Wide/ Pedestrians
45	Develop a transit priority plan/priority lanes to improve transit service levels.	Community-Wide
46	Continue to install bike racks on buses.	Community-Wide
47	Assess the feasibility of a privately-owned car share program.	Community-Wide
MEDIUM TERM PLANNING HORIZON		
Travel Incentives		
48	Expand flexible transit pass program to include post-secondary education students, weekly passes and weekend passes (particularly for tourists).	Community-Wide/Tourists
Land Use and Transportation Integration		
49	Un-bundle parking costs from residential units at time of purchase, for new multi-unit complexes.	Households
50	Provide zoning flexibility for home-based business/home offices.	Households
51	Integrate local shopping and essential services into suburban neighbourhood land use planning.	Community-Wide
52	Limit student parking at local high schools, colleges and universities – along with transit, walking and cycling improvements.	Students
53	Limit on-site residential parking for new, single-family homes.	Households
54	Ensure that transit services are provided to new residential and commercial developments at an early stage, with developer funding.	Community-Wide
Transportation Supply		
55	Schedule buses every 15 minutes (at minimum) on high volume transit corridors, during peak periods.	Community-Wide
56	Investigate implementation of a bicycle sharing program, working with the Niagara Parks Commission.	Community-Wide/Tourists
LONG TERM PLANNING HORIZON		
Travel Incentives		
57	Transportation Pricing – area-based tolls.	Community-Wide

Table of Contents

1. INTRODUCTION

1.1 PURPOSE OF POLICY PAPER

As the Niagara Falls Sustainable Transportation Study and Master Plan (STMP) progresses, policy papers are in development to identify key issues covering potential policy directions for the City of Niagara Falls and to facilitate discussion by the City's residents and stakeholders. This policy paper addresses Transportation Demand Management (TDM). It provides context and information on the City's current TDM programs and initiatives, as well as information on innovative measures undertaken in other jurisdictions, and lessons that can be applied to Niagara Falls, and the development of a multi-modal transportation plan for the next 20-25 years.

1.2 OVERVIEW OF THE NIAGARA FALLS SUSTAINABLE TRANSPORTATION MASTER PLAN

The City's STMP will provide a comprehensive, forward-looking strategy of priority improvements and programs to meet its transportation challenges. The plan will address operational, planning and policy issues for all transportation modes in the context of tourism, economics, environment and the community. The STMP will reflect the changes in development, economy, and planning environment since the 2003 TMP update, including the introduction of the Province's *Growth Plan for the Greater Golden Horseshoe*, which requires a comprehensive approach to planning for transportation relative to more intensive development and a shift from single occupant automobile travel toward transit and active transportation modes.

This study will update the transportation vision for the community in consultation with the public and other stakeholders, while building a consensus for an achievable sustainable strategy. Objectives of the study include improved flow and movement of traffic, pedestrians and cyclists in the City, and it will provide improvement priorities for corridor and transit infrastructure and transit service.

Source: The Case for TDM in Canada, Association for Commuter Transportation of Canada, October 2008

Preparation of the STMP involves: identifying issues; analyzing travel demands; evaluating transportation network deficiencies; and a full range of potential solutions and a comprehensive plan and strategy for implementing

recommended solutions. The range of solutions will recognize the aim to promote transit and other non-auto transportation modes. The implementation strategy will be developed relative to a comprehensive review of the financing and funding options available to the City.

1.3 UNDERSTANDING TDM

As communities continue to grow and the importance of balancing economic, social and environmental wellbeing is increasingly recognized, an approach to sustainably accommodate growth and mobility needs has emerged. Many jurisdictions are moving away from traditional means of addressing transportation needs (e.g., investing in new roadway infrastructure) and looking to ways to reduce and manage travel demand as part of a sustainable transportation system. TDM is a key element to such a system.

TDM is essentially a range of policies, programs and mobility services and products that influence whether, why, when, where and how people travel, as illustrated below. It helps to shape the factors behind travel decisions and is complemented by land use, transportation and parking policies. It works to optimize the movement of people, rather than that of motor vehicles, and it typically refers to passenger movements, such as commuter and school travel. Actions can include: offering other sustainable transportation mode and/or service choices; providing incentives for travel by sustainable modes and/or during off-peak periods; and incorporating growth management, traffic impact and parking policies into local development decisions.

Source: The Case for TDM in Canada, Association for Commuter Transportation of Canada, October 2008

Where TDM is applied successfully, the community can benefit in a number of ways. These can include: improved quality of life; reduced traffic congestion, air and noise emissions; and improved public health and safety. It can also enable communities to serve transportation needs without the significant funding, land and public support required to continually build and widen roads. Most TDM programs include objectives such as reducing single occupant vehicle (drive alone) trips.

Active transportation is an important part of TDM; it is ultimately the core of all travel and used by everyone. It includes any form of human-powered transportation – walking, cycling, using a wheelchair, skateboarding, etc., and has substantial benefits:

- personal health, happiness and quality of life;
- reduced travel costs;
- availability to a broad range of individuals;
- reliability of travel time;
- vibrancy and security of communities (people feel more secure when there are more people around them); and
- minimal environmental impacts.

The potential market for active transportation is often considered to be those trips that would take less than 30 minutes to walk (about 2 km) or cycle (about 5 km). Many trips could be converted to alternative modes without needing additions to the City's current infrastructure.

Source: City of Niagara Falls

1.4 TDM STRATEGIES

A number of different types of TDM strategies can influence travel choices. Some strategies improve transportation options, while others change trip scheduling, routing, destination or mode, or reduce the need to travel through more efficient land use. All use different means to encourage people to re-think travel choices, including the need to travel at all. Strategies are generally grouped in three categories: market based, behaviour based, and land use based. Each of these is described below.

1.4.1 Market Based Strategies

Market based strategies typically use economic incentives or disincentives to encourage certain behavioural outcomes. These are often the most effective in encouraging change, because the incentives are direct and have direct individual financial impacts. For the same reasons, however, they can be the most controversial. This type of strategy can range from simple, local level initiatives to wide-ranging measures that would require shifts in public policy, often beyond the scope of a single municipality.

Some examples of market based strategies are as follows:

- Parking Pricing – motorists pay directly to use parking facilities. It can be used to reduce traffic by a number of means. Changes in parking practices can be of concern to retail business owners, and such measures would require public and agency consultation.
    - Provide Parking Cash-Out – offers a subsidy to users of other modes equivalent to the value of a free parking space, offered as cash or other equivalent benefits (e.g., employees can choose between free parking, free monthly travel pass, or cash subsidy.
    - Set parking prices to equal or exceed transit fares (e.g., set daily rates in an area well-served by transit at least equal to two single transit fares, and monthly rates at least equal to a monthly transit pass).
    - Manage and price the most convenient parking spaces to favour priority users, with higher rates and shorter pricing periods at more convenient parking spaces (e.g., on-street spaces, near building entrances) to increase turnover and serve higher priority users (e.g., customers of local businesses).

- Road Pricing – motorists pay directly for driving on a particular roadway (e.g., toll roads such as the Highway 407 Express Toll Route). Some routes use variable pricing to manage demand levels throughout the day, charging higher tolls during peak periods to reduce demand and maintain acceptable levels of service on the facility.
- Congestion Pricing – motorists pay directly to drive in a particular area, to modify road usage and congestion levels on roads. It can help to shift peak hour traffic to other transportation modes and/or to off-peak periods, enabling the road network to flow more efficiently.

1.4.2 Behaviour Based Strategies

Behaviour based strategies generally use a combination of marketing, incentives and improved services/ infrastructure to provide a wider range of attractive transportation choices and encourage the public to review their transportation choices. They can be structured to achieve objectives including encouraging reductions in the overall number of trips people make in a day, use of alternative modes to the private automobile, and travel outside of peak periods. Behaviour based strategies are flexible, with different approaches used to achieve similar objectives; however, they are largely dependent on voluntary changes and their success is therefore dependent on public attitudes.

Some examples of behaviour based strategies include the following:

- Marketing alternative modes – includes strategies to encourage short- and long-term shifts in travel behaviour. These strategies range from special events and programs (e.g., Car Free Day) to social or individualized marketing campaigns to make longer term changes, recognizing that individuals have different motivations for their transportation choices, and these need to be understood and translated into targeted strategies to make change attractive;
- Encouraging shifts to transit – includes "trip finder" applications on transit and municipal web sites, to build awareness of transit options. Many transit systems offer secure cycling racks at terminals and provide bike racks on buses, allowing easier combining of cycle and transit trips. Flexible transit passes offer discounts on single fare price (e.g., student passes and monthly passes);
- Flexible hours, peak spreading and telecommuting – involves rescheduling work times to reduce work trips and spread them outside of peak travel periods. This may include compressed (four-day) work weeks and/or flexible start/finish times. This can provide flexibility to accommodate family-related needs, and can improve travel times to/from work. Telecommunting involves working from home or a remote location and eliminating some work trips; and
- Ridesharing and carpooling – these are particularly effective strategies at large employment centres. Ridesharing can be informal, such as a couple or colleagues sharing the same car to drive to work, or a parent dropping a child at school en-route to work. More formal ride matching services are now available on the internet that match drivers travelling during the same times of day between similar origins and destinations.

1.4.3 2010 Public Opinion Survey

The 2010 Niagara Falls public opinion survey revealed that most residents strongly endorse the Smart Growth principles: planning local transit to reduce greenhouse gases and pollution; facilitating walking by building commercial and residential developments in close proximity; encouraging healthier lifestyle practices such as walking and cycling and investing more in local transportation. There is a large gap between current transportation practices and the vision of the future, which indicates that a successful TDM program will need to take a long term view toward making changes. Details of the 2010 public opinion survey are available on the Transportation Beyond Tomorrow 2031 website (http://tbt2031.com).

1.4.4 Land Use Based Strategies

These strategies use land use at a variety of scales to provide transportation choices to residents and encourage alternative modes of travel. More compact forms of development, with higher densities and a mix of land uses, can reduce the need for long distance travel and provide safe and pleasant environments for walking and cycling.

Land use strategies include the following:

- Encouraging a variety of land uses within a neighbourhood, including residences, stores and local services;
- Providing incentives for ground-floor retail and upper-floor residential uses in existing and future developments;
- Design communities so that children can walk or bike to school;
- Concentrate critical services near homes, places of employment and transit;
- Plan and provide safe and direct pedestrian routes to transit stations and stops;
- Locate mixed use activity centres around transit hubs;
- Use trees and other green infrastructure to provide shelter, urban heat reduction and separation from automobile traffic; and
- Cluster freight facilities near ports, airports and rail terminals

2. POLICY CONTEXT

2.1 FEDERAL POLICIES AND PROGRAMS

The Government of Canada houses an on-line TDM "resource centre", including information about TDM principles and the rationale for its use, recognizing that the demand for personal mobility is growing faster than population levels in many Canadian cities. According to Transport Canada, TDM will be an increasingly important part of sustainable transportation systems in Canada. Transport Canada lists the unique benefits of TDM as its ability to affordably change travel patterns; to defer or eliminate the need for new infrastructure (by eliminating trips, reducing trip lengths, shifting out of peak periods, etc.); and to maximize personal mobility choices.

The Urban Transportation Showcase Program (UTSP) extended between 2001 and 2009 as a Transport Canada initiative under the Government of Canada's Action Plan 2000 on Climate Change. The showcases were multi-year initiatives that demonstrated and evaluated integrated approaches to reducing greenhouse gas (GHG) emissions in the urban transportation sector. The program supported eight multi-year showcases across Canada that demonstrate and evaluate integrated approaches to reducing GHG emissions. The showcases included TDM measures, such as projects that build awareness and use of walking, cycling, transit, carpooling and telecommuting.

2.2 PROVINCIAL POLICIES AND PROGRAMS

The Provincial framework for land use planning is essentially based on the *Planning Act*, the *Provincial Policy Statement*, the *Greenbelt Act* and *Greenbelt Plan* and the *Growth Plan*. Together, these documents shape how municipalities plan for growth, increasing focus on built up areas, intensifying development and shortening commuting.

2.2.1 Growth Plan for the Greater Golden Horseshoe

The *Growth Plan for the Greater Golden Horseshoe* (June, 2006) was prepared under the *Places to Grow Act*, 2005, and is a framework for implementing the Ontario Government's vision for building stronger communities by better growth management to 2031. The Plan outlines where and how communities within the Greater Golden Horseshoe (GGH) should grow, and identifies policies to support this growth. It sets detailed policies for the expansion of urban boundaries, to limit outward growth of municipalities and to control conversion of employment lands to non-employment uses, which helps to lessen commuting. The Plan also established the Gateway Economic Zone in close proximity to the United States (U.S.) border, including Niagara Falls. This Zone is intended to support cross border movement of people and goods.

Transportation is recognized as a critical element in supporting the Growth Plan. The Plan's vision includes the following: *An integrated transportation will allow people choices for easy travel both within urban centres and throughout the region. Public transit will be fast, convenient and affordable. Automobiles, while still a significant means of transport, will be only one way of a variety of effective and well-used choices for transportation. Walking and cycling will be practical elements of our urban transportation systems.*

The Growth Plan's policies for infrastructure to support growth specifically include transportation, for example:

- Municipalities will develop and implement transportation demand management policies in official plans or other planning documents, to reduce trip distance and time, and increase the modal share of alternatives to the automobile;
- Public transit will be the first priority for transportation infrastructure planning and major transportation investments; and
- Municipalities will ensure that pedestrian and bicycle networks are integrated into transportation planning.

2.2.2 Provincial Programs

The Ontario Ministry of Transportation (MTO) offers a TDM Municipal Grant Program: *A Program to Encourage Cycling, Walking, Transit, and Trip Reduction.* This program provides financial assistance to municipalities for development and implementation of TDM plans, programs, and services that promote alternatives to driving alone such as cycling, walking, transit, or carpooling. As discussed below, Niagara Region is a recipient of grants for its TDM initiatives. The Niagara Region's TDM Policy development was a 2008/2009 grant recipient, building upon existing regional initiatives promoting and supporting active transportation options (walking and cycling) through improved infrastructure, planning, and health promotion. Additionally, the Niagara Region Bikeways Network Signage and Wayfinding Project is a 2009/2010 grant recipient, which involves the installation of appropriate signage along Niagara Region's bikeways. Further details of the TDM Municipal Grant Program are provided on page 22.

2.3 REGIONAL POLICIES AND PROGRAMS

Niagara Region has a number of growth management and transportation initiatives that support TDM and transportation choices. The Region's growth management strategy (Smarter Niagara) is a response to the desire for growth in a sustainable manner. Among its ten principles of smart growth are the following: create walkable neighbourhoods; foster distinct, attractive communities with a strong sense of place; mix land uses; and provide a variety of transportation choices, all of which support TDM and sustainable transportation.

As noted above, the Region is an MTO grant recipient for its work on a Niagara TDM Policy Framework. In April 2010 a TDM Policy Framework report was developed to guide the process of creating formal Niagara Region TDM Policies for inclusion in the Niagara Region Policy Plan. The Framework provides an introduction to TDM and discusses the Region's existing TDM supportive plans and policy documents (e.g., Planning for Sustainable, Active Transportation: Revised Bicycle Transportation Policies and Mapping).

The 2003 Regional Niagara Bikeways Master Plan (RNBP) serves as a guide to implementing a comprehensive on- and off-road Region-wide bikeway network and a set of policies and programs to promote cycling, building on efforts by the Region, local municipalities, the Niagara Parks Commission and the Regional Niagara Bicycling Committee. One of the strategic directions in the Region's 2002 Transportation Strategy is to provide citizens in Niagara with a choice of ways to affordably access places of employment, education, social, recreational and essential services; initiatives are identified in the strategy to support its eight strategic directions.

The Niagara Region Bikeways Network Signage and Wayfinding Project is a pilot project that received 2009/2010 provincial grant funding and involves installing signage along the Region's bikeways, and is part of an overall plan to make Niagara's roads safer for cyclists. It will help in the creation of connected bicycle routes throughout the region and development of awareness among car drivers and the general public. These objectives are part of the Region's overall TDM strategy, working to optimize use of the

road network by providing improved opportunities for residents and tourists to use bicycles rather than automobiles.

2.4 NIAGARA 2031 – NIAGARA'S GROWTH MANAGEMENT STRATEGY

Niagara's Growth Management Strategy will examine land use and supporting infrastructure to set the stage for where and how Niagara will grow until 2031, focussing on healthy and sustainable growth. As part of the Niagara 2031 Strategy, the Region, area municipalities and other stakeholders are working together to address implementation through local Official Plans. In support of TDM and sustainable transportation, the Region is working to improve all modes of transportation infrastructure and to encourage improved transit access to the Region from the GTA by exploring how transit facilities for tourists, employees and residents within Niagara can be improved.

2.5 CITY POLICIES

The City's Official Plan (approved in October 1993/amended to January 2010) recognizes the importance of multi-modal movement throughout Niagara Falls. The plan recognizes that along with traffic efficiency and vehicle safety, the entire road corridor serves as pedestrian and bicycling realm and contributes to street character. The Plan states that the City will determine and implement the long-term road network needs having regard to the Transportation Master Plan and Regional Bicycling Master Plan. The City's primary public transit focus points are core areas and centres of commerce, and the Plan encourages transit in close proximity to higher density residential developments, high employment concentrations, service centres, social amenity areas, etc. Pedestrian and bicycle circulation are also included in the Plan.

The City is proposing an amendment to the Official Plan that will bring the Plan into conformity with the Growth Plan for the Greater Golden Horseshoe and the Policy Plan of Niagara Region. There are several objectives to the draft amendment:

- To direct growth to the Urban Area and away from Non-Urban Areas.
- To support increased densities, where appropriate, and the efficient use of infrastructure within the Built-Up Area of the Urban Area.
- To direct 40% of new development into the Built-Up Area, focusing on nodes and intensification corridors that are currently, or will be, serviced by public transit.
- To develop the Greenfield Areas as compact, complete communities with a range of housing types, employment and public transit.
- To encourage alternate forms of transportation.
- To develop a transit and pedestrian friendly, sustainable and livable City through the use of urban design criteria and guidelines.

3. TDM IN NIAGARA FALLS

The City of Niagara Falls has been pursuing TDM activities throughout the City for a number of years. Current focus areas are walking and cycling, including health and tourism benefits. The current program is focussed on information sharing and providing opportunities for residents and tourists to participate in active transportation activities throughout the City. The City works with the Region, neighbouring municipalities and MTO on regional initiatives. While numerous initiatives are in place, these activities need to be co-ordinated into a single plan for maximum effectiveness.

3.1 CURRENT AND PLANNED INITIATIVES

A variety of initiatives are in place in Niagara Falls, managed by several City departments, the Niagara Region and other agencies and transportation service providers. The following provides a sample of the TDM and related activities currently underway:

- **Trails Infrastructure** – Niagara Falls' trail system includes the Niagara River Recreation Trail, a 56km paved path running along the Niagara River from Niagara-on-the-Lake to Fort Erie. Other components include the Waterfront Trail along Lake Ontario to the north and the Friendship Trail to the south. The Niagara River Recreation Trail is a segment of the Trans Canada Trail.
- **City Web Site** – Parks, Recreation and Culture, and Community Health and Wellness pages provide information on trails information and the City's various walking and cycling initiatives.
- **Trails and Bikeway Master Plan and Update** – The 1997 City of Niagara Falls Trails and Bikeways Master Plan proposed cycling and walking policies and projects to strengthen the City's on- and off-road facilities. An update was prepared in 2005, emphasizing strategic identification of a few logical projects and initiatives to enhance isolated segments of the active transportation circulation system.
- **Trails and Bikeway Committee** – this committee's mandate is to advise the Community Services Committee and Council on issues regarding recreational trail and bicycle programs, and to assist in implementing the recommendations of the City's Trails and Bikeway Master Plan. Members are appointed by Council and the committee's activities include the Ride of Silence, Cycle Safety Clinics, trail restoration, and the Olympic Torch Run Legacy Trail, as discussed further below.
- **Ride of Silence** – annual ride at which cyclists worldwide gather in a silent slow-paced ride in honour of those who have been injured or killed while cycling on public roadways; organized by Trails and Bikeways Committee.

- **Cycle Safety Clinic** – children's safety clinic at various safety stations set up by the Niagara Regional Police, including bicycle maintenance and helmet check station, routine repairs and fit adjustments and installations of reflectors and bike bells; organized by Trails and Bikeways Committee.


Source: City of Niagara Falls

- **Whirlpool Trail Restoration** – restoration of stairs on Whirlpool Trail and addition of prefabricated stairs, to increase safety for users and improve access for rescue crews.
- **Olympic Torch Run Legacy Trail –** development of new trail that will ultimately link downtown Niagara Falls to the Clifton Hill area.
- Trails Database and Mapping – on-line database of Niagara Falls walking and cycling trails, allowing searches for on- and off-road trails, and an interactive map of area trails, including layers for nearby parks, streets, etc.
- **Guide to Walking Routes in Niagara Falls Ontario** – June 2004 document prepared by the Parks, Recreation and Culture department, providing maps and descriptions of 12 trails across Niagara Falls. The document also provides discussions of the benefits of walking, safety tips and an opportunity to feed back information about the guide and trails.
- **Winter Bus Stop Maintenance** – The City has introduced a program to clear high volume bus stops of snow.
- **Signage and Wayfinding Project** – Niagara Region initiative to provide signage along the Region's bikeways, and help create connected bicycle routes throughout the region and develop awareness of its cycling facilities.
- **Niagara Falls Transit** – Niagara Falls Transit supplies public transportation for the City with 10 bus routes connecting various business areas and medical facilities around Niagara Falls.
- **Bike Racks on Buses –** All new area transit vehicles are equipped with bike racks.
- **Peoplemover Buses** – Niagara Parks' seasonal, 30 km bus loop connecting all major Niagara Parks' attractions. A flat one-day fee allows unlimited daily travel.

Source: Niagara Parks

- **GO Transit** – Bus services are provided year-round between Toronto and Niagara Falls, and seasonal train services are provided between May and September on weekends and holidays. Approximately 50,000 passengers used this seasonal service during its first year in 2009. GO Transit trains and buses can accommodate bicycles.
- **Bike Train** – connected to GO Transit's seasonal train service, the Bike Train web site -provides cycling itineraries and information about cycling throughout the Region of Niagara; this is a project of Transportation Options non-profit organization, with support from groups including the Ontario Ministry of the Environment.
- **Active and Safe Routes to School (ASRTS)** – The Niagara Region ASRTS program is managed by the Niagara Region Public Health Department, and includes several activities that schools implement to suit their circumstances, to encourage a variety of walking programs and events.
- **Niagara International Transportation Technology Coalition (NITTEC)** – organization of 14 agencies in southern Ontario and western New York, including Niagara Falls, with a goal to improve area transportation mobility, promote economic competitiveness and minimize environmental impacts of the regional transportation system. NITTEC's system components include the following:
- **Traffic Operations Center (TOC)** – operates continuously, monitoring traffic and informing the public and the member agencies about traffic situations;
- **Dynamic Message Signs (DMS)** – stationed along the highway network, capable of displaying messages about traffic conditions;
- **Highway Advisory Radio (HAR) –** radio system to advise motorists of traffic conditions that may affect travel, operating in conjunction with advisory sign system that notified motorists when a radio message is playing; and
- **TRANSMIT** – a system that gathers vehicle travel time information that can be used for detection of vehicular incidents, traffic congestion, and notification of travel times.

Through these existing and planned TDM initiatives, the City is working toward achieving the objectives of improving public and environmental health, and reducing dependency on drive alone travel.

4. TDM EXPERIENCE ELSEWHERE

4.1 INNOVATIVE AND SUCCESSFUL INITIATIVES ELSEWHERE

Communities across North America and Europe are placing greater priority on TDM and a number of innovative measures have been put into practice, some of which could translate into new initiatives for Niagara Falls. A number of initiatives taking place elsewhere are presented below, representing different approached to transportation behaviour change and in some cases including strong financial and resource commitments. Such commitment has been demonstrated to produce considerable shifts in transportation mode use.

4.1.1 Greater Toronto Area and Hamilton

A number of initiatives are underway in the Greater Toronto and Hamilton Area (GTHA), which includes York, Durham, Toronto, Peel, Halton and Hamilton, and is considered the largest and most rapidly growing metropolitan area in Canada. This growth comes with increasing travel demands and awareness of the issues associated with these transportation needs.

4.1.1.1 Metrolinx Regional Transportation Plan

Metrolinx was created by the Government of Ontario to develop and implement an integrated multi-modal *Regional Transportation Plan* (RTP) for the GTHA, as the third piece in the Province's approach to prepare for sustainable growth, building upon the *Growth Plan* and *Greenbelt Plan*. Its mission statement is to champion, develop and implement an integrated transportation system for our region that enhances prosperity, sustainability and quality of life. Metrolinx published its RTP ("The Big Move") in November 2008. This plan looks to 2031 toward a transportation system that provides connectivity among modes, encourages the most financially and environmentally appropriate modes, offers multi-modal access, and shapes growth by supporting intensification.

Nine strategies were developed to guide progress toward the RTP's vision, including the creation of an ambitious TDM program. The RTP's priority TDM actions are as follows:

- Develop a TDM policy and strategy for provincial ministries and agencies (e.g., school boards, hospitals);
- Establish guidelines and model policies to help municipalities develop and implement TDM policies in Official plans and Transportation Master Plans;


Source: Metrolinx

- Encourage private sector employers to implement TDM programs;
- Encourage employers who currently offer their employees free or subsidized parking a choice between parking or a cash equivalent; and
- Incorporate objectives and goals related to TDM as part of any revenue or financial tools that are recommended as part of the Metrolinx Investment Strategy.

With the full implementation of the RTP, significant changes are anticipated throughout the GTHA. Modelling forecasts for the RTP indicate that the proportion of morning peak hour transit trips could increase from about 17% in 2006 to 26% in 2031. Even with the significant increase in population and employment in the GTHA, the annual energy consumption from passenger transportation could decrease from 26 Gigajoules (GJ) in 2006 to 19 GJ in 2031.

4.1.1.2 BikeLinx


Source: Metrolinx

The BikeLinx Program is a Metrolinx green initiative, designed to accommodate and encourage trips which combine cycling and public transit throughout the GTHA. Under the $5 million BikeLinx program, municipalities in the GTHA have received funding to make it easier for people to combine the use of bicycles and public transit on the same trip, with bicycle carrying racks on buses and permanent, secure and/or sheltered bicycle parking facilities, including bike lockers, in strategic locations throughout the region.

BikeLinx is part of Metrolinx's Quick Wins initiatives; the goal of Quick Wins is to offer quick service improvements to the GTHA transportation system. This program also supports Metrolinx's work in active transportation, encouraging "people powered" ways of getting around.

4.1.1.3 Smart Commute

Smart Commute is a partnership between Metrolinx and the cities and regions of the GTHA, working to reduce traffic congestion and improve transportation efficiency. It provides a number of services/support, including the following:

- Carpooling and vanpooling – Car Pool Zone provides a free on-line ride-matching program for commuters throughout the GTHA;
- Site assessments and surveys to understand employee commute behaviour;
- Shuttle programs;
- Emergency Ride programs;

- Employee Work Arrangement Solutions – telework, compressed work weeks and flex hours, workshops, lunch and learns and seminars;
- Incentives and promotions; and
- Clean Air Commute and other fun events, such as Carpool Week, Bike to Work Week, etc.

It also provides TDM resources, including newsletters and a toolkit for Transportation Management Associations (TMA). Smart Commute programs have been established in nine GTHA locations: 404-7 Markham, Richmond Hill; Brampton- Caledon; Central York; Durham; Halton; Hamilton; Mississauga; North Toronto, Vaughan; and Toronto (similar organizations operate in municipalities including London, Ottawa and Montreal). Between 2004 and 2007, Smart Commute eliminated more than 75 million km of car travel by matching up drivers and helping them find other ways of getting to work. Smart Commute joined Metrolinx in 2008.

4.1.2 Town of Markham

The Town of Markham's Transportation Planning Study (MTPS), issued in 2002, reviewed the Town's entire transportation network (i.e., roads, policy, transit, education, etc.). As part of the MTPS, the Town's TDM program was entrenched as a priority policy. In addition, a TDM Coordinator was appointed to lead the Town's TDM program subsequent to the release of the MTPS.

Some of the successful initiatives provided by the Town's TDM program include the following:

- Commuter options for Town employees including, but not limited to, a bicycle users group, discounted transit passes, on-site amenities, use of teleconferencing/videoconferencing, fleet vehicles for employee use and preferred parking for employees who are registered with Car Pool Zone;
- The Sustainable Transportation Education Program (STEP) was developed as part of the educational component of the TDM program and supports local schools by combining the "School Safety Zone" traffic management program with the Active and Safe Routes to School programs (i.e., Walking School Bus, anti-idling projects, International Walk to School Day, etc.). STEP supports a pilot program that educated high school students about sustainable transportation issues;
- Land-use policies which set requirements for higher density and mixed-use developments, both of which enable a greater use of public transit and active transportation and decrease the need for private automobiles;
- A requirement for developers to include TDM supportive measures (i.e., bicycle racks, pedestrian access to transit, bicycle lanes and

carpool parking) in their commercial and residential developments; and
- Participation in the Smart Commute program (outlined above).

It is understood that the Town's MTPS is currently under amendment with a continued focus on the TDM program.

4.1.3 Montreal, Quebec – Bixi Public Bike Sharing System

Montreal is the first Canadian City to implement an electronically controlled self-service public bicycle system. This program was first envisaged in the City of Montreal's 2007 Réinventer Montréal transportation plan. The mandate to create, install and operate this large-scale public bike system was given to Stationnement de Montréal.


(cba.ca)

The program, "BIXI", was deployed in phases beginning in spring 2009, and allows Montrealers to pick up a bike from one station, travel to their destination, and return the bike to any other station in the network. The system now includes 400 stations and 5,000 bikes throughout Montreal. The program includes a basic payment per rental period (24 hours, 30 days or one year) and the first 30 minutes of any bike rental are included in this payment. Bikes are available between May and November, avoiding the harshest winter months.

4.1.4 Portland, Oregon, USA – SmartTrips

SmartTrips is the collective name for Portland's programs to encourage sustainable transportation choices, making sure that everyone who lives, works or runs a business in Portland knows about their transportation options. Since 2004 a different area is selected with a number of neighbourhoods and up to 25,000 households, in which targeted marketing, information and events are geared to raising awareness of travel choices and changing travel behaviour.

Primary goals for the project include:
- Reduce drive alone trips;
- Reduce vehicle miles driven by area residents and employees;
- Increase awareness and raising acceptability of all travel modes;
- Increase walking, biking, transit, carpooling and car sharing trips; and
- Increase neighbourhood mobility and liveability.

Key components of the program include biking and walking maps and organized activities to encourage people to discover the ease, convenience and safety of travelling without a car. A SmartTrips Order Form is mailed to every household in the target area, offering a number of resources to help area residents discover the ease of non-car travel, including free walking and cycling kits. SmartTrips programs and events include Senior Strolls, Portland By Cycle and Women on Bikes, which provided guided walks and bike ride, and biking clinics. Residents are mailed five newsletters over the course of the program, providing information on traffic safety, area projects, a calendar of events, transit services and other resources.

Over this program's implementation in areas throughout Portland, SmartTrips has reduced drive alone trips by between 8.6% and 12.8%, with corresponding increases in walking, bicycling, and transit mode shares in the SmartTrips areas. The total materials and services budget for a yearly SmartTrips program (including all outreach materials and events) is about $10 per person in the SmartTrips area.

4.1.5 San Francisco, USA – Parking Management

Parking management has been demonstrated to be a powerful TDM tool. San Francisco has actively used parking management to influence mode choice, through a number of measures, attempting to balance public need and desire for parking with the City's land and financial resources and transportation objectives. San Francisco has demonstrated that growth, particularly in jobs, can be accommodated without providing parking spaces on a one-for-one basis. Elimination of parking requirements for residential and commercial uses in areas well served by transit allows developers to provide limited or no parking if warranted by the situation. Maximum parking ratios for dwelling units prevents over supply, and secure bicycle parking is required for residential buildings across the City. Car-share spaces are required City-wide at 1 car share space for dwellings with 50 to 200 units and further beyond this. For newly constructed non-residential uses in certain downtown areas, 1 car share space is required for developments that are required to provide at least 25 parking spaces, and further where additional parking spaces are required. These spaces are to be provided to the car share organizations at no cost.

The City's General Plan states that parking rates and the off-street parking fare structure should reflect the full cost, monetary and environmental, of parking in the City, and discounts that encourage weekly or monthly use should not be provided. In general, San Francisco's parking prices and policies for off-street parking reflect the principle that short-term parking should be encouraged over long term parking through price regulations, particularly in areas within and adjacent to the downtown core.

4.1.6 Copenhagen, Denmark – Cycling Infrastructure

Copenhagen is one of the world's leading cities for cycling. Its cycle culture has evolved over many years, by ongoing investment in cycle tracks, cycle routes and amenities such as cycle parking and integration with transit. The City provides about 400 km of cycling facilities:

- 350 km of cycle tracks (tarmacked cycle paths separated by kerbs from cars on the road and pedestrians on the pavement);
- 20 km of cycle lanes (on-road lane, on the same level as the road, marked for cyclists with broad white line); and
- 40 km of Green Cycle Routes ("cyclist motorways", separate paths that criss-cross the City, separated from the other infrastructure and providing quick routes due to broad widths and minimal contact with traffic).

The City also provides and maintains thousands of bike racks and stands at stations, main shopping streets and other areas, and is involved with testing other systems, such as rackless parking facilities, special racks for different kinds of bicycles, and mobile bike racks for special events. Bike racks and stands are provided at transit stations and bikes are permitted on the metro and local trains.


Source: City of Copenhagen

Other initiatives include Green Waves, which have been introduced along some traffic arterials. Traffic lights have been adjusted to be coordinated for cycle traffic. At a speed of 20 km/h, cyclists during rush hour can "surf a wave of green lights" through the City. In order to reduce the risk of accidents, many intersections have been restructured to give priority to cyclists: stop lines for cars have been pushed back five metres behind stop lines for cyclists. At intersections with separate traffic lights for bikes, the cyclists get a green light four or more seconds before cars.

The cycling culture has permeated other areas of the City as well: many hotels in Copenhagen provide bicycles for their guests, and all taxis in Copenhagen have racks for carrying two bikes. Such investment and history has translated into approximately 37% of commuter work and school trips being made by bike.

4.2 LESSONS FOR NIAGARA FALLS

Through review of a number of TDM programs and initiatives across North America and Europe, some important lessons can be learned and applied to future initiatives in Niagara Falls:

- Land use and transportation are fundamentally linked. In order to successfully promote sustainable transportation, transit oriented development (TOD), transit improvements and smart growth initiatives should co-exist to achieve significant results.
- Some people will still need/feel the need to drive, particularly where alternative travel modes are not available. Effective TDM programs should focus on providing choices to those who could use non-car modes frequently or occasionally.
- Commute trip reduction and ride sharing programs are important parts of successful TDM programs, e.g., promoting better travel options to discourage increasing rates of single occupancy vehicle (SOV) use, and providing incentives for SOV reductions.
- Collaboration with different partners and stakeholders is an important factor in the success of TDM, including City divisions (Parks, Recreation and Culture, and Planning and Development), Niagara Region, area municipalities and groups such as TMAs, car-sharing and ride-matching services, etc.
- Economic incentives and associated disincentives can be powerful motivators and effective in promoting change and gaining interest in TDM efforts (e.g., parking management reforms, cash rewards and prizes for switching to sustainable modes for specified time periods).

- Maintenance of active transportation facilities is needed to ensure that they are used; damaged and unmaintained routes are of little use to the travelling public, including during the winter months.
- Target-specific marketing strategies are highly beneficial. Individualized marketing approaches can effectively reach out to residents, employers and employees in ways that are meaningful to each individual.
- Such techniques can be resource-intensive, but can lead to significant shifts in transportation behaviour.
- The public needs easy access to information about transportation choices before any behavioural changes can be made. Successful TDM initiatives often include strong presence on municipal web sites and promotions throughout municipalities, with consistent branding and frequent information updates to keep the public engaged.

5. OPPORTUNITIES AND CHALLENGES

5.1 PUBLIC OPINION SURVEY RESULTS

As part of the overall STMP, a public opinion survey was undertaken in Spring / Summer 2010. Survey results show that 88% of Niagara Falls residents commute by car, and 16% of students travel by car. Approximately 65% of employed residents work locally, and most of the remainder commute within the Region. Regardless of mode, the average commute time is 20 minutes per trip, similar to the average education trip (22 minutes). The bulk of other types of trips (shopping, recreation, etc.) are made by car, including over 90% of shopping trips.

Only 12% of adult residents used Niagara Falls Transit within the past month (during the survey period). About 13% of residents indicated that there were 'very' or 'somewhat' likely to take transit within the subsequent month, while 81% were 'very unlikely' to travel by transit. Almost 45% of residents stated that there is nothing that can be done to the Niagara Falls Transit system that would encourage its use.

For active transportation, 60% of residents have walked and / or cycled on the recreational trail system in the past 12 months. More than 60% of households own at least one bicycle, and about 65% of bicycle owners have cycled during the past month (i.e., about 33% of the adult population). About 80% of bike trips are recreational and about 5% bike to work. Approximately 40% of respondents stated that there is nothing required to enhance the current trail system. Of the 60% of respondents who suggested actions to encourage cycling, the top ideas were improved / more bike lanes, and improved / more bike paths.

Walking is not prevalent in Niagara Falls, and almost 70% responded that there is nothing that could be done to encourage more walking. The ideas that were provided included improved sidewalks and land use planning to shorten distances between potential origins and destinations.

Regarding residents views of planning directions, about 91% endorsed planning transportation to reduce pollution and greenhouse gases, and 89% endorsed addressing the gap between City, Regional and Provincial mass transit systems. About 85% agreed with the concept of more compact urban development, providing a "better mix of residential and commercial uses to reduce the need for driving". Almost 75% agreed with use of a behavioural change program (investment in social marketing to increase active transportation). An approximately equal proportion (45%) agreed and disagreed with placing priority on bicycles rather than building more roads for vehicles.

Essentially, there is recognition and appreciation of sustainability within Niagara Falls, with much of the population positive about changes to improve environmental conditions through changes in transportation and land use planning. There is a significant gap between current transportation behaviours and the sustainable system most residents have endorsed, indicating the need for long term planning and commitment by the City to changing travel behaviour and taking action to make non-car travel increasingly competitive.

5.2 OPPORTUNITIES AND CHALLENGES FOR NIAGARA FALLS

Looking ahead, there are a number of opportunities and challenges for Niagara Falls to progress with TDM. Some issues include the following:

- Long term pattern of car use and limits to the general public's appetite for change.
- The role of parking related to TDM.
- Low density development patterns, often with limited local amenities and long distances between travel origins and destinations, which can limit active transportation opportunities and opportunities for effective transit services.


Source: City of Niagara Falls

- Some retired residents may be disinclined to increase use of active transportation.
- The public opinion survey reveals that the private car is by far the dominant transportation mode in Niagara Falls. While a significant proportion of residents are positive toward sustainable travel, there is a significant gap between this endorsement of the sustainability concept and behavioural change.

However, there are also opportunities for successful TDM initiatives:

- The public opinion survey results show increased public awareness and interest in sustainability and measures that can be taken to improve the environment. There are strong connections between sustainability, active transportation and TDM. Individual health and fitness is another an area of growing interest, also with strong links to active transportation.
- School travel is another area of opportunity; the City can help to develop long term health- and environmentally-conscious travel habits. There are a number of benefits to targeting school travel at a variety of ages, and younger residents are typically interested in

environmental issues and are more inclined to use active transportation.

- Tourism provides opportunities for recreational travel, where tourists may be willing to try alternate modes of transportation and incorporate sight-seeing with active transportation.

5.3 POTENTIAL IMPACTS OF A COMPREHENSIVE TDM PROGRAM

As noted above, one of the reasons behind implementing a TDM program is to achieve a reduction in automobile trips, specifically reducing drive alone trips. The potential impact of TDM strategies and measures is difficult to measure in terms of automobile trip reduction, as the degree of reduction is dependent on a number of variables (e.g., availability and quality of transit, community structure, and overall awareness of TDM benefits). Based on the experiences of other communities, it could be estimated that a comprehensive TDM program (not including transit improvements) could reduce automobile trips considerably. Previous experience has shown that a significant reduction in automobile trips is possible with a well planned TDM program; the table below was developed based on professional judgment and past studies, and provides an indication of how some basic TDM measures could influence travel patterns within the City of Niagara Falls.

TDM Measure	Short Trips (<10 km)		Long Trips (>10 km)	
	2021 – short-medium term	2031 – long term	2021 – short-medium term	2031 – long term
	Percent Reduction in Number of Automobile Trips			
Improved land use and transportation integration	1%	2.5%	1%	2.5%
Ridesharing (numbers reflect potential for overlap with transit)	1%	1%	1%	2%
Walking / cycling (except in winter)	3%	5%	minimal	
Telecommuting	0.5%	0.5%	1%	1.5%

Clear targets for future automobile mode shares should be established as part of the overall STMP, and incorporated in assessments of future infrastructure needs.

It is important to note that a successful TDM program needs a champion in the municipality and in the wider community. Promotion, preparation of marketing material, securing funding and coordinating community programs require an individual to take a leadership role and ensure that the TDM program is implemented as planned.

6. MOVING FORWARD ON TDM

The TDM measures taken forward by the City of Niagara Falls will depend on the overall vision for transportation over the next 20 years. There are a number of areas in which further action will benefit sustainable travel, and a series of potential policies and initiatives has been identified. The initiatives are grouped into four general categories:

- Education, Promotion and Outreach;
- Travel Incentives;
- Land Use and Transportation Integration; and
- Transportation Supply.

Initiatives falling under each of these categories are discussed below.

Note that management of traffic flow is an important initiative related to TDM, including maximizing use of the City's existing road infrastructure by directing motorists to the most free-flowing routes and avoiding areas of congestion. A road signage plan is in development as part of the STMP to provide this information.

6.1 EDUCATION, PROMOTION AND OUTREACH

Education and promotion is important in raising awareness of travel options and alternatives to drive alone travel, as well as instilling new idea about travel, changing perceptions and addressing misconceptions and scepticism about alternative transportation options. This includes information about transportation alternatives, as well as the benefits of non-car travel. As noted above, Portland's SmartTrips program reduced drive alone trips by up to 13% in neighbourhoods, with no infrastructure changes.

- Appoint/hire a TDM Co-ordinator.
    - A dedicated TDM co-ordinator would enable the City's TDM initiatives to move forward in a more effective and focused manner. This role would involve working with local employers on TDM programs, co-ordinating the City's efforts across its various departments, and working with the Region and other organizations and agencies (e.g., Metrolinx) to access resources and link projects to serve sustainable travel in Niagara Falls. This initiative would require secure funding to staff the position and a commitment to additional TDM elements (e.g., marketing, public outreach, infrastructure improvements).
- Continue participation in Niagara Region's Regional TDM development work.
    - As discussed above, Niagara Region has developed a TDM policy framework and the City has an opportunity to participate in the ongoing development of a comprehensive

regional policy related to TDM. Partnerships with area municipalities and agencies could facilitate increased TDM efforts and successes in Niagara Falls, and provide opportunities for information sharing and pooling resources.

- Explore the creation and support of Niagara Falls Transportation Management Associations (TMAs).
    - TMAs, such as Smart Commute (discussed above), provide sustainable transportation services and solutions in specific development areas, including urban centres, commercial districts and industrial parks. Expansion of Smart Commute or creation of a separate Niagara-area TMA would assist implementation of TDM initiatives.
- Provide strong TDM presence on City web site and develop a TDM brand, providing a common theme for biking, walking, transit, ride sharing, etc., initiatives, serving as a TDM information gateway.
    - A common theme and location for information regarding transportation options allow for more convenient and available access to such information; the information provided would be regularly updated to respond to changes in the transportation system, seasons, special events, etc.
- Develop a joint TDM marketing strategy for the City, Niagara Parks Commission and private sector.
    - Marketing is a critical part of a successful TDM program. Development of a joint strategy with the Niagara Parks Commission and the private sector would reach out to residents, employees/ employers and tourists, and could be tailored to highlight special events, new initiatives and key information about TDM and transit, walking and cycling options throughout Niagara Falls.
- Provide walking, cycling and transit information on Niagara Falls' tourism web sites.
    - As noted in this paper, tourism is an important part of Niagara Falls, as are tourist travel choices and patterns. Readily available information on travel options (transit, walking and cycling), including transit schedules and route maps, walking and cycling route and trail maps, and bicycle rentals and tours would provide opportunities for alternative travel options and could influence tourist travel patterns.
- Provide information on City web site about City's carbon dioxide (CO2) emissions and reduction measures.
    - As awareness of City-wide and individual "carbon footprints" is increasing, provision of information about the City's measures and successes in reducing CO2 emissions would help to track performance and give the public current information on the impacts of energy saving measures, including shifts toward more sustainable transportation.

- Promote carpooling initiatives and investigate partnership with a private carpool / ride-matching service.
    - Carpooling is an effective way to reduce the numbers of cars on the road, and can be a convenient option for some commuters and students. Ride-matching services (e.g., Carpoolzone) provide a straightforward way of matching origin and destination locations and travel times, and promotion of such services by the City can increase awareness and interest.
- Develop TDM program for City of Niagara Falls staff – providing incentives, measuring effects and publishing results.
    - Leading by example is an important element of TDM initiatives. By developing a City of Niagara Falls program, the City can test methods of changing travel behaviours, increase the use of transit, walking and cycling and carpooling, and show other employers of the benefits of alternative transportation arrangements.
- Promote compressed work weeks, teleworking, flexible hours for City employers.
    - Flexible working arrangements can reduce the number of trips employees take for work and can spread the peak travel times to reduce congestion. Flexible work hours allow commuters to coordinate their work schedules with transit and carpool schedules, which can increase the feasibility of using these modes.
- Promote and expand the Active and Safe Routes to School (ASRTS) program, increasing efforts with school boards and local schools to encourage walking, cycling and carpooling.
    - The level of walking and cycling to school has generally declined in recent years, for a number of reasons, some of which can be addressed by programs such as ASRTS. This program helps with reducing traffic congestion around schools, as well as encouraging physical activity and healthy lifestyles, safer neighbourhoods, and improved air quality.
- Promote adoption of TDM programs by secondary and post-secondary institutions and student groups (e.g., ride matching, travel planning, providing active transportation infrastructure (bike racks, showers, etc.)).
    - Following on from primary school initiatives, co-ordinated efforts at other campus facilities can improve transportation options and reduce drive alone automobile trips. Many campuses have some programs in place, often promoted by student groups, to achieve environmental and community goals, which provides opportunities for partnership.
- Promote awareness of GO Transit services from Toronto, including the Bike Train, to increase tourism transit and cycling mode shares from the GTA.

- Recognizing the importance of tourism travel to Niagara Falls, promotion of non-car tourist travel is an important element in raising awareness of travel options for all types of travel, and reducing overall car use in the City. GO services are integrated with local tourism bus and shuttle services and cycling infrastructure, to allow for trips without using a private car.

- Work with the Niagara Parks Commission to develop a TDM and active transportation strategy for Niagara Falls' tourists.
  - Tourism and tourist travel are significant to Niagara Falls and its travel patterns, particularly during the summer months. Highlighting walking, cycling and transit options for tourists would enhance many tourists' experiences and help to influence travel patterns of this significant market. A tourist TDM strategy would address the particular needs of tourists, including travel between transportation terminals, hotels and attractions, baggage requirements and tailored hours of operation.
- Develop and implement Regional and Municipal TDM monitoring program to measure results.
  - Meaningful monitoring programs are necessary to assess whether TDM programs are impacting travel behaviours. Such assessment can provide insight into policies and programs that are working well and those that can be improved. TDM monitoring would be part of the overall STMP monitoring process, typically with a review every 5-7 years.

Other education, promotion and outreach initiatives include the following:

- Provide education program to increase general awareness of health and environmental benefits of walking and cycling;
- Complete a goods movement and delivery transportation management plan;
- Continue cycling events and initiate TDM events (e.g., car free day);
- Provide cycling safety clinics for all ages;
- Initiate community walking events for all ages; and

Develop web-based trip planners for cycling and walking.

6.2 TRAVEL INCENTIVES

- Develop employer transit pass program.
  - This type of program has the potential to reduce car use for commuting, as discounted transit passes can encourage occasional riders to use transit more often, and others to try transit. Such programs have significant potential in changing travel behaviour, and can be undertaken by the private sector. Benefits include reduced traffic congestion during

peak commuting periods, and increased physical activity for those walking / cycling between transit stops and their homes and places of work.

- Promote employee transportation allowance (private sector).
  - Similar to the initiative above, promoting an employee transportation allowance (implemented by the private sector with guidance by the City) has the potential to reduce automobile usage and persuade occasional drivers to shift to more sustainable modes. Such an initiative has the potential to promote a culture of living close to places of work and healthier lifestyles.
- Review current public parking supply and pricing and develop a City-wide parking implementation plan.
  - Parking availability and cost can be strongly linked to auto usage; where parking is plentiful and low cost / free, auto use is typically greater than in more urban areas with limited and more expensive parking options. Development and implementation of City-wide parking management plans are important TDM strategies that can help to increase non-car mode shares, and thereby reduce congestion and improve environmental conditions.
- Promote City-wide emergency ride home programs for sustainable mode users.
  - This type of program could be implemented by a local TMA or group of employers. It would enable use of sustainable transportation modes where scheduling is an issue (e.g., infrequent train services, carpools) by removing the barrier of potentially being stranded in case of an emergency.
- Examine the feasibility of a “smart card” program with Niagara Region.
  - A smart card (an electronic system allowing fast and seamless payment for transit use, parking, etc.) would improve the convenience of inter-municipal and inter-regional travel to and from Niagara Falls. (Note that such a system would not be necessary with the implementation of Niagara Region inter-municipal transit).
- Transportation pricing.
  - There are a number of ways in which transportation pricing is enacted, including road tolls, congestion pricing and area tolls. Area-based tolls may be appropriate in the long term to encourage alternative forms of travel, alternative routes and travel at off-peak periods. Political and level of social acceptance will affect the successful implementation of area-based tolls.

Other travel incentive and disincentive initiatives include the following:

- Expand flexible transit pass program to include post-secondary education students, weekly passes and weekend passes (particularly for tourists);
- Encourage dedicated, preferential parking spaces for carpools, car shares in both public and private lots;
- Expand City's winter bus stop maintenance program to include all bus stops
- Provide parking cash out programs for employers (cash in lieu of free parking space at place of employment); and
- Provide transit passes for each residence within Niagara Falls (e.g., bought in bulk by each community, passing on discounts to residents

6.3 LAND USE AND TRANSPORTATION INTEGRATION

- Provide bike parking at City facilities, major destinations, schools and tourist attractions by establishing requirements in the Official Plan and Zoning By-Law.
    - Enabling bike use by providing secure parking in preferred locations at City facilities, major shopping and commercial areas, tourist attractions, and PeopleMover stops is an important step in encouraging more active transportation for Niagara Falls residents as well as tourists.
- Require bike parking, change room and shower facilities at all major workplaces.
    - Similar to above, providing infrastructure and facilities at major workplaces encourages travel by non-automobile means and removes a barrier to commuting by bike.
- Ensure that transit services are provided to new residential and commercial developments at an early stage, with developer funding.
    - Providing immediate transit service to new residential and commercial developments can encourage use of transit for commuting and other purposes. Initial service would be funded by developers (based on agreed service frequencies, etc.) until a proportion of the operating costs is recuperated (e.g., 20%). This would ensure that residents and employees have a transit option and that early ridership and patterns of transit use are established.
- Require pedestrian- and transit-friendly road networks. Updates to the Official Plan in the complete applications section, general land use section and in the transportation section will be required.
    - Generally, highly rated neighbourhoods for pedestrian and transit conditions provide easier street crossings, sidewalk continuity, grid-like street patterns, and flat topography. Implementation of new developments could be required to align with these principles to encourage and facilitate sustainable transportation.

- Expand scope of 'Traffic Impact Studies' to include consideration of all modes – for all developments. Updates to the Official Plan in the complete applications section, general land use section and in the transportation section will be required.
    - Expanding the TIS scope to include transit, walking, cycling and TDM components would ensure that all forms of travel are addressed at the development application stage, and that the necessary infrastructure to support sustainable travel is provided. The focus of a modified "Transportation Impact Study" would be on accessibility rather than capacity.
- Amend Development Charges Act to enable municipalities to levy charges for all transportation-related infrastructure.
    - The current Act does not allow collection to fund services that are not currently provided, or to fund enhanced services beyond what has historically been provided, which works against new TDM and transit programs. A change to the act would enable increased developer funding for sustainable transportation provisions for new development.
- Pursue changes to LEED rating systems transportation and parking credits.
    - While the Leadership in Energy and Environmental Design (LEED) rating systems include elements to encourage efficient transportation (e.g., public transportation access, bicycle storage and changing facilities, parking capacity), they exclude some effective strategies relating to parking pricing and cash out. Support by the LEED system for more flexible parking requirements would encourage developers to establish more sustainable parking plans.
- Un-bundle parking costs from residential units at time of purchase, for new multi-unit complexes.
    - As residential developments are often required to provide a minimum number of parking spaces per unit, costs of such provision are incorporated into the residential unit cost. Un-bundling of these costs allows buyers to purchase the amount of parking they actually require. In conjunction with providing good transit service and local shopping and service amenities, this encourages less use of the automobile and may encourage occasional car users to rely on other sources of travel and car share programs.

Other land use and transportation integration initiatives include:

- Promote shared parking practices / facilities at commercial retail and mixed use developments;
- Establish maximum parking requirements for residential, commercial, industrial and institutional developments;
- Fully wire all new homes for high-speed internet access, to facilitate telecommuting

- Create a standardized list of TDM policies/initiatives to enable developers to reduce automobile trips;
- Partner with developers to provide transit shelters and station facilities throughout the City;
- Review development staging in new communities to ensure higher densities are contained in initial phasing, to support transit use and active transportation;
- Use trees and other green elements to provide shelter, aesthetic benefits, shade and separation from motorized traffic;
- Provide zoning flexibility for home-based business / home offices;
- Integrate local shopping and essential services into suburban neighbourhood land use planning;
- Limit student parking at local high schools, colleges and universities – along with transit, walking and cycling improvements; and
- Limit on-site residential parking for new, single-family homes.

6.4 TRANSPORTATION SUPPLY

- Develop a core cycle network, including addressing gaps in the current network of on- and off-street bike routes.
    - Planning and expansion of the City's walking and bicycle paths is an important component of an active transportation strategy, which works together with bike parking and transit measures to create an effective sustainable transportation system and encourage alternative modes of travel. Niagara Falls already features a number of recreational pathways and a review of demand, network condition and gaps would be the first step of a focused expansion program.
- Develop a network of pedestrian pathways / sidewalks at places of residence, employment, key destinations and transit stops.
    - A review of how existing pathways can be better linked, and can link to other parts of the City, would benefit recreational and purposeful active transportation. Other important links are connecting to transit stops and providing safe, direct and attractive pathways (e.g., to school, transit stops).
- Establish pathway maintenance standards that are focused on the needs of pedestrians, cyclists and those requiring accessibility.
    - Walking and cycling networks require a set of general maintenance standards to ensure that they are safe and enjoyable to use. Such standards should include winter maintenance, defining a priority network for winter maintenance and the level of accessibility required.
- Conduct a survey of all sidewalks in the City, including inventory and condition.
    - A survey of the City's sidewalks would identify any infrastructure barriers to walking in Niagara Falls, for pedestrians, recreational walkers and those using transit.

The survey would include inventory and condition of sidewalks.

- Ensure that transit is provided at an early stage to new developments.
    - Provision of transit service to new developments when residents move into their homes encourages the establishment of sustainable travel patterns and increased use of transit.
- Develop a transit priority plan / priority lanes to improve transit service levels.
    - Such a plan could include signal timing changes for buses, and lanes that provide priority to transit vehicles (and potentially carpools and High Occupancy Vehicles (HOVs)). Implementation of this plan would improve transit travel times and thereby increase its attractiveness. The transit priority plan should correspond to the nodes and corridors identified in the City's Official Plan's Urban Structure to connect land use and transportation use.
- Schedule buses every 15 minutes on major transit corridors, during peak periods.
    - These bus schedule changes will improve overall transit service levels as well as improving the image of transit. This could result in increased ridership and customer satisfaction. Note that additional vehicles and staff would be required.
- Continue to install bike racks on buses.
    - Expanding current program of installing bike racks on new buses to ensure that all buses were equipped with bike racks would facilitate multi-modal trips and encourage active transportation.
- Assess the feasibility of a privately-owned car share program.
    - Such programs allow individuals infrequent access to a car; this car availability for some trips (e.g., large shopping trips, trips to destinations without transit service) reduces the total number of cars on the road, and has been implemented in a number of municipalities.
- Investigate implementation of a bicycle sharing program, working with the Niagara Parks Commission.
    - Bicycle sharing programs provide rental bikes for short-term use, with stations throughout the city, including at bus stops, major city destinations, hotels and tourist attractions. They can increase active transportation and reduce automobile use for some trips. Bikes are available for residents and tourists, and can provide a tourism feature in and of themselves, which would complement Niagara Falls' substantial tourism offerings.

6.5 PARTNERSHIP AND FUNDING OPPORTUNITIES

Partnership and funding opportunities will be important for the successful implementation of TDM initiatives in Niagara Falls. Particularly in smaller communities, funding new programs can be difficult and partnership with other municipalities and agencies can help to make TDM initiatives a reality. Niagara Falls has several such opportunities.

Niagara Region's TDM Policy Framework outlines a process for creating formal TDM policies and initiatives. There is a strong opportunity for Niagara Falls to partner with the Region as well as the City's neighbouring municipalities.

The provincial and federal governments have grant programs for municipal TDM initiatives, which the City could use to further develop and implement its TDM program. For example, the Ontario Transportation Demand Management (TDM) Municipal Grant Program: A Program to Encourage Cycling, Walking, Transit, and Trip Reduction provides financial assistance to municipalities for the development and implementation of TDM plans, programs, and services that promote alternatives to driving alone. Funding is available for one-year projects, with a maximum of $50,000 per project. The next round of the TDM grant program is being finalized and will be posted on the province's TDM web site as soon as the guidelines are approved.

Similarly, the federal ecoMOBILITY contribution program provides financial support to municipalities and regional transportation authorities for TDM projects. The ecoMOBILITY program is now closed, but there may be future federal opportunities.

6.6 CONCLUSIONS AND RECOMMENDATIONS

Through the new STMP, the City of Niagara Falls is in a position to shape its transportation future over the next 20 years. A variety of factors will influence the ultimate transportation vision for the City, and TDM will be an important element of any transportation vision. The ultimate way forward for TDM will be determined based on investment and commitment to these initiatives.

To move forward, increasing transit, walking and cycling mode shares and influencing travel behaviour across Niagara Falls, a shift is needed beyond business as usual. As part of this shift, a philosophical change in the City's and community's view of congestion is needed: some traffic congestion may be inevitable and even acceptable as it may encourage the use of different modes and the recognition that the automobile is not the only option for many trips. Like other transportation options, automobile travel has advantages and disadvantages; increased congestion may become one of the disadvantages to car travel. Planning of TDM programs and the active transportation network should be closely aligned with land use planning, transit and

parking management for the City, with TDM and active transportation supporting transit expansion and new services.

The STMP will include overarching recommendations as well an outline of initiatives by implementation horizon and target market.

6.6.1 Overarching Recommendations

- Appoint/hire a dedicated TDM Co-ordinator for the City, and source support resources to prepare a program business plan, co-ordinate program marketing, monitor results, organize public outreach programs, and implement TDM strategies (further discussion is required regarding budget implications). As noted above, there may be opportunities to partner with the Region and/or neighbouring municipalities to "share" a TDM Co-ordinator on a part-time basis.
- Market TDM throughout the community as part of the TDM program and incorporate individualized marketing approaches and outreach tools and programs that target specific markets, including the tourist sector.
- Update the Niagara Falls Official Plan to include and be in line with the City's TDM strategies.
- Initiate discussions with Niagara Region and the Province of Ontario with respect to modifications to the Development Charges Act to recognize efforts to promote TDM (transit). Recommendations should be identified for an equitable funding approach within the Development Charge framework to recognize both the costs and potential benefits of various TDM measures and investments in transit and other non-auto infrastructure.
- Develop a separate infrastructure capital program within the annual budget to implement TDM-related initiatives.
- Develop an approach to rationalize the need to resolve all existing and anticipated areas of congestion in the community, considering but not limited to the following issues:
    - The desire to improve the competitiveness of transit service;
    - The nature and duration of congestion;
    - The impact of congestion on walking and cycling;
    - Safety issues arising from current and anticipated congestion; and
    - Impact on economic, social and sustainability considerations as documented in the Goals, Principles and Objectives Working Paper.
- Reassess Traffic Impact Study guidelines, and if necessary formalize changes and requirements to be published and broadly disseminated to the community.
- Consider TDM in the context of all development reviews.

- Continue participation in Niagara Region's Regional TDM development work as part of the TDM Advisory Committee and other future opportunities.

A TDM implementation strategy for Niagara Falls is shown below. Note that initiatives within each time horizon are not presented by priority.

	TDM Initiative	Target Market
SHORT TERM PLANNING HORIZON		
Education, Promotion and Outreach		
1	Appoint/hire a dedicated TDM Co-ordinator for the City.	Program Management
2	Continue participation in Niagara Region's Regional TDM development work.	Program Management
3	Explore the creation and support of Niagara Falls Transportation Management Associations (TMAs).	Commuters
4	Provide strong TDM presence on City web site and develop a TDM brand.	Community-Wide
5	Develop a joint TDM marketing program for the City, Niagara Parks Commission and private sector.	Program Management/ Community-Wide
6	Provide walking, cycling and transit information on Niagara Falls' tourism web sites. It is understood that a Google map-based trip planner is currently under development by the City of Niagara Falls transit.	Tourists
7	Provide information on City web site about City's carbon dioxide (CO2) emissions and reduction measures.	Community-Wide
8	Promote carpooling initiatives and investigate partnership with a private carpool/ride-matching service.	Commuters
9	Develop TDM program for City of Niagara Falls staff.	Commuters
10	Promote compressed work weeks, teleworking, flexible hours for City employers.	Commuters
11	Promote and expand the Active and Safe Routes to School (ASRTS) program.	Students
12	Promote secondary and post-secondary institutions and student groups' adoption of TDM programs.	Students
13	Promote awareness of GO Transit services from Toronto, including the Bike Train.	Tourists/ Commuters
14	Provide education program to increase general awareness of benefits of walking and cycling.	Community-Wide
15	Complete a goods movement and delivery transportation management plan.	Shippers
16	Continue cycling events and initiate TDM events (e.g., car free day).	Community-Wide
17	Provide cycling safety clinics for all ages.	Community-Wide
18	Initiate community walking events for all ages.	Community-Wide
19	Develop and implement Regional and Municipal TDM monitoring program.	Program Management

	TDM Initiative	Target Market
20	Develop web-based trip planners for cycling and walking.	Community-Wide
Travel Incentives		
21	Develop employer transit pass program.	Commuters
22	Promote employee transportation allowance (private sector).	Commuters
23	Review current public parking supply and pricing and develop a City-wide parking implementation plan.	Community-Wide
24	Promote City-wide emergency ride home programs for sustainable mode users.	Commuters
25	Examine the feasibility of a “smart card” program with Niagara Region.	Community-Wide
26	Encourage dedicated, preferential parking spaces for carpools, car shares in both public and private lots.	Community-Wide
27	Expand winter bus stop maintenance program to include all bus stops.	Community-Wide
Land Use and Transportation Integration		
28	Provide bike parking at City facilities, major destinations, schools and tourist attractions.	Community-Wide
29	Require bike parking, change room and shower facilities at all major workplaces.	Commuters
30	Require pedestrian- and transit-friendly road networks.	Community-Wide
31	Expand scope of ‘Traffic Impact Studies’ to include consideration of all modes – for all developments, with a focus on accessibility rather than capacity.	Residential and Commercial Developments
32	Promote shared parking practices/facilities at commercial retail and mixed use developments.	Community-Wide
33	Establish maximum parking requirements, and parking exceptions, for residential, commercial, industrial and institutional developments.	Community-Wide
34	Fully wire all new homes for high-speed internet access, to facilitate telecommuting.	Households
35	Create a standardized list of TDM policies/initiatives to enable developers to reduce automobile trips.	Community-Wide
36	Partner with the private sector to provide transit shelters and station facilities throughout the City.	Community-Wide
37	Review development staging in new communities to ensure higher densities are contained in initial phasing.	Community-Wide
38	Use trees and other green elements to provide shelter, aesthetic benefits, shade and separation from motorized traffic.	Community-Wide
39	Pursue changes to LEED rating systems transportation and parking credits.	Community-Wide
40	Amend Development Charges Act to enable municipalities to levy charges for all transportation-related infrastructure.	Program Management
Transportation Supply		
41	Develop a core cycle network, including addressing gaps in the current network of on- and off-street bike routes.	Community-Wide/Cyclists
42	Develop a network of pedestrian pathways/sidewalks at places of residence, employment, key destinations and transit stops.	Community-Wide/ Pedestrians

	TDM Initiative	Target Market
43	Establish pathway maintenance standards that are focused on the needs of pedestrians, cyclists and those requiring accessibility.	Community-Wide
44	Conduct a survey of all sidewalks in the City, including inventory and condition.	Community-Wide/ Pedestrians
45	Develop a transit priority plan/priority lanes to improve transit service levels.	Community-Wide
46	Continue to install bike racks on buses.	Community-Wide
47	Assess the feasibility of a privately-owned car share program.	Community-Wide
MEDIUM TERM PLANNING HORIZON		
Travel Incentives		
48	Expand flexible transit pass program to include post-secondary education students, weekly passes and weekend passes (particularly for tourists).	Community-Wide/Tourists
Land Use and Transportation Integration		
49	Un-bundle parking costs from residential units at time of purchase, for new multi-unit complexes.	Households
50	Provide zoning flexibility for home-based business/home offices.	Households
51	Integrate local shopping and essential services into suburban neighbourhood land use planning.	Community-Wide
52	Limit student parking at local high schools, colleges and universities – along with transit, walking and cycling improvements.	Students
53	Limit on-site residential parking for new, single-family homes.	Households
54	Ensure that transit services are provided to new residential and commercial developments at an early stage, with developer funding.	Community-Wide
Transportation Supply		
55	Schedule buses every 15 minutes (at minimum) on high volume transit corridors, during peak periods.	Community-Wide
56	Investigate implementation of a bicycle sharing program, working with the Niagara Parks Commission.	Community-Wide/Tourists
LONG TERM PLANNING HORIZON		
Travel Incentives		
57	Transportation Pricing – area-based tolls.	Community-Wide

6.7 RESOURCES

http://www.niagarafalls.ca

http://niagararegion.ca

http://www.markham.ca/Markham/

http://vtpi.org/tdm/tdm23.htm

AECOM

Transportation Beyond Tomorrow 2031

City of Niagara Falls

SUSTAINABLE TRANSPORTATION MASTER PLAN

TRANSPORTATION BEYOND TOMORROW 2031

Travel Demand Modelling

October 2011

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1. INTRODUCTION

1.1 BACKGROUND

The City of Niagara Falls (City), in partnership with the Regional Municipality of Niagara (Region), the Ministry of Transportation (MTO) and the Niagara Parks Commission (NPC) is in the process of updating the Niagara Falls Sustainable Transportation Master Plan (STMP). As part of the STMP, an assessment of future travel demand growth and road network capacity is required to assess the need for future infrastructure improvements to address current deficiencies and new deficiencies that may arise as the community continues to grow. Travel demand forecasting and the assessment of transportation system performance are typically undertaken using computerized transportation models (modelling). Since there are a number of modelling tools available for use in the study area, the project team held a modelling workshop to discuss the different modelling tools that were available, and the approach to using them to assist in the assessment of the City's transportation system.

1.2 MODELLING WORKSHOP, AUGUST 6, 2009 –SUMMARY OF MODELLING TOOLS AND PROPOSED USE IN STUDY

A Modelling workshop meeting was conducted on August 6, 2009 with representatives from the Consulting Team, the City, and the Region's Transportation staff, to discuss the various modelling tools available for use in the modelling study. A summary of the available models is discussed below.

Niagara Region Travel Demand Forecasting Model

The Region recently completed a project to develop a new Regional Travel Demand Forecasting model, using the TransCad software, which provides forecast of travel demands on the road network of the entire Region (i.e., Regional Model). The Regional Model uses population and employment forecasts to predict the number of trips that residents would make on a typical weekday, and proportions those trips to the various modes of travel (auto driver, auto passenger, walking / cycling, and transit) using historical observations of travel mode shares based on the 2006 Transportation Tomorrow Survey (TTS). The Regional Model then assigns these trips to the road network in the Region to predict the routes that motorists would use to reach their destination based on prevailing traffic demands, congestion and estimates of travel time.

The Regional Model covers the entire Region and portions of Hamilton, Buffalo, and Niagara Falls New York. The road network includes all of the Provincial Highways, the International Border Crossings, the Regional road network, and many major arterial roads within the City. This type of travel demand forecasting model is commonly referred to as a "macro" model. The

term macro refers to the level of detail that the model uses. Instead of trying to predict the behaviour of individual users, a macro model predicts behaviour based on groups of people living within homogenous areas known as Traffic Zones. Trip making activity is predicted based on the total population and number of jobs within each traffic zone using observed trip making behaviour from a household travel survey. The routes people use to travel between zones is estimated by the model based on planning level estimates of the time it takes to travel between zones. Travel time estimates are generated based on the capacity of the road links, the total demand for travel on the road link, and a delay function that estimates the travel time and average speed based on the level of congestion on the road link. Since the model does not simulate the interaction of individual vehicles, the affects of traffic signals and stop signs are not explicitly considered in the routing method, although they are considered in setting the roadway link capacity. The macro model, therefore, is best suited to identify how well the overall road network will operate and is designed to forecast certain segments of road that may reach or exceed the capacity of the segment by 2031.

City of Niagara Falls Paramics Model

The City also maintains a micro-simulation model that covers the major arterial road network in a large part of the City. This detailed model, developed in the Paramics software system, is being updated and calibrated under a separate assignment, but it is anticipated that this model could be available for use in the Niagara Falls TMP. The Paramics model is different from the regional "macro" model in that it simulates the movement of individual vehicles through a road network. This model does not predict the number of trips that will be made in the future; it is simply used to assess the performance of the road network in serving the auto vehicle demand. The Paramics micro-simulation model takes into account the detailed road network lane and intersection configuration and type and efficiency of the traffic controls in use to determine the routing of vehicles through the network and in assessing the network performance. Since the operation of individual intersections and the individual vehicle interactions are modelled explicitly, localized congestion or operational issues (e.g., queues, need for turning lanes, need for advance green phases) can be assessed using the Paramics model where this type of analysis cannot be done using the TransCad macro model.

Proposed Approach to Modelling

Based on a review of the new Regional Model, it was recommended that this model be used for the Niagara STMP network assessment. The Model has been updated and calibrated to the 2006 TTS data and it incorporates recent Cross Border Travel Survey[1] data. The model uses a refined zone system and road network in the City and, compared with the previous Regional Model, better reflects the existing conditions allowing for a more

[1] *Cross Border Travel Survey, by Paradigm Transportation Systems Ltd, 2007.*

representative local analysis of deficiencies and future improvement opportunities.

It was determined that use of the Regional Model would allow the study team to develop forecasts of future growth in travel demand that reflect updated land use forecasts being developed by the City as part of their implementation of the policies set out in the Growth Plan for the Greater Golden Horseshoe (Growth Plan) and strategic choices on the role that transit use and active transportation modes will play in reducing future auto demand. The macro model will be primarily used for:

- Forecasting future travel demands
- Assessing system wide transportation implications of growth
- Testing the benefits of different strategies / policy approaches
- Assessing the benefits of Transportation Demand Management (TDM) policies
- Assessing the benefits of improvements to Local Transit, the Visitor Transportation System (VTS) (formerly referred to as the People Mover System) and other strategies to address tourist traffic demands, and the benefits of Inter-Regional Transit Improvements (i.e. GO Rail)
- Testing different Land Use Scenarios (ie. Region vs. Places to Grow forecasts)
- Assessing the system wide benefits of alternative transportation improvement alternatives

Based on an assessment of the current structure and design of the Regional Model it was agreed that a series of modifications to the Regional Model would be required to achieve the above study objectives. These updates and modifications will include:

- The development of summer tourist travel demands that are not currently included in the Regional Model;
- The development of a Niagara Falls specific approach to estimating transit and non-auto use for the base year and for the future
- A review of the model validation within the City and the refinement of the model network to ensure accurate portrayal of base year travel patterns and demands

Once the system wide improvement needs are determined through the macro model, the micro simulation model may be used to identify other localized or intersection congestion issues that should be addressed in the STMP. Based on the modelling approach confirmed at the workshop, the model refinements and demand forecasting process was finalized as discussed in **Section 2**.

2. MODEL REFINEMENT & DEMAND FORECASTING PROCESS

2.1 LOCALIZED ROAD NETWORK REFINEMENT

When regional models are developed, the focus tends to be on ensuring that they are able to accurately portray regional travel demands rather than localized travel demands. Model calibration is typically done on a region-wide basis, using broad screenlines to compare predicted to observed flows across major physical or jurisdictional boundaries (i.e., the Welland River or the Niagara Falls/Fort Erie municipal boundary), and broad measures such as total vehicle-kilometres of travel within an area. This level of calibration typically results in a much higher level of variation between simulated and observed traffic volumes within localized areas within a municipality. These differences can often be traced back to the level of detail used in the coding of the road network, the size of the traffic zone system used in the model, and/or the number of centroid connectors used to connect the traffic zones to the local road network. To improve the ability of the Regional Model to accurately portray travel demands on the local road network within the City, these aspects of the model were reviewed and refined within the City boundaries.

The major area of refinement in the Regional Model was with the treatment of the zone connectors. As illustrated in **Figure 1,** the Regional Model typically used one zone connector for each traffic zone. For regional level forecasting this is a sufficient level of detail. However, to improve the accuracy of the network loading within a defined area, it is often better to have more than one zone connector to simulate the different local road connections that residents use to access the arterial road network. The green dashed lines in **Figure 1** represent the original zone connectors in the Regional Model and the red dashed lines illustrate the new zone connectors added to the model within the City. By increasing the number of connectors, trips are distributed onto the local road network in a more balanced fashion and closer to the way that actual residents access the arterial roads from their local neighbourhoods, thus improving the accuracy of the model in predicting traffic volumes on the various arterial roads in the City.

Figure 1: Refinement of Model Zone Connectors

2.2 PROPOSED UPDATES TO REGIONAL MODEL

2.2.1 Local Tourism Travel Demands

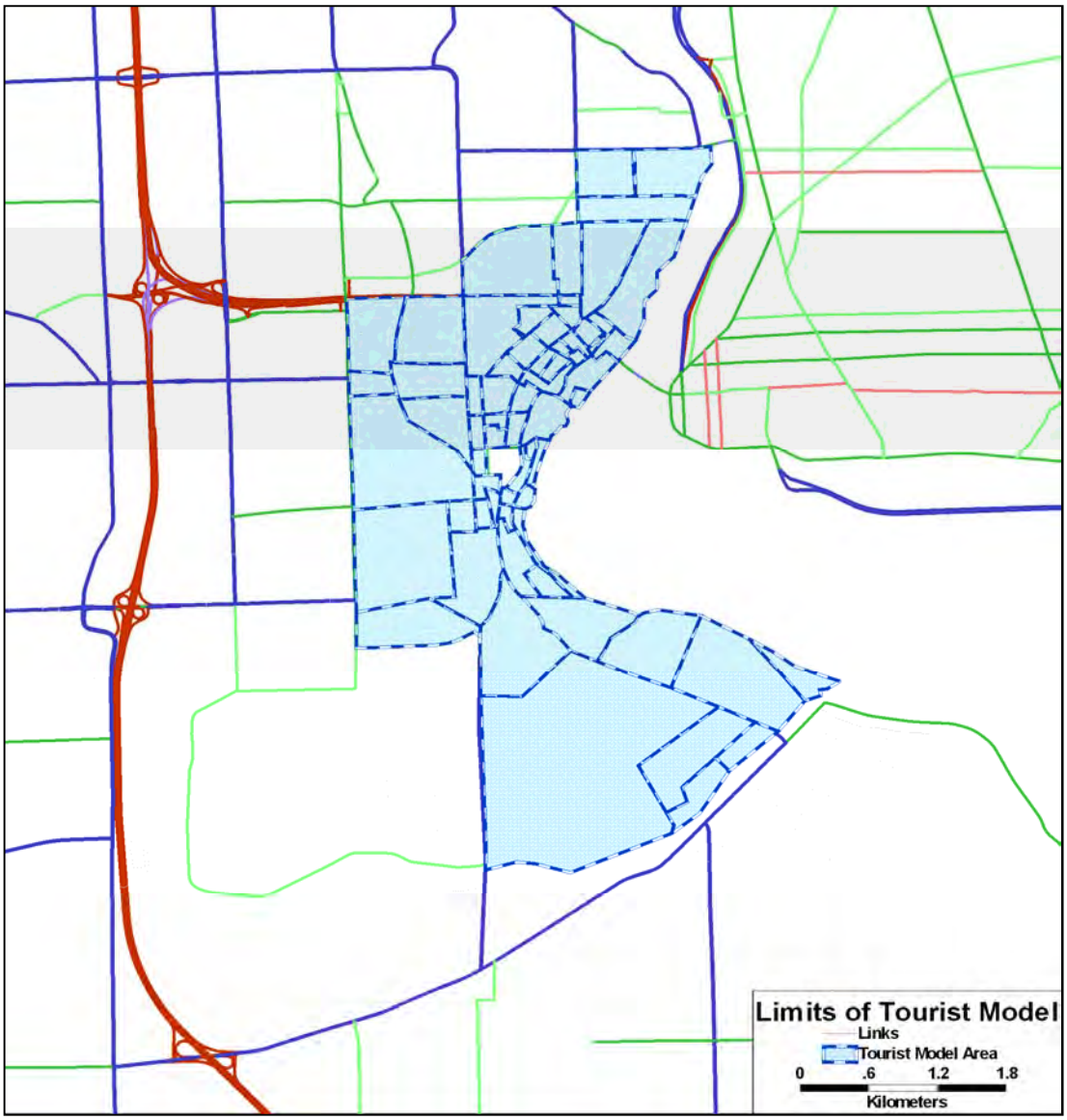
Another one of the proposed updates to the Regional Model was to incorporate the local tourism travel demands, particularly given the impact that tourist traffic has on the road network in the City's tourist areas (i.e., tourist model). The travel demand information for these tourist trips was derived from the Stantec Resort Area Tourist Model, which was developed in 2008 to support the travel demand forecasts for the People Mover System (Resort Area Model). As noted in Section 1.2, the former project is currently referred to as the VTS. The boundaries of the Resort Area Model are Niagara River to the east, Drummond Road to the west, Chippawa in the south, and Bridge Street to the north.

The limits of the tourist model are shown by the shaded area (blue colour) in **Figure 2**.

The development of the Resort Area Model zones, was based on the lot boundaries within the tourist areas and these were reconciled with the TAZ boundaries in the Regional Model. The Resort Area Model zone file includes

information such as the name of the major tourist property in the zone, the number of hotel rooms and the number of off-street parking spaces, among other information. The Resort Area Model was developed based on surveys that were carried out in the resort area (by others) and from these surveys a multimodal trip table and a mode choice model were developed by Stantec. The trip table was controlled to a summer weekend day visitation estimate, as estimated by PKF Consulting (PKF) using tourist visitation data. This daily trip table was annualized taking into account the summer peaking of visitor activity.

Figure 2: Limits of Tourist Model



The trips made by residents to work locations in the tourist areas are captured in the main Regional Model from the TTS Data, thus the trip tables only represent visitor trips. The base year for the Resort Area Model is 2004. This base year trip table was used as the basis for the development of future year trip tables. To develop future year tables, the growth in planned development was added, as appropriate. In addition, a growth factoring approach was used to forecast the future tourist trips, with the total trip-making activity limited to the overall Niagara visitation forecasts. These visitation forecasts were updated for the City in 2006 and 2009 by PKF.

All major parking facilities were coded as free standing zones in the Resort Area Model and several zones were set aside to represent street parking. External to internal auto trips were loaded into the Resort Area Model at these parking locations. These "parking" trips were then allocated to auto, walk, or transit modes to reach their final destinations, based on the observed information from the survey. Because of this, not all auto travel was captured in the original Resort Area Model. For instance, an external auto trip with a destination at the Table Rock parking would not show up in the Resort Area Model. Subsequent associated trips starting at the Table Rock parking lots would be counted, however trips leaving the study area would not be included. To address this, additional auto trips were added to the matrix to represent the external trips entering the City and these were distributed to the various tourist parking lots in the City. These external trips were assigned to external zones in the Regional Model based on the origin information from the tourist survey.

The information obtained from the Resort Area Model includes local tourism trip matrices for both total person trips and auto driver trips. It includes a representation of summer peak weekday demands and a conversion to average weekday peak hour demands. To incorporate the travel demands from the Resort Area Model into the Regional TransCad model, the demand matrices were aggregated to match the zone system used in the Regional Model.

The tourist demand is treated as additional "external" traffic and is added to travel demands generated by the Regional Model to obtain the final demands to be assigned to the network. Using this approach, future local tourist trips are held consistent with previous forecasts prepared as part of the People Mover System. **Table 1** summarizes the 2009, 2015, 2025 and 2031 visitation forecasts developed by PKF that were used as the basis for the forecasts of tourist travel demand growth within the City. Forecasts for the 2031 horizon were estimated based on the 2025 forecasts prepared by PKF, using a 1% annual growth rate.

Table 1: City of Niagara Falls Tourist Visitation Forecasts

	2009	2015	2025	2031*
Annual Visitation	8,933,000	10,718,000	13,856,000	14,563,000
Peak Season Percentage	28.53%	28.53%	28.53%	28.53%
No. of Peak Season Days (July August)	62	62	62	62
Total Peak Season Visitors	2,548,585	3,057,845	3,953,117	4,154,825
Visitation per Avg. Day (Peak Season)	41,106	49,320	63,760	67,013
Visitation per Avg. Weekend Day (Peak Season)	48,590	58,855	76,820	80,739

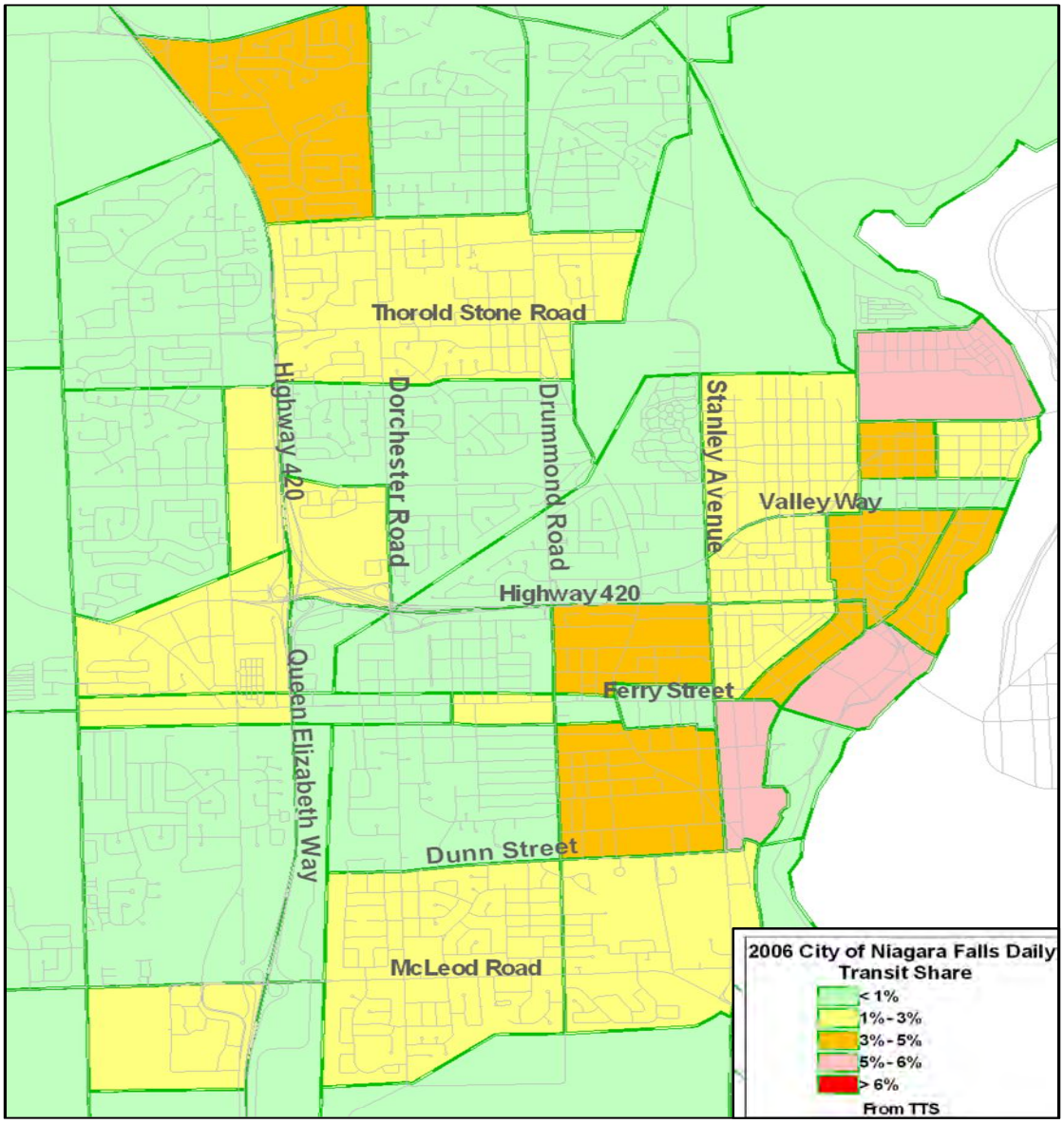
Rates were taken from PKF Visitation and Trip Forecasts
* Estimated based on 1% per year growth from 2025 and PKF Factors

It was determined that the 2006 p.m. summer weekday traffic adds 3,900 auto trips to the network in the tourist area and the 2006 summer weekend traffic adds 4,610 auto trips into the tourist area network.

2.2.2 Model Enhancements to Account for Transit Use

The current Regional Model uses a system wide transit mode split that is applied at the trip generation stage, and assumes a 6% non-auto mode split applied to all areas of the region equally. Non-auto modes include walking, cycling and transit. A review of the 2006 TTS data for the Cityshows higher transit mode splits and non-auto use in the urbanized areas, as illustrated in **Figure 3**.

Figure 3: City of Niagara Falls Non-Auto Mode Share (2006 TTS)



During the Regional Model review, it was determined that a refined approach to incorporating transit use would allow for an assessment of different levels of transit ridership or service in different areas of the city, and would allow for better understanding of the benefits that investments in transit service can provide. To accomplish this, it was proposed that a transit mode split matrix be developed to convert person demand to auto demand. The mode split matrix for 2006 is based on current TTS mode shares on a zone to zone basis, and for future scenarios the mode share assumptions can be updated to test and evaluate the benefits of improved transit use in certain areas of the City and on certain specific corridors.

Based on the 2006 TTS data, the City is achieving an 8% non-auto mode share on an overall daily basis. Approximately 1.4% of daily trips use transit and many zones in the downtown and tourist areas are achieving transit shares greater than 3% already.

The approach still uses a simple policy mode split, but it is based on current or forecasted transit mode share between zones or between different areas within the City. With this approach, it can be determined whether investments in enhanced transit can offset road improvements needs – an important consideration for the STMP. The IBI Transit Business Plan[2] (the IBI Plan) estimated that the increased ridership associated with the recommended improvements would increase to the existing transit mode share from 1.4% in 2006 to 3.2% by 2018. This doubling of the transit mode share will represent a significant increase within a short time period. The analysis in the STMP has maintained this same transit mode share for the 2031 horizon year.

2.3 BASE MODEL VALIDATION AND CALIBRATION

2.3.1 Initial Validation

Part of the process of modelling includes an initial model validation to confirm that the model accurately portrays the existing (base year) travel patterns, traffic volumes, operating conditions, and level of network congestion/demand.

The validation focused on weekday p.m. peak hour conditions and compared model forecasts of travel demands on the road network to existing traffic count data from the City, Region and MTO. Validation was undertaken at several screenlines throughout the City. The screenlines are as shown by the dashed lines in **Figure 4**.

The screenlines that run east/west include:

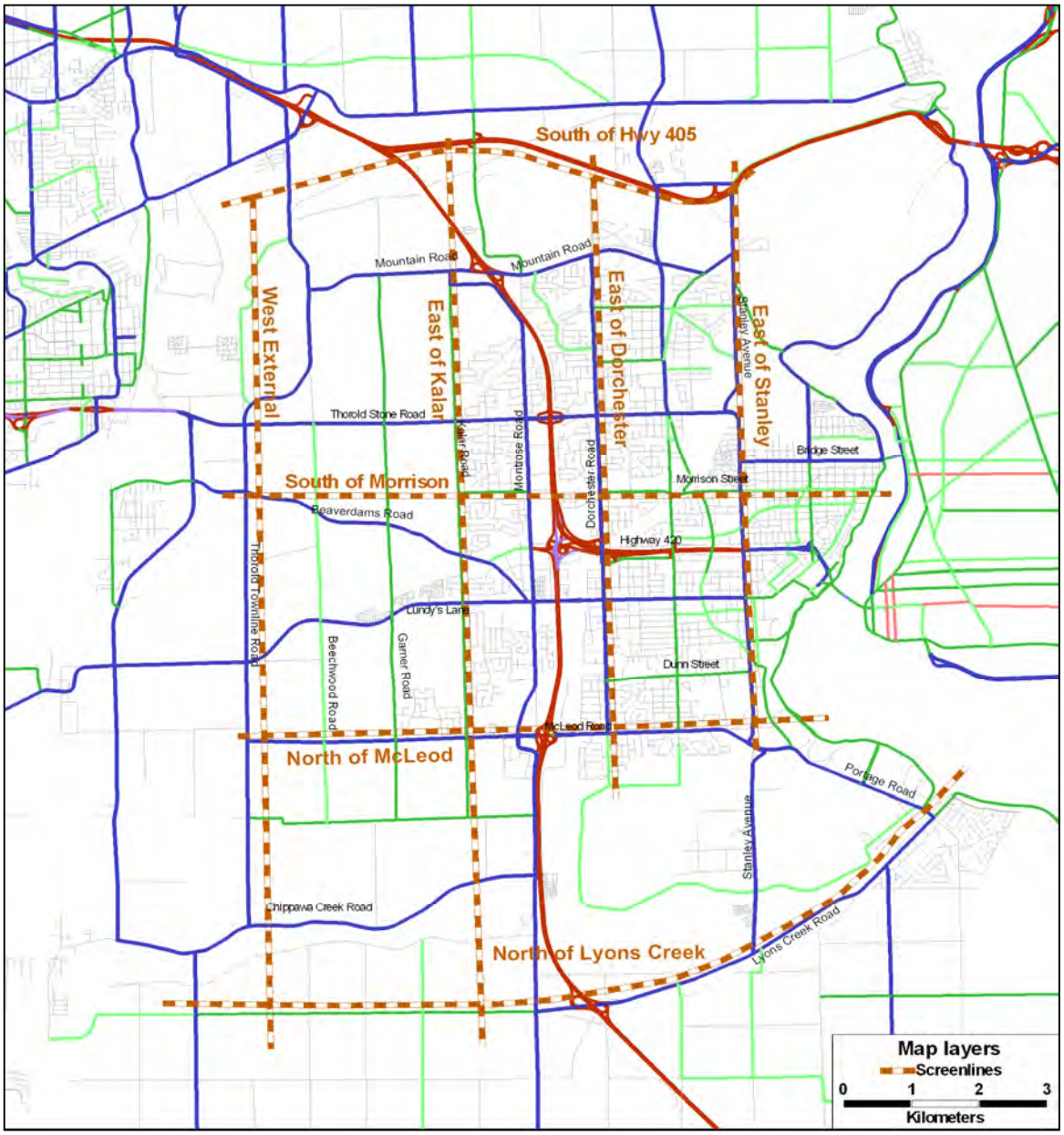
- South of Highway 405
- South of Morrison Street
- North of McLeod Road
- North of Lyons Creek Road

The screenlines that run north/south include:

- East of Thorold Townline Road (West External)
- East of Kalar Road
- East of Dorchester Road
- East of Stanley Avenue

[2] *"Transit Strategic Business Plan and Ridership Growth Strategy", Phase 4 and Phase 5, IBI Group, March 2009*

Figure 4: Model Validation Screenlines



The target for validation was ±15% of observed peak hour volumes at the selected screenlines, which is consistent with industry standards for City wide modeling projects. The initial validation was completed without the addition of tourist trips. Following the initial validation process, the estimated local tourism travel demands were also incorporated. The results of the assessed screenlines including local tourism travel demands are shown in **Table 2**. Based on the screenline validation results for the City, the model is well-calibrated for use in forecasting future travel demands with a high

degree of confidence. For the east/west screenlines capturing northbound and southbound auto demands through the City, the model is calibrated within 15% on all of the screenlines in both directions of travel, with simulated volumes at most of screenlines within 10% of observed traffic counts.

Table 2: Screenline Validation With Tourism Trips

Screenline	NB Count	NB Model	Sim/Obs	SB Count	SB Model	Sim/Obs
South of 405	4,351	4,705	1.08	4,566	4,748	1.04
South of Morrison	6,966	7,298	1.05	7,379	6,852	0.93
North of McLeod	4,909	4,284	0.87	4,669	4,869	1.04
North of Lyons Creek	2,474	2,369	0.96	3,102	3,153	1.02
Screenline	**EB Count**	**EB Model**	**Sim/Obs**	**WB Count**	**WB Model**	**Sim/Obs**
East of Thorold Townline	1,717	2,187	1.27	1,655	2,187	1.37
East of Kalar	2,679	2,608	0.97	2,778	2,752	0.99
East of Dorchester	4,925	4,779	0.97	5,511	5,614	1.02
East of Stanley	5,083	4,232	0.83	5,221	5,519	1.06

On the north-south screenlines representing eastbound and westbound travel demands, the screenlines within the City are calibrated to within ± 3%. The East of Thorold Townline screenline is significantly over-simulating, compared to observed traffic volumes, by 27% to 37%. As this screenline represents the west boundary of the City, and the Kalar Road screenline matches observed volumes quite closely, it was determined that no further adjustment would be required to correct for the over-simulation at the Niagara Falls west boundary. At the East of Stanley Ave screenline, the eastbound direction is under-simulating current demands by 17%, slightly higher than the 15% target threshold. In the westbound direction, the model is simulating within 6% of observed auto demands.

Based on the above review, the model, with the adjustments made as part of this project, was determined to be suitable for use in forecasting future travel demands for the City. The Region has been consulted throughout the model validation process. A copy of the refined model will be provided to the Region for their use at completion of the study.

2.3.2 Review of Model Capacities

The model validation was initially completed using the capacities as set in the model; however, upon further review, it was noted that the model capacities used for some corridors are higher than that typically used for a planning model. In addition, the capacities in the Regional Model did not match the capacities listed in the Model Documentation Report[3], as noted in **Table 3**. The report noted that some capacities were adjusted during the calibration process.

[3] *Regional Niagara, Transportation Planning Model Update, Model Documentation, June 2008, Paradigm Transportation Solutions Ltd.*

Table 3: Planning Capacities Used in Regional Model

Road Type/Jurisdiction	Model Documentation Report	Model
Freeways	1500-1800	1930-2060
Freeway Ramps	1500-1800	1230-1760
Regional Highway	1000-1100	1230-1250
Major Arterials	800-900	1230-1250
Minor Arterials	700- 800	880-900
Major Collectors/Collectors	600-650	780-800
Minor Collector/Local	450-500	none
Local	300-400	none

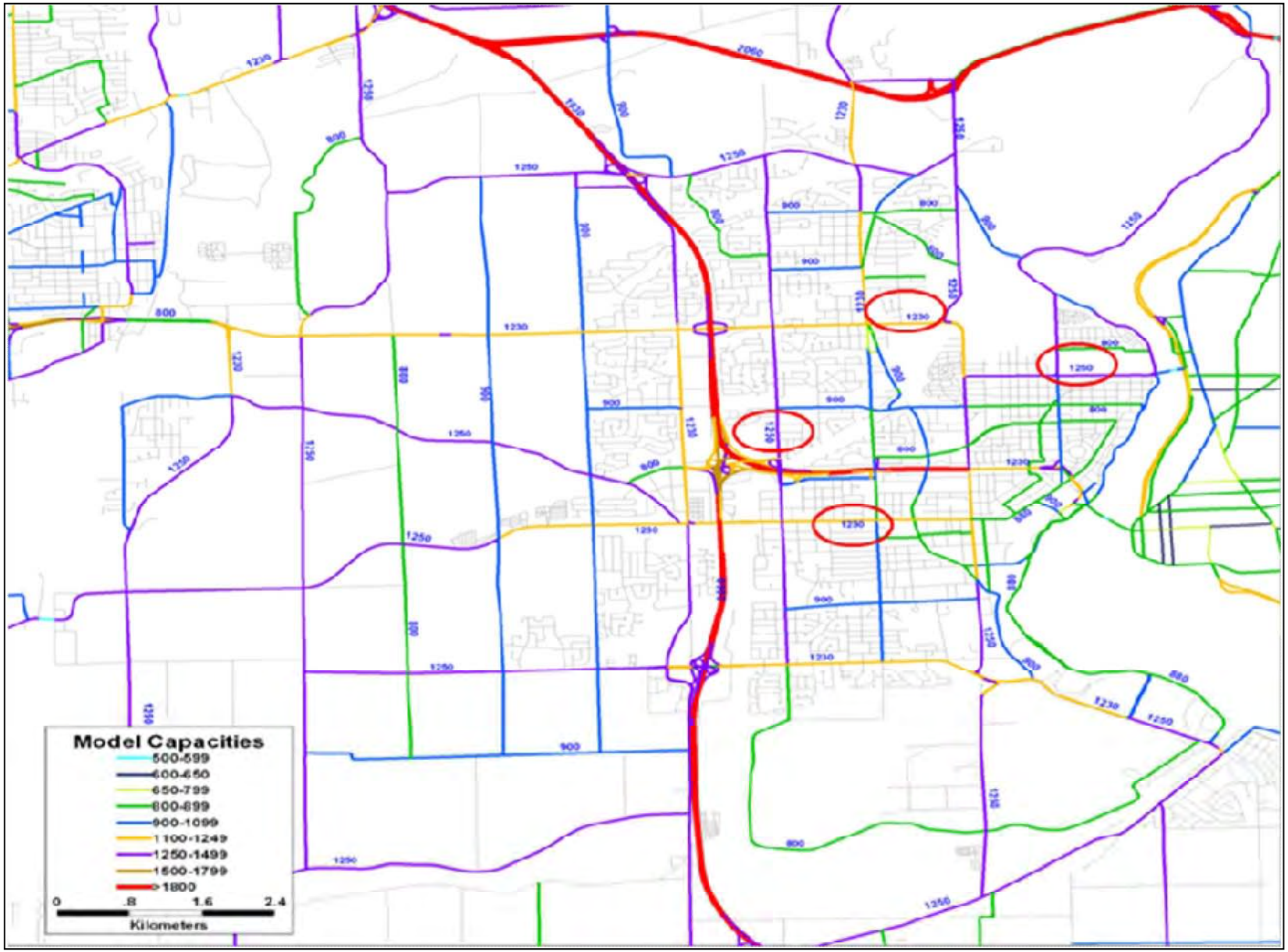
Figure 5 illustrates the planning capacities used on the various road links with the City.

A review of planning capacities used in other models from municipalities across Ontario, as summarized in **Table 4**, suggests that the capacities specified in the original model documentation report are representative of the capacities used by other jurisdictions, including jurisdictions with a mix of urban and rural settings, however many of the capacities used in the final model are significantly higher than those typically used in other jurisdictions.

Table 4: Planning Capacities Used in Other Jurisdictions

Road Type/Jurisdiction	City of Brantford	City of Kingston	City of Peterbor-ough	City of Greater Sudbury	MTO GTA Model	Region of Waterloo
Freeways	1800	1800	1800	1800	1800	1800
Highway/Expressway/ Controlled Access or Rural Highway	1100	1100	1000	-	1200	1100
Major Arterials	900	900	800-900	900 - 1000	900	800-900
Medium Capacity Arterials	-	-	700-800	800	700	750
Minor Arterials/CBD Arterials	700- 800	800	600	700	500	650
Major Collectors/Collectors	650	600-750	500	500	400	400-550
Minor Collector/Local	500	350-500	400/300	-	-	-

Figure 5: Planning Capacities Used in Regional Model Within Niagara Falls



As a result, several arterial road corridors, such as Dorchester Road, Lundy's Lane, Bridge Street, and Thorold Stone Road have a higher capacity in the model than would typically be used in a planning assessment. The model capacity and suggested capacity for these links is listed in **Table 5**.

Table 5: Model Capacity vs. Suggested Capacity for Select Network Links

Road	Model Capacity (VPHPL)	Suggested Capacity (VPHPL)
Dorchester Road	1,250	900
Lundy's Lane	1,230	900
Bridge Street	1,250	800
Thorold Stone Road	1,230	900

VPHPL = vehicles per hour per lane

Figure 6 illustrates the Dorchester Road and Lundy's Lane corridors within the City. Dorchester Road is a two lane arterial with left turn lanes at intersections and numerous mid block entrances at residential and commercial driveways. On-street parking is permitted on some sections (one side only).

With a limited number of signalized intersections, an appropriate planning capacity for this type of facility would generally be between 800-900 vehicles per hour per lane. It was suggested by the study team that 900 vehicles per hour per lane be used in the Regional Model. Lundy's Lane is a busy four lane arterial with numerous closely-spaced commercial entrances. The majority of the major intersections feature separate left turn lanes, however some minor road intersections do not. As such, an appropriate planning capacity for this type of facility is estimated at 900 vehicles per hour per lane (vphpl).

Figure 6: Dorchester Road & Lundy's Lane

South of Highway 420

North of Morrison Street

Dorchester Road
Model Capacity = 1250 vphpl
Suggested Capacity = 900 vphpl

East of Dorchester Road

Lundy's Lane
Model Capacity = 1230 vphpl
Suggested Capacity = 900 vphpl

Figure 7 illustrates the Bridge Street and Thorold Stone Road corridors within the City. Bridge Street is a two lane minor arterial with no left turn lanes at intersections and numerous mid block entrances at residential and commercial driveways. With a limited number of signalized intersections, an appropriate planning capacity for this type of facility would be approximately 800 vehicles per hour per lane.

Thorold Stone Road is a busy four lane arterial with numerous, closely spaced commercial entrances. The majority of the major intersections feature separate left turn lanes; however some minor road intersections do not. As such, an appropriate planning capacity for this type of facility is estimated at 900 vehicles per hour per lane.

Figure 7: Bridge Street & Thorold Stone Road

Bridge Street
Model Capacity = 1250 vphpl
Suggested Capacity = 800 vphpl

East of Victoria Avenue (downtown)

Thorold Stone Road
Model Capacity = 1230 vphpl
Suggested Capacity = 900 vphpl

East of Dorchester

The model capacities were updated based on the model documentation report and standard capacities (generally in use in other locations), and then tested to compare output with the current unadjusted model. The result is the validation of the Regional Model is as good, or slightly better, with use of the adjusted capacity values in the model, as shown in **Table 6**.

The use of appropriate planning capacities is an important assumption used in the modelling process. With higher planning capacities, the model will assume that higher volumes can be accommodated on the study area road network than may be the case in the field. This could lead to the underestimation of infrastructure needs for future horizon years.

Table 6: Screenline Capacity Validation Excluding Tourism Trips

	New Capacities							Original Model Capacities			
Screenline	**NB Count**	**NB Model**	**Sim/Obs**	**SB Count**	**SB Model**	**Sim/Obs**		**NB Model**	**Sim/Obs**	**SB Model**	**Sim/Obs**
South of 405	4,351	4,719	1.08	4,566	4,618	1.01		4,705	1.08	4,637	1.03
South of Morrison	6,966	7,217	1.04	7,379	6,653	0.90		7,298	1.05	6,752	0.92
North of McLeod	4,909	4,043	0.82	4,669	4,384	0.94		4,010	0.82	4,379	0.94
North of Lyons Creek	2,474	2,389	0.96	3,102	3,075	0.99		2,369	0.96	3,153	1.02
Screenline	**EB Count**	**EB Model**	**Sim/Obs**	**WB Count**	**WB Model**	**Sim/Obs**		**EB Model**	**Sim/Obs**	**WB Model**	**Sim/Obs**
E of Thorold Townline	1,717	2,159	1.26	1,655	2,181	1.32		2,187	1.27	2,187	1.37
East of Kalar	2,679	2,643	0.99	2,778	2,664	0.96		2,608	0.97	2,752	0.99
East of Dorchester	4,925	4,597	0.93	5,511	5,437	0.99		4,628	0.94	5,490	1.00
East of Stanley	5,083	3,565	0.70	5,221	4,657	0.89		3,617	0.71	4,983	0.95

With the Model Capacity run using unadjusted capacities (for 2006 weekday conditions), the model shows that the network operates at an acceptable level of service. A comparison for the 2006 and 2031 horizon was completed using the original model capacities and new capacities recommended for use in the STMP. For both scenarios, the total vehicle-kilometres of travel operating at various levels of service was summarized, along with the total length of the road network operating at the same levels of service.

For the 2006 base year (without the influence of the tourist trips), the original model capacities indicate that approximately 1.1 km of the road network within the City is operating at LOS E or F conditions, indicating the functional capacity of the roadway has been reached or exceeded. Approximately 1.1 km of roadway is operating at LOS D, which indicates that the roadway is approaching capacity and that improvements should be considered. With the new capacities suggested for use in the model, the length of deficient road network operating at LOS E or F is increased to 2.8 km, while the length of road operating at LOS D is increased to 7.0 km. This level of congestion more closely matches the current conditions on the road network within the City.

As shown in **Table 7**, preliminary forecasts for 2031 (without tourist trips) showed significantly different results for the model capacity and updated capacity scenarios. With the original model capacities, approximately 3.8 km of roadway is forecast to be at or over capacity by 2031, compared to 7.1 km using the updated capacities. With the original model capacities, 3.6 km of the road network is forecast to operate at LOS D compared to over 20.6 km using the updated capacities.

Table 7: Comparison of Capacities and Road Network Deficiencies

Level of Service	Model Capacities		New Capacities		Model Capacities		New Capacities	
	2006 vkm	2006 km	2006 vkm	2006 km	2031 vkm	2031 km	2031 vkm	2031 km
LOS A-C	259,013	746.4	252,458	741.8	313,717	745.0	295,173	725.7
LOS D	852.0	1.1	5,170.1	7.0	3,078.1	3.6	17,094.3	20.6
LOS E	29.0	0.3	563.7	1.0	458.0	0.7	1,870.4	2.8
LOS F	733.5	0.8	1,485.5	1.8	3,117.7	3.1	4,147.7	4.3

The capacities in the Regional Model were discussed with Region staff prior to using the model for forecasting future travel demands for the STMP. Based on advice received from the Region, it was agreed to proceed using the existing model capacities for the traffic assignment stage of the model, in order to maintain consistency with forecasts produced for other studies. There was concern that changing the model capacities could result in differences in assignment results on various road links in the vicinity of

Niagara Falls which could result in studies with conflicting forecasts of future demands.

For the purpose of the deficiency analysis for the STMP, it was agreed that the study team would use the updated capacity values for the roads within the City to better reflect the actual deficiencies in the City. To do this, a local capacity field was created in the road network layer in order to calculate new volume/capacity ratios and highlight deficiencies based on local capacities. The deficiency analysis presented in **Section 4** of this report has utilized this modified approach.

2.4 LAND USE FORECASTS

Future population and employment growth forecasts for the Region have been prepared by the Region as part of their exercise to conform to the Growth Plan. Given concerns about the low base year figures used in the Growth Plan forecasts, the Region recommended using their council endorsed "Scenario D" forecasts for municipal population and employment forecasts for 2031. These forecasts result in a total population of 545,400 people and total employment of 243,540 jobs in the Region. Forecasts of population and employment growth for the City, was adjusted based on local forecasts provided by the City Planning Department. A summary of the 2031 population and employment forecasts used in the STMP is shown in **Table 8**.

Table 8: Population and Employment Forecast to 2031

Municipality	2031 Population	2031 Employment
Grimsby	31,800	11,040
Fort Erie	40,700	17,060
Lincoln	30,300	13,860
Niagara Falls	106,800	53,640
Niagara On The Lake	22,700	15,100
Pelham	24,400	6,230
Port Colbourne	24,100	9,070
St. Catharines	143,800	71,000
Thorold	28,400	11,330
Wainfleet	8,200	1,910
Welland	66,500	27,080
West Lincoln	16,700	6,220
Regional Total	**545,400**	**243,540**

2.5 FORECASTS OF FUTURE TOURIST DEMANDS

Future growth in tourist demands used in the model update were derived from updated visitation forecasts for the years 2015 and 2020 that were prepared by PKF in support of the VTS[4]. The current tourist model includes estimated future summer weekend peak demands for 2015 and 2025. Both visitation and summer weekend peak demand forecasts were extended to the year 2031 using 2015 to 2025 growth rates, and were then converted to weekend peak hour demands and weekday peak hour demands based on conversion factors developed using the assumptions from the PKF report and the Stantec Tourism model. These conversion factors include the following:

- Summer Peak Hour = 10.3% of Summer Peak Daily
- Average Weekday = 84.6% of Summer Peak (2008), 83.8% (2015) and 83% (2025)
- Auto Occupancy = 2.75 persons per vehicle (taken from tourist survey)

The forecasted tourist demands are shown in **Table 9**.

Table 9: Tourist Visitation Forecast to 2031

	2009	2015	2025	2031*
Annual Visitation	8,933,000	10,718,000	13,856,000	14,563,000
Peak Season Percentage	28.53%	28.53%	28.53%	28.53%
No. of Peak Season Days (July August)	62	62	62	62
Total Peak Season Visitors	2,548,585	3,057,845	3,953,117	4,154,825
Visitation per Average Day	41,106	49,320	63,760	67,013
Visitation per Average Weekend Day	48,590	58,855	76,820	80,739

Rates were taken from PKF Visitation and Trip Forecasts
*Estimated based on 1% per year growth from 2025 and PKF Factors

Based on the tourist visitation forecasts presented in **Table 9**, forecasts of tourist trips are summarized in **Table 10**.

[4] *PKF Report, 2009*

Table 10: City of Niagara Falls Tourist Trip Forecasts

	2009	2015	2025	2031*
Summer Daily Auto Person Trips	123,080	144,970	193,906	205,872
Summer Weekend Peak Hour Auto Persons (10.3%)	12,677	14,932	19,972	21,205
Summer Weekend Peak Hour Autos (2.75 vehicle occupancy)	4,610	5,430	7,263	7,711
Avg. Summer Weekday Peak Hour Auto Persons (8.7%)	10,725	12,513	16,577	17,600
Avg. Summer Weekday Peak Hour Autos (2.75 vehicle occupancy)	3,900	4,550	6,028	6,400
Growth in Demand from Previous Period		16.7%	32.5%	6.2%

Rates were taken from PKF Visitation and Trip Forecasts
*Estimated based on 1% per year growth from 2025 and PKF Factors

By 2031 tourist trip making during the average summer weekday peak is forecast to increase from 3,900 auto trips to 6,400 auto trips (64% increase) and 7,711 auto trips for typical summer weekend (67% increase).

3. PRELIMINARY FORECAST RESULTS

3.1 MODELLING FUTURE TRANSIT MODE SHARE SCENARIOS

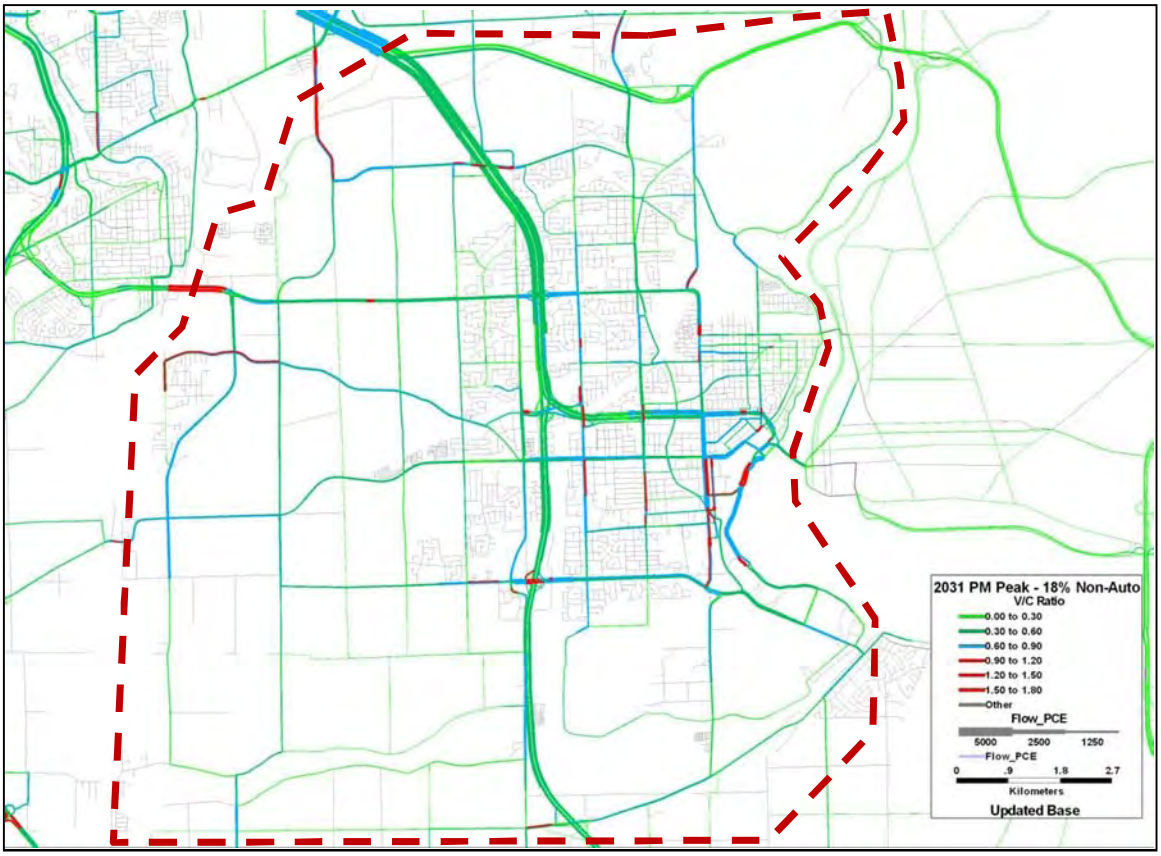
For the purpose of assessing the benefits of various transit modes share options, four modelling scenarios were selected for analysis of the p.m. peak hour for the 2031 horizon year. The modelling work utilized a building block approach, where transit and TDM were separated to have a closer look at the benefits of each strategy. A combined transit plus TDM strategy looks at the cumulative effect of both measures.

The four scenarios tested include:

- Model Base – assumes default 6% total non auto use
- Do Nothing – assumes current 8% total non-auto use for the City
- Transit Improvements – assumes 10% total non-auto use for the City due to increasing transit share to 3.2% (per IBI Transit Business Plan)
- Transit Improvements plus TDM - assumes 18% total non-auto use for the City due to increasing transit share to 3.2% (per IBI Transit Ridership Growth study) and implementation of TDM policies

For the purpose of quantifying and calculating network statistics for each scenario, the following study area, illustrated in **Figure 8,** was used.

Figure 8: Model Study Area used for Network Statistics



3.2 FUTURE TRAVEL DEMANDS

Once the model validation was complete, the future travel demands for the City were analyzed using the macro model. Weekday auto trips during 2031 are projected to increase by 39% to a total 37,375 p.m. peak hour auto trips to and from the City; which includes 7.043 tourist trips (19%). **Table 11** summarizes the total 2031 travel demands to and from the City for the typical p.m. peak hour.

Table 11: 2031 P.M. Peak Hour Auto Trips

From / To	City	External	Total
City	19,009	9,635	28,644
External	8,731		
Total	27,740		37,375

Forecasts of 2031 p.m. peak hour truck demands to and from Niagara Falls are anticipated to increase by 18% compared to 2006 data, as summarized in **Table 12.** The total number of p.m. peak hour truck trips to and from Niagara Falls totals 14,503 vehicle trips, representing 28% of overall demand. This includes the truck trips using the QEW and Highway 405 through the City.

Table 12: 2031 P.M. Peak CAN/US Truck Trips

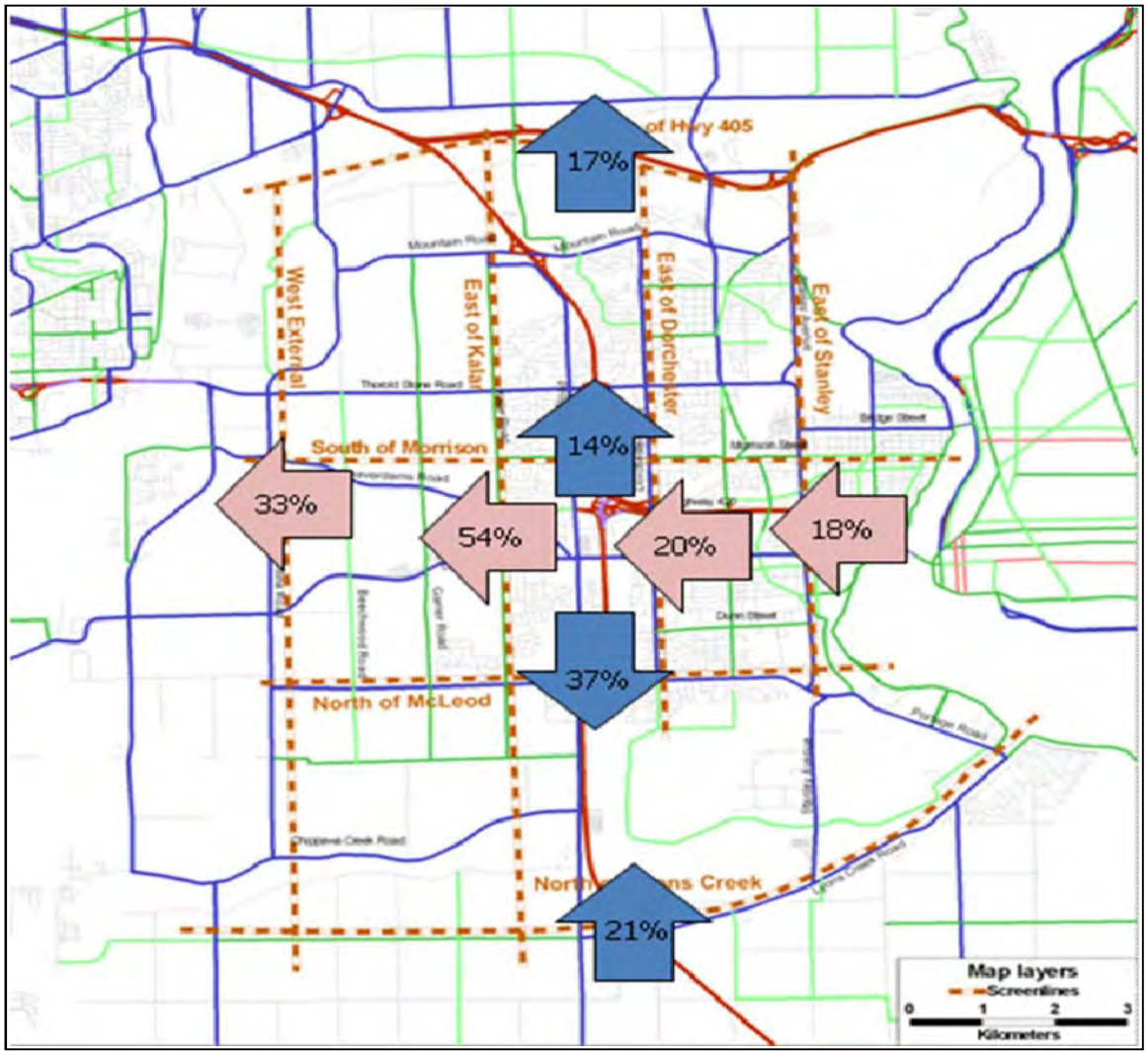
From / To	City	External	Total
City	11,528	1,325	12,853
External	1,650		
Total	13,178		14,503

3.3 2031 WEEKDAY FORECAST –DO NOTHING – FUTURE BASE MODE SHARE

The resulting preliminary 2031 forecast shows a significant increase in screenline auto travel demand compared to 2006. This increase is shown by the percentage increase values within the arrows in **Figure 9**.

The highest growth in demand is oriented to the south and west portions of the City, in line with expected areas where new development is planned to occur. Lower growth is expected to the north of the City and in the downtown core areas.

Figure 9: 2031-2006 Growth in Demand at Screenlines



3.4 FUTURE MODE SHARE ASSUMPTIONS

As noted previously, the assumptions on future mode share targets to be used for the STMP are based on the IBI Transit Business Plan.[5] This plan indicates that the transit mode share was forecast to increase from 1.9% in 2007 to 3.2% by 2018. As discussed previously, the 3.2% transit mode share was maintained through the horizon year 2031.

As shown in **Table 13**, the base scenario within the model currently has a 6% non-auto mode share and forecasts a total of 13,984 internal[6] auto trips during the p.m. peak hour. Based on 2006 TTS data for Niagara Falls, The City has an 8% non-auto mode share, based on 2006 TTS data. With an increase in non-auto mode shares to 8%, without further transit improvement, internal auto trips would be reduced by 280 vehicles (2% reduction). With the transit improvements identified in the IBI Plan, the non-auto mode share is forecast to increase to 10% with a corresponding auto trip reduction of 530 vehicles (3.8% reduction) during the p.m. peak. The last scenario combines both transit and TDM improvements to increase the non-auto mode share to 18%, representing an auto trip reduction of 1,462 vehicles (10.5% reduction) during the p.m. peak.

Table 13: Impact on P.M. Peak Hour Demand

Scenario	Non Auto Mode Share	Total Internal Auto Trips P.M. Peak Hour	Auto Trip Reduction From Base	% Reduction
Model Base	6%	13,984	--	--
Do Nothing	8%	13,704	-280	-2%
Transit Improvements	10%	13,453	-531	-3.8%
Transit + TDM	18%	12,242	-1,462	-10.5%

Although there is an aggressive non-auto mode share target for 2031, the total magnitude of the auto-trip reductions is still relatively modest (~1,400 vehicles). However, this is equivalent to almost two arterial lanes of capacity and represents an estimated $7.5 M annual benefit to residents in terms of travel time savings by 2031. The trip reduction estimates in **Table 13** do demonstrate how a focus on walking and cycling, in addition to investments in transit, can play a role in reducing auto demands in the City. While other TDM measures, such as ride-sharing concepts, may take some time to expand, a focus on Active Transportation is critical in achieving these targets.

[5] *"Transit Strategic Business Plan and Ridership Growth Strategy", Phase 4 and Phase 5, IBI Group, March 2009*

[6] *Excludes trips made by tourists*

3.5 FUTURE ROAD NETWORK DEFICIENCIES

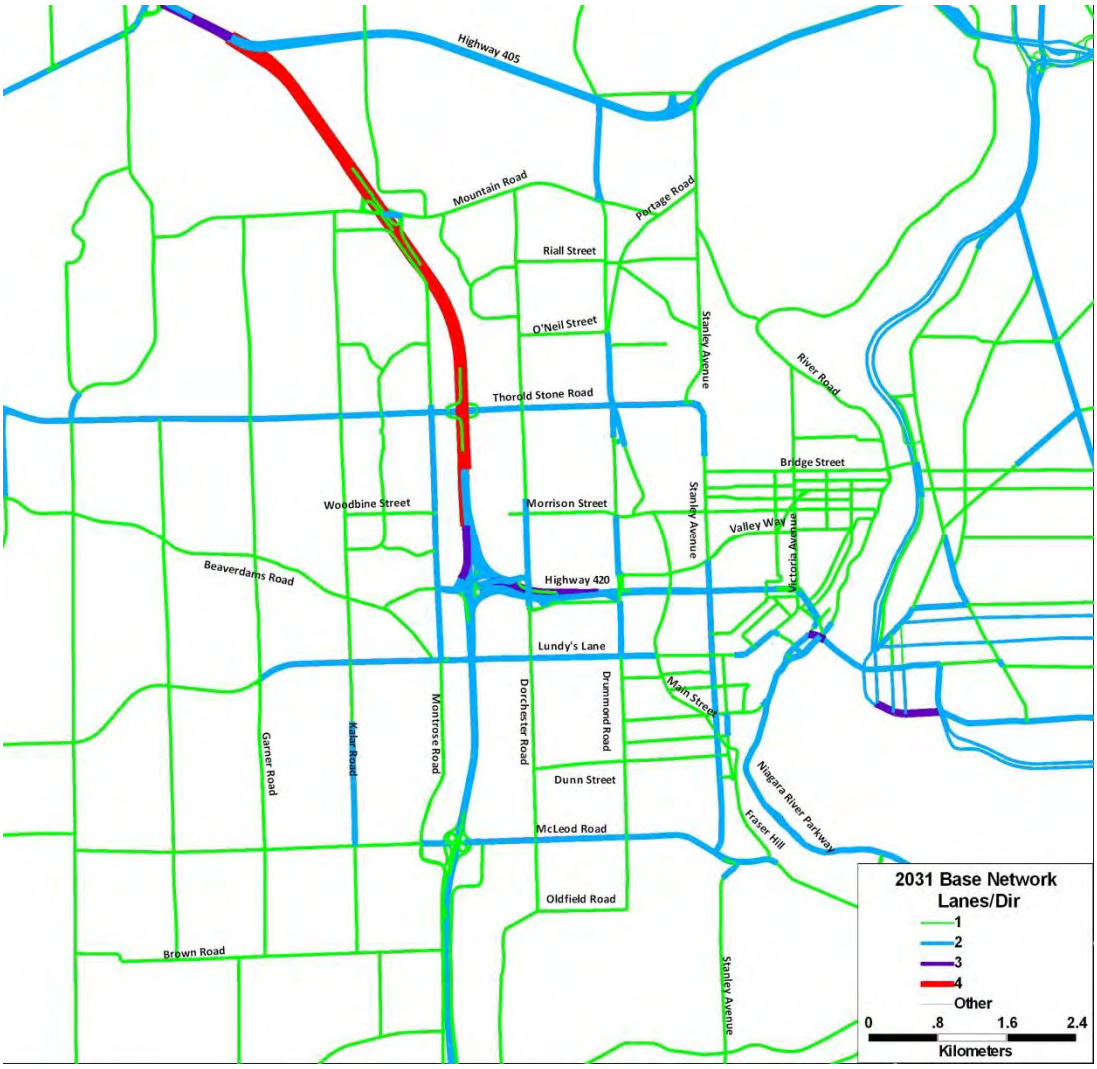
The assessment of future road network deficiencies and improvement needs has been based on the assumption that the City will be able to achieve the Transit & TDM mode share targets established in the STMP, resulting in an overall non auto share of 18% of peak hour trips. **Table 14** summarizes the assumed number of lanes for the major road network links in the study area for the 2031 base year, based on the assumptions contained in the Niagara Regional Model.

Table 14: 2006 – 2031 Base Number of Lanes

Road	Limits	2006 Lanes/ direction	2031 Lanes/ direction
QEW	Hwy 405 to Hwy 420.	3	4
QEW	Hwy 420 to Fort Erie	2	2
Hwy 405	QEW to US Border	2	2
Hwy 420	QEW to Falls Blvd.	2	2
Thorold Stone Rd.	Thorold Townline Rd. to Stanley Ave	2	2
Stanley Ave.	Hwy 405 to Thorold Stone Rd.	1	1
Stanley Ave.	Thorold Stone Rd.–Hamilton St.	2	2
Stanley Ave.	Hamilton St. – Valley Way	1	1
Stanley Ave.	Valley Way – McLeod Rd.	2	2
Stanley Ave.	McLeod Rd. – Lyons Creek Rd.	1	1
Drummond Rd.	Thorold Stone Rd. – Morrison St.	1	1
Drummond Rd.	Morrison St. – Valley Way	2	2
Drummond Rd.	Valley Way – Frederica St.	1	1
Drummond Rd.	Frederica St. – Lundy's Lane	2	2
Drummond Rd.	Lundy's Lane – Oldfield Rd.	1	1
Dorchester Rd.	Mountain Rd. – Pinedale Dr.	1	1
Dorchester Rd.	Pinedale Dr. – Frederica St.	2	2
Dorchester Rd.	Frederica St. – Oldfield Rd.	1	1
McLeod Rd.	Montrose Rd. – Portage Rd.	2	2
McLeod Rd.	Montrose Rd. – Thorold Townline Rd.	1	1
Montrose Rd.	Kalar Rd. – Thorold Stone Rd.	1	1
Montrose Rd.	Thorold Stone Rd. – Lundy's Lane	2	2
Montrose Rd.	Lundy's Lane – McLeod Rd.	1	1
Kalar Rd.	Mountain Rd. – Rideau St.	1	1
Kalar Rd.	Rideau St. – McLeod Rd.	2	2
Lundy's Lane	Garner Rd. – Portage Rd. / Main St.	2	2
Lundy's Lane	Portage Rd. / Main St. – Victoria Ave.	2	2
Morrison St.	Kalar Rd. – Montrose Rd.	1	1
Morrison St.	Dorchester Rd. - Zimmerman Ave.	1	1

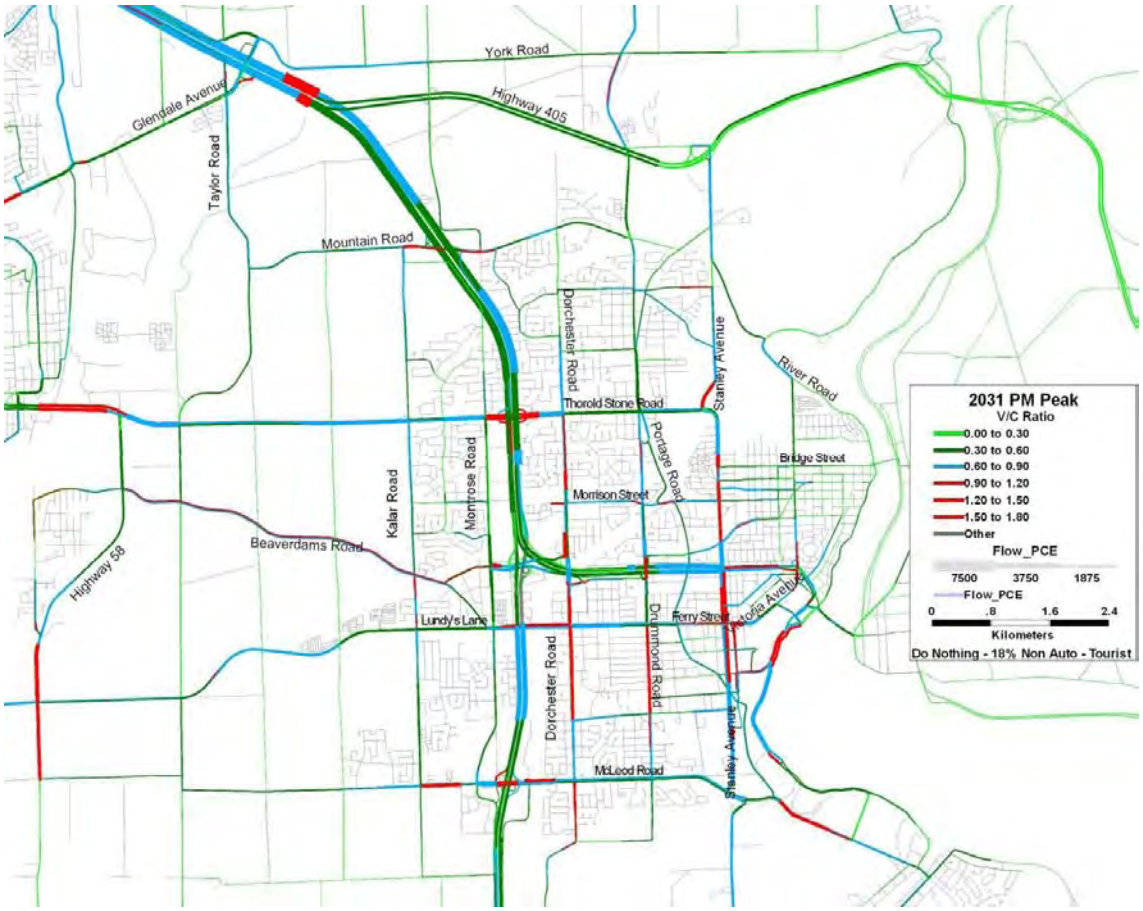
Figure 10 illustrates the number of lanes assumed in the 2031 base network for all of the major roads represented in the model.

Figure 10: 2031 Base Network– Number of Lanes / Direction



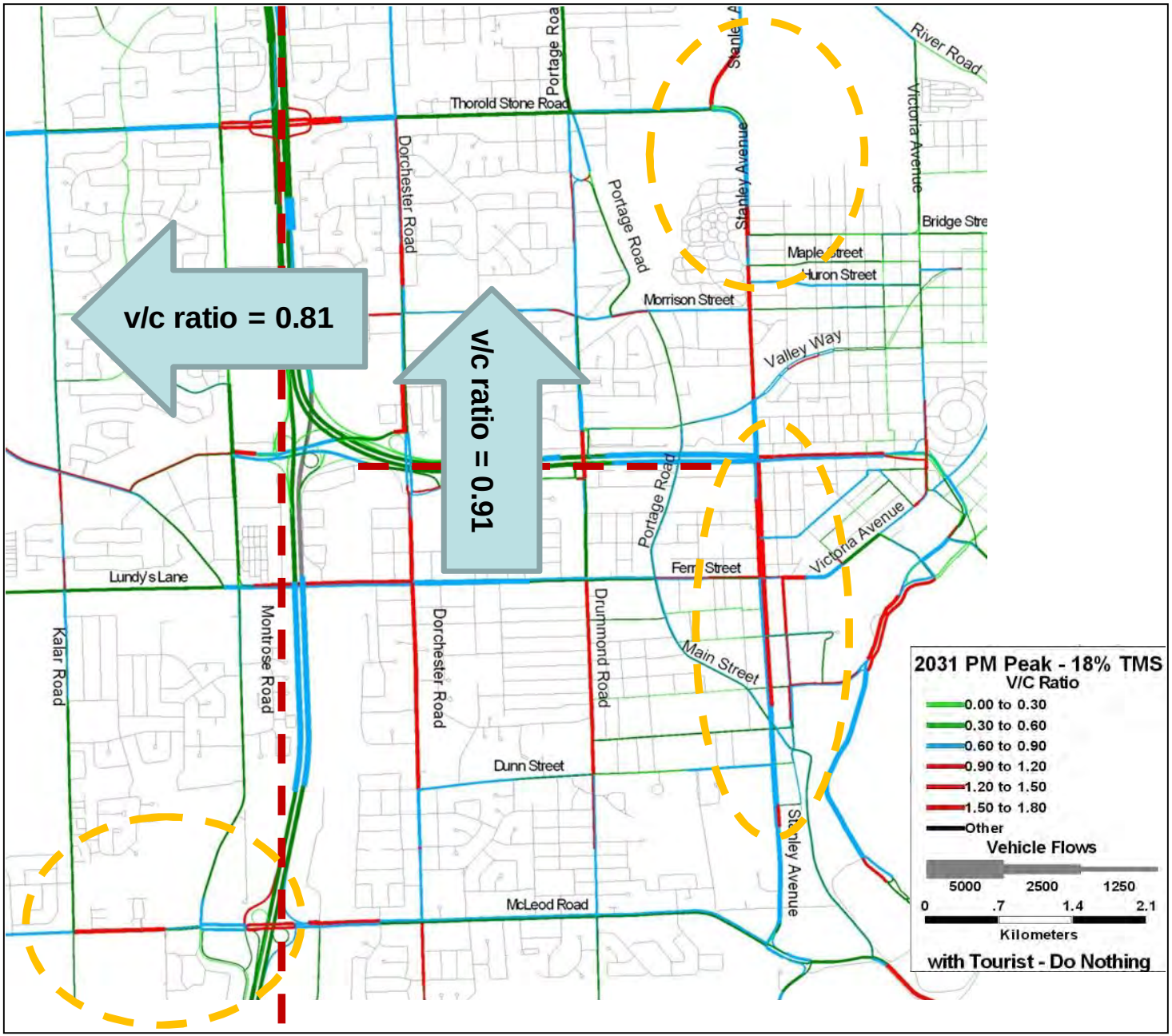
Even with the noted increase in demand by 2031, the majority of the network operates at acceptable levels of service with some localized congestion on Dorchester Road and Drummond Avenue at Highway 420, as illustrated in **Figure 11**.

Figure 11: 2031 Network with 18% Non-Auto Use – P.M. Peak Capacity Deficiencies



By 2031, most QEW and Highway 420 crossings will reach or exceed their respective capacities during the p.m. peak and the Highway 420 and QEW screenlines are expected to attain a vehicle/capacity ratio of 0.91 and 0.81, respectively, as illustrated in **Figure 12**. These two deficiency areas will need to be addressed in the STMP as the freeway corridors bisecting the City restrict the number of crossing opportunities for traffic.

Figure 12: QEW & Highway 420 Crossing Road Capacity Deficiencies



On a network-wide basis, by 2031 it is estimated that approximately 46 km of the road network within the City will be operating at LOS E-F, which is at or above capacity, compared to 2.8 km in 2006. A further 46 km of roadway is expected to operate at LOS D, (up from 7.0 km in 2006) which represents the threshold used by many municipalities to indicate when improvements should be identified. These future deficiencies are expected to result in an average of 1,588 vehicle hours of delay for the average weekday p.m. peak hour, which represents an increase of 107% compared to 2006. This level of delay translates into an annual economic cost of approximately $50 million per year[7].

In addition to these deficiencies, most of the north/south arterial roads south of Lundy's Lane are expected to reach capacity by 2031, including Drummond Road, Dorchester Road, and Stanley Avenue. Stanley Avenue to the north of Morrison Street is also forecast to experience congestion through the existing two lane section of road.

McLeod Road is also forecast to be operating over capacity to the west of QEW (in the Kalar Road area), through the QEW interchange, and to the East of Portage Road.

Proposed alternatives to address issues in the Mountain Road/Highway 405 area are the subject of a separate study being undertaken by the Region

In the Mountain Road/QEW/Highway 405 area there are also a number of road segments that are forecast to be operating at or near capacity by 2031 including portions of Mountain Road, Taylor Road, and Four Mile Creek Road in the Highway 405 Interchange area. The Region is undertaking a Municipal Class Environmental Assessment study for the Glendale Avenue/QEW/Highway 405 area and will be developing solutions to address future capacity deficiencies in this area.

In addition to localized road widening projects, potential improvements to address the capacity issues may also include:

- A new QEW mid block crossing at Morrison Street/Dunn Street/ south of McLeod Road
- Widening north/south arterial roads crossing Highway 420
- Dorchester Road and/or Drummond Road widening
- Improving Mountain Road/McLeod Road interchanges
- Widening Stanley Avenue; and
- Thorold Stone Road extension

An assessment of these and other potential road network improvements is assessed in the Evaluation of Road Improvements working paper.

[7] *Assuming 10% of daily traffic in the peak, 260 weekdays per year, and an average value of time of $12.hour*

AECOM

Transportation Beyond Tomorrow 2031

City of Niagara Falls

SUSTAINABLE TRANSPORTATION MASTER PLAN

TRANSPORTATION BEYOND TOMORROW 2031

Evaluation of Proposed Road Improvements

October 2011

Niagara Parks

Building Community. Building Lives.

Ontario

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- represents Consultant's professional judgement in light of the Limitations and industry standards for the preparation of similar reports
- may be based on information provided to Consultant which has not been independently verified
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued
- must be read as a whole and sections thereof should not be read out of such context
- was prepared for the specific purposes described in the Report and the Agreement
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time

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Executive Summary

The City of Niagara Falls (City), in partnership with Niagara Region (Region) is in the process of updating the Niagara Falls Sustainable Transportation Master Plan (STMP).

Based on the transportation network deficiencies identified in the Modelling[1] report, a series of transportation improvement alternatives were identified and evaluated to develop a 'preferred alternative' for future network improvements.

This paper outlines the evaluation process that was undertaken as part of the overall Environmental Assessment (EA) process for Transportation Master Plans, in accordance with the requirements of the Municipal Class EA process, including Phases 1 and 2. Phase 1 includes identification of problems and opportunities and Phase 2 is the assessment of alternative solutions. The four key areas considered in the evaluation, in accordance with the Municipal Class EA process, include:

- Transportation System
- Natural Environment
- Social/Cultural Environment
- Economic Environment

The criteria used in the evaluation were established to incorporate the principles of sustainability and the Municipal Class EA requirements, as well as the goals, principles and objectives developed at the outset of the study[2].

In traditional Transportation Master Plan Studies, the assessment of Alternative Solutions typically includes an assessment of both physical and non-physical improvement alternatives. Physical improvements would include infrastructure projects such as road widening, new road connections, new pedestrian or cycling trails, while non-physical improvements would consider alternatives such as intersection capacity optimization, transportation demand management, improvements to transit use, and initiatives to encourage increased use of cycling and walking as opposed to motorized travel.

Given the focus on sustainability in this study, the non-physical alternatives have not been evaluated to determine if they are beneficial; they have been incorporated into the base assumptions used in the travel demand forecasting process. These assumptions include:

- A transit mode share of 3.2% will be achieved by 2031.

---

[1] *"Sustainable Transportation Master Plan – Travel Demand Modelling", AECOM, October 2011.*

[2] *"Niagara Falls Sustainable Transportation Master Plan - Goals, Principles, and Objectives", AECOM, September 2010.*

- Reduction of auto demand by up to 6% by 2031, assuming implementation of a series of recommendations outlined in the Transportation Demand Management (TDM) Report, prepared as part of this project.
- Increase in non-auto mode share increase to 10%. When the benefits of an aggressive TDM program are considered in addition to the transit improvements, a non-auto mode share of 18% is achievable.

Achieving the 18% non-auto mode share reduces city-wide auto delay by almost 900 vehicle-hours per day, represents an estimated $7.5 million annual benefit to residents in terms of travel time savings by 2031.

Even with an increased level of non-auto mode use, a number of key locations on the road network were identified as future areas of congestion. In terms of future road network deficiencies, most of the QEW and Highway 420 crossings are forecast to operate at, or over capacity by 2031. In addition to these deficiencies, most of the north-south arterial roads south of Lundy's Lane are expected to reach capacity by 2031, including Drummond Road, Dorchester Road, and Stanley Avenue. Stanley Avenue to the north of Morrison Street is also forecast to experience congestion through the existing two lane section of road.

McLeod Road is also forecast to be operating over capacity to the west of QEW (in the Kalar Road area), through the QEW interchange, and to the East of Portage Road. In the Mountain Road/QEW/Highway 405 area there are also a number of road segments that are forecast to be operating at or near capacity by 2031 including portions of Mountain Road, Taylor Road, and Four Mile Creek Road in the Highway 405 Interchange area. The Region is undertaking a Municipal Class EA study for the Glendale Avenue/QEW/Highway 405 area and will be developing solutions to address future capacity deficiencies in this area.

Based on the forecast deficiencies, alternative road network improvements were considered in the analysis for the following areas; a Do-Nothing alternative was considered for each area:

- Thorold Stone Road/Bridge Street area;
- QEW crossing roads; and
- Highway 420 crossing roads

Under the four broad areas of evaluation additional criteria were used to assist in assessing each alternative. The criteria included a series of quantitative and qualitative criteria that reflect the goals and objectives for the STMP, and the key environmental features and constraints in each area, as shown in the following table.

TRANSPORTATION SYSTEM CRITERIA	SOCIAL/CULTURAL CRITERIA
Change in Congestion	Support for Walking/Cycling
Network Travel Time (Delay)	Potential Noise Impacts
Support for Transit	Potential Effects on Cultural Heritage Features
Use of Existing Infrastructure	Potential Effects on Stable Residential Neighbourhoods
NATURAL ENVIRONMENT CRITERIA	**ECONOMIC ENVIRONMENT**
Potential Effects on Air Quality	Total Capital Cost ($M)
Land Taken for Transportation Infrastructure	Support for Planned Residential/Employment Growth Areas
Potential Effects on Designated Environmentally Sensitive Areas (ESAs)	Support for Tourism
	Support for Goods Movement
Potential Effects on Other Natural Areas	Effects on Local Businesses

The following is a summary of the most preferred alternative for each of the deficiency areas.

Thorold Stone Road/Bridge St Area

The proposed Thorold Stone Road extension to Bridge Street is preferred from a transportation system, social/cultural and economic perspective. It addresses many of the capacity issues on Stanley Avenue at Bridge Street, and reduces potential traffic infiltration (plus negative effects of this) to neighbourhoods on the north side of Bridge St by re-directing traffic headed to Gale Centre from local roads. Enhanced access to the downtown and the opening up of lands for industrial development are key benefits from an economic perspective.

Evaluation Summary for QEW Crossings

The proposed new QEW crossing south of McLeod Road is preferred from a transportation and economic perspective. Modest potential for environmental affects to designated Environmental Areas and woodlots can be minimized through routing of crossing and design measures. Linkage to new growth areas provides enhanced connectivity for auto and non-auto traffic and separates tourist and local traffic flows in south end of community.

Evaluation Summary for Highway 420 Crossings

The proposed Drummond Road widening is preferred from a transportation and economic perspective. While the “Do Nothing” alternative is preferred from a social/cultural and natural environment perspective, it does not address the transportation deficiencies and is least preferred from an economic perspective.

All recommended network improvements are listed in the following table (further discussed in **Section 4**):

	Project	Limits	Length (km)	Total Estimated Cost ($ 2009)	Implementation/EA Schedule
1	Highway 405/Conc. 6 Interchange		1.2	6,197,000	Region/Schedule C
2	Mewburn Road Reconstruction	Mountain Rd to York Rd	2.0	6,673,000	City/Schedule C
3	Mountain Road Widening	Kalar Rd to Olden Ave	1.27	12,063,500	Region/Schedule C
4	Stanley Ave Widening	Church's Lane to Thorold Stone	1.69	10,136,500	Region/Schedule C
5	Thorold Stone Rd Extension	Stanley Ave to Bridge St	1.43	9,585,900	Region/Schedule C
6	Stanley Ave Widening	Hamilton St to Valley Way	1.19	7,371,340	Region/Schedule C
7a	Dorchester Rd Widening	Thorold Stone Rd to Pinedale	1.1	6,515,100	City/Schedule C
7b	Dorchester Rd Widening	Frederica St to McLeod Rd	2.6	19,194,000	City/Schedule C
8	Hwy 420/Montrose Rd Improvements	Widening Ramps and Improve Intersection	0.6	3,900,000	Region/MTO/ MTO Schedule B
9	Drummond Rd/Hwy 420 Bridge Widening	Valley Way to Frederica St	0.3	5,109,000	City/Schedule C
10	Drummond Rd Widening	Lundy's Lane to McLeod Rd	2.1	15,948,000	City/Schedule C
11	Kalar Rd Widening	Beaverdams Rd to Lundy's Lane	0.74	4,589,200	City/Schedule C
12	McLeod Rd Widening	Pin Oak Dr to Parkside Rd	0.9	5,265,000	City/Schedule C
13a	New Hydro Canal Crossing	Dorchester to Oakwood	1	9,672,000	City/Schedule C
13b	New QEW Crossing	Oakwood to Montrose	0.9	9,780,000	City/Schedule C
14	Stanley Ave/Marineland Pkwy Intersection	Jog Elimination or Intersection Imp.	0.4	6,721,000	Region/Schedule C
15	Portage Rd Widening	Marineland Pkwy to Upper Rapids Blvd	1.3	7,605,000	City/Schedule C
16a	Allendale Ave Widening	Forsythe St to South of Dunn St	1.2	7,320,000	City/Schedule C
16b	Allendale Ave New Connections to Stanley Ave	Dixon St to Stanley Ave & Ferry St to Forsythe	0.87	4,849,000	City/Schedule C
17	Buchanan/Fallsview Widening	Roberts to Livingston St	2.3	17,001,000	City/Schedule C
18	Livingston St/Fallsview Connection to Portage Rd		0.5	3,550,000	City/Schedule C
			Total	179,045,540	
			City	123,070,300	
			Region	55,975,240	

With all improvements in place, the 2031 summer weekday peak hour delays are anticipate to be reduced by 17% compared to the Do Nothing scenario (275 vehicle-hours in the typical summer peak). This is approximately equivalent to an annual delay savings of 715,000 vehicle-hours, which represents a societal benefit of approximately $8.6 million per year (assuming an average value of travel time of $12/hr).

With the recommended improvements in place the total extent of the network operating at Level of Service (LOS) D (approaching capacity conditions) during peak hours is reduced from 21% of the road network to just under 16%. The share of the network operating in congested conditions (LOS E-F) is reduced from 46 km to 27 km (a reduction of 41%).

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1. INTRODUCTION

1.1 PURPOSE

The City of Niagara Falls (City) is in the process of updating the Niagara Falls Sustainable Transportation Master Plan (STMP). The STMP is prepared in partnership with Niagara Region (Region). As part of the STMP, an assessment of future travel demand growth and road network capacity was completed using a computerized transportation model, to assess the need for future infrastructure improvements to address current deficiencies and new deficiencies that may arise as the community continues to grow. The results of this assessment are documented in the Sustainable Transportation Master Plan: Modelling Report. Based on the transportation network deficiencies identified in the Modelling report, a series of transportation improvement alternatives were identified and evaluated to develop a 'preferred alternative' for future network improvements. The following working paper outlines the evaluation process and results.

1.1.1 Environmental Assessment Process

This paper outlines the evaluation process that was undertaken as part of the overall Environmental Assessment (EA) process for Transportation Master Plans. As defined at the outset of this project, this STMP is to be developed in accordance with the requirements of the Municipal Class EA process, including Phases 1 and 2.

The evaluation of alternatives was undertaken in accordance with the requirements of the Municipal Class EA process.

Within Phase 2, the Assessment of Alternative Solutions, includes the identification and "evaluation of all reasonable alternative solutions, to address the problems and opportunities identified in Step 1, taking into consideration the environmental and other factors identified in Steps 2 and 3".[3] The four key areas to be considered in the evaluation, in accordance with the Municipal Class EA process, are as follows:

- Transportation System
- Natural Environment
- Social/Cultural Environment
- Economic Environment

The criteria used in the evaluation were established to incorporate the principles of sustainability (which include the natural, social and economic environments) and the Municipal Class EA requirements, as well as the goals, principles and objectives developed at the outset of the study[4].

[3] *"Municipal Class Environmental Assessment", Municipal Engineers Association, October 2000, as amended in 2007, pg. A-27.*

[4] *"Niagara Falls Sustainable Transportation Master Plan - Goals, Principles, and Objectives", AECOM, September 2010*

2. FUTURE NEEDS & ALTERNATIVE SOLUTIONS

In traditional Transportation Master Plan Studies, the assessment of Alternative Solutions typically includes an assessment of both physical and non-physical improvement alternatives. Physical improvements would include infrastructure projects such as road widening, new road connections, new pedestrian or cycling trails, while non-physical improvements would consider alternatives such as intersection capacity optimization, transportation demand management, improvements to transit use, and initiatives to encourage increased use of cycling and walking as opposed to motorized travel.

Given the focus on sustainability in this study, the non-physical alternatives have not been evaluated to determine if they are beneficial; they have been incorporated into the base assumptions used in the travel demand forecasting process. The following section summarizes the assessment of future mode share assumptions that was completed in the Modelling Report.

2.1 FUTURE MODE SHARE ANALYSIS

The City's "Transit Strategic Business Plan"[5] indicates that the transit mode share was 1.9% in 2007; up from an estimated 1.4% in 2006. The existing total non-auto mode share for the City stands at 8% based on data from the 2006 Transportation Tomorrow Survey. Through the measures proposed in the Plan, the City aims to double existing transit use and achieve a transit mode share of 3.2% by 2018. Given that this represents a significant increase in transit use, the analysis undertaken for the STMP assumes that this transit mode share of 3.2% will be achieved by 2031.

The implementation of Travel Demand Management (TDM) measures, such as improved land use planning and transportation integration, walking and cycling infrastructure, and alternative working practices, will be necessary to achieve an increase in the share of non-auto trip making in the City. The Transportation Demand Management Report, prepared as part of this project, outlines a series of recommendations that if implemented are expected to reduce auto demands by up to 6% by 2031.

Table 1 summarizes the effectiveness of the various TDM strategies that have been incorporated into the future forecasting and deficiency assessment process.

[5] *"Transit Strategic Business Plan and Ridership Growth Strategy", IBI Group, 2009*

Table 1: Effectiveness of Transportation Demand Management

TDM Measure	Short Trips (<10km)		Long Trips (>10km)	
	2021 Short to Medium Term	2031 Long Term	2021 Short to Medium Term	2031 Long Term
	Percent Reduction in Number of Automobile Trips			
Improved land use and transportation integration	1%	2.5%	1%	2.5%
Ridership (numbers reflect potential for overlap with transit)	1%	1%	1%	2%
Walking/Cycling (except winter)	3%	5%	Minimal	
Telecommuting	0.5%	0.5%	1%	1.5%

As shown in **Table 2**, approximately 8% of current p.m. peak hour trips made within the City are made by non-auto modes of travel based on data from the 2006 Transportation Tomorrow Survey.

After the introduction of various transit improvements as recommended in the Transit Strategic Business Plan and Ridership Growth Strategy report, the non-auto mode share is expected to increase to 10%, representing an auto trip reduction of 251 vehicles (equivalent to a 1.8% reduction in auto demand). When the benefits of an aggressive TDM program are considered in addition to the transit improvements, a non-auto mode share of 18% is achievable, resulting in an auto trip reduction of 1,462 vehicles (equivalent to a 10.6% reduction).

Table 2: Impact on P.M. Peak Hour Demand

Scenario	Non-Auto Mode Share	Total Internal Auto Trips P.M. Peak Hour	Auto Trips Reduction From Base	% Reduction
Do Nothing	8%	13,704	--	--
Transit Improvements	10%	13,453	-251	-1.8%
Transit + TDM	18%	12,242	-1,462	-10.6%

Even with an increased level of non-auto mode use, a number of key locations on the road network were identified as future areas of congestion. Achieving the 18% non-auto mode share reduces city-wide auto delay by almost 900 vehicle-hours per day and represents an estimated $7.5 million annual benefit to residents in terms of travel time savings by 2031.

Table 3 indicates the network-wide LOS that would be experienced should the City only achieve an 8% or 10% non-auto mode share (in comparison to the desired 18%) and the likely cost that would be incurred in order to undertake the necessary improvements to reach an acceptable LOS.

Table 3: LOS and Costs by Non-Auto Mode Share Scenario

Scenario	LOS E-F	LOS D	LOS A-C	Cost to Improve LOS E-F($)
8% Non Auto Share	51km	48km	658km	$255M
10% Non Auto Share	51km	45km	661km	$255M
18% Non-Auto Share	46km	46km	665km	$230M

The representative costs to address the capacity deficiencies have been estimated for each scenario based on a typical cost of $5.0M per km to widen an arterial road (2-4 lanes), assuming that every road segment at LOS E-F would require widening to address the capacity deficiencies. While this is a simplification of the actual improvement needs, the difference between these alternatives is useful in demonstrating the order of magnitude capital cost savings that can be attributable to increased use of non-auto modes of travel.

Achieving an 18% non-auto mode share is estimated to save about $25M (10% reduction) in capital costs over the 20 year horizon, or just over $1.25M per year.

2.2 FUTURE ROAD NETWORK DEFICIENCIES

The Region recently completed a project to develop a new Regional Travel Demand Forecast model, using TransCad software, which provides forecasts of travel demands on the entire Regional road network. The Regional model uses population and employment forecasts to predict the number of trips that residents would make on a typical weekday and proportions those trips to the various modes of travel (auto driver, auto passenger, walking/cycling and transit), using historical observations of travel mode shares based on the 2006 'Transportation Tomorrow Survey'. The model then assigns these trips to the road network in the Region to predict future usage of individual road network links, where the model predicts the routes that people will use to reach their destinations based on prevailing traffic demands and estimates of travel time.

The model was used to assess various future network scenarios, including a "Do Nothing" scenario, where no improvements are made to the network. Further detail on the modelling process can be found in a separate working paper entitled "Sustainable Transportation Master Plan – Modelling".[6]

For the 2031 horizon year, the model was run assuming the achievement of the 18% non-auto mode share, as discussed above, with no improvements to

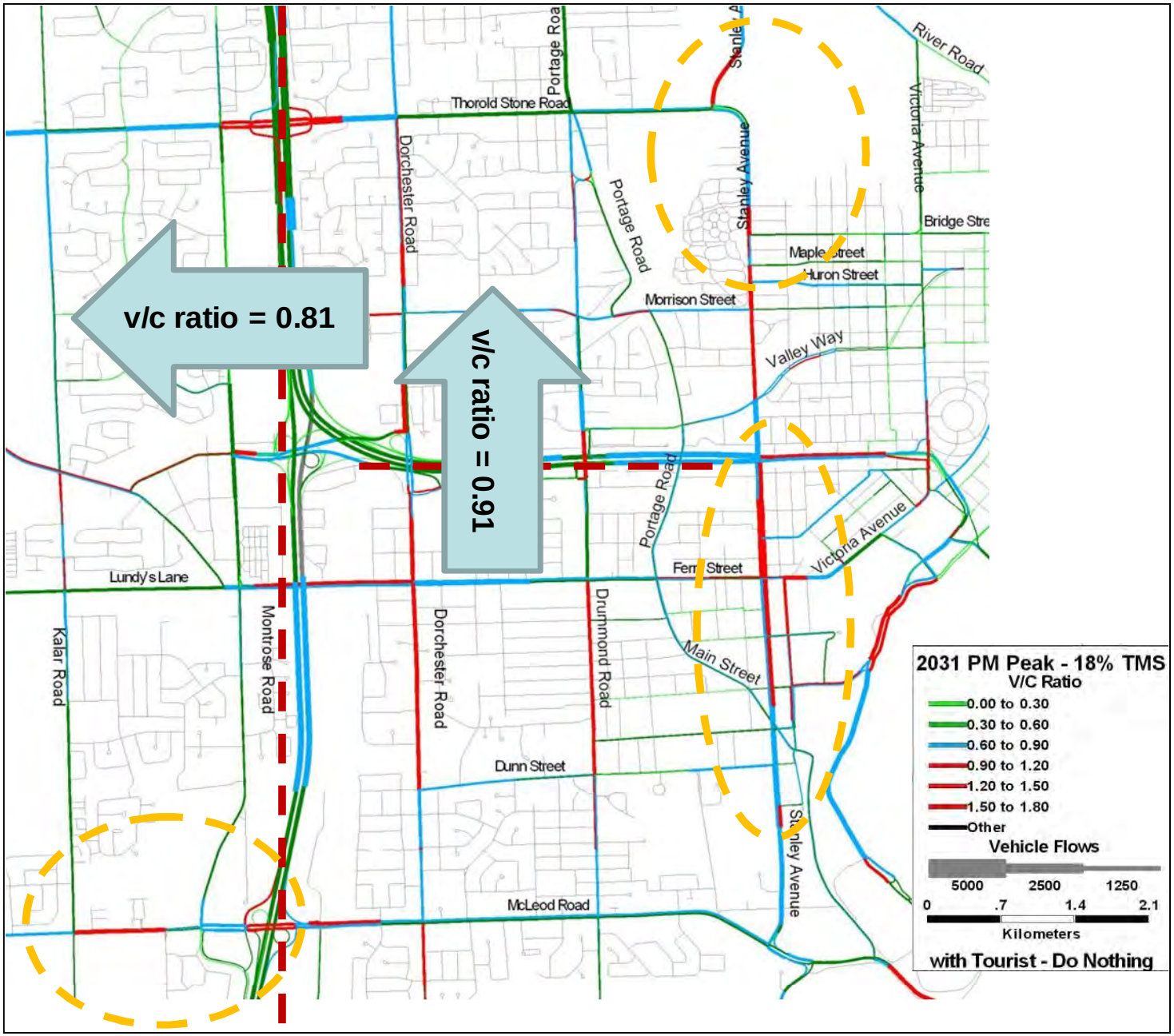
[6] *"Sustainable Transportation Master Plan – Travel Demand Modelling", prepared by AECOM, October 2011.*

the road network in the City beyond those improvements recently completed or under construction.

Figure 1 illustrates the future p.m. peak hour travel demands and capacity deficiencies within the City based on future population and employment growth and assuming an 18% non-auto mode share. On a network-wide basis (including City Roads, Regional Roads, and MTO highways) the following network performance statistics were estimated:

- 46 km of roadway operating at LOS E to F (at or above capacity)
- 46 km of roadway operating at LOS D (approaching capacity)
- 665 km of roadway operating at LOS A to C (below capacity)

Figure 1: 2031 P.M. Peak Hour Capacity Deficiencies



Based on the future forecasts of p.m. peak hour travel demands it is estimated that 21% of all road network travel (measured in vehicle-km) will be at LOS D or worse conditions by 2031. This represents an increase of 107% compared to today.

In terms of future road network deficiencies, most of the QEW and Highway 420 crossings are forecast to operate at or over capacity by 2031. For the QEW Screenline, the various roads crossing the QEW are forecast to operate at a combined volume to capacity (v/c) ratio of 0.81 (81% of the available capacity being used). The various roads crossing Highway 420 are forecast to operate at a combined v/c ratio of 0.91, which essentially represents congested conditions.

In addition to these deficiencies, most of the north-south arterial roads south of Lundy's Lane are expected to reach capacity by 2031, including Drummond Road, Dorchester Road, and Stanley Avenue. Stanley Avenue to the north of Morrison Street is also forecast to experience congestion through the existing two lane section of road.

McLeod Road is also forecast to be operating over capacity to the west of QEW (in the Kalar Road area), through the QEW interchange, and to the East of Portage Road.

Proposed alternatives to address issues in the Mountain Road/Highway 405 area are the subject of a separate study being undertaken by the Region

In the Mountain Road/QEW/Highway 405 area there are also a number of road segments that are forecast to be operating at or near capacity by 2031 including portions of Mountain Road, Taylor Road, and Four Mile Creek Road in the Highway 405 Interchange area. The Region is undertaking a Municipal Class EA study for the Glendale Avenue/QEW/Highway 405 area and will be developing solutions to address future capacity deficiencies in this area.

The QEW/Glendale/Highway 405 EA study is considering crossings at four locations:

- QEW:
  - Taylor Rd/Niagara Stone Rd; and
  - Glendale Avenue
- Highway 405:
  - 6th Concession; and
  - Four-Mile Creek Rd.

All of these crossings, except the 6th Concession, are expected to reach LOS D before 2031. The 6th Concession crossing is limited by the ability of the 6th Concession/Mewburn Road intersection to handle additional traffic. A new partial interchange at Highway 405/Concession 6 (identified earlier in

the 2004 Value Engineering) is under consideration (as an alternative solution) to facilitate movements towards Niagara-on-the-Lake as an auxiliary to the Glendale interchange.

Interchange at Highway 405 and the reconstruction of Mewburn Road will facilitate the access to the Queenston/Lewiston Bridge from QEW to Highway 405 (north to east) and also help eliminate the weaving issues for the truck traffic entering QEW at Glendale Avenue. The outcome of the QEW/Glendale EA will determine if an interchange at Highway 405 (full or partial) emerges as one of the network solutions.

An Environmental Study Report (ESR) for Regional Road 101 Mountain Road/Portage Rd was filed in September 2007. The preferred design suggested a two-lane cross section on this section and did not forecast the need for widening until 2026. A roundabout at the interchange of Mountain Road and Mewburn Road was also included as a part of the preferred design. Following the EA, the construction is planned in the 2012-2014 timeframe pending capital budget approvals.

Based on the forecast deficiencies, alternative road network improvements will be considered for the following areas:

- Thorold Stone Road/Bridge Street area;
- QEW Crossing Roads; and
- Highway 420 Crossing Roads

Following the evaluation of the major road network improvements, additional road network improvement options may be identified to address deficiencies not covered by the major alternatives noted above.

2.3 ROAD NETWORK IMPROVEMENT ALTERNATIVES

2.3.1 Thorold Stone Road/Bridge Street Area

Figure 2 highlights the forecast network deficiencies in 2031 in the Thorold Stone Road/Bridge Street area for the 2031 horizon year. The City recently constructed a new multi-purpose arena/recreation complex in the vicinity of this area (as depicted) in **Figure 2**, which contributes to the additional traffic forecast for the area road network.

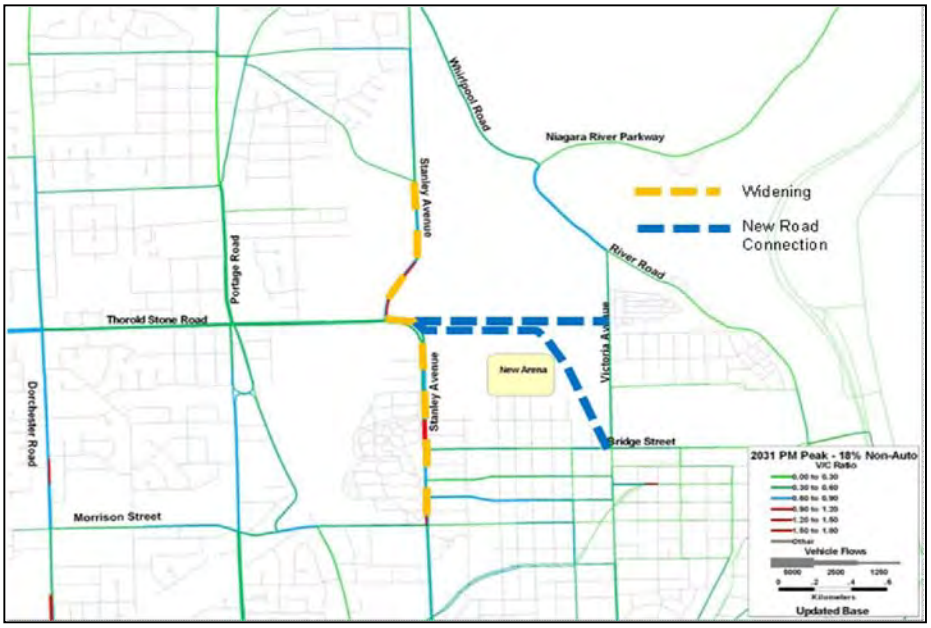
Figure 2: 2031 Deficiencies - Thorold Stone Road/Bridge Street Area

Figure 3 shows an aerial view of the Thorold Stone Road/Bridge Street area. Generally the area provides a mix of industrial land uses to the north of Bridge Street and residential land uses to the south. Bridge Street provides access into the downtown core area and to the Whirlpool Bridge Crossing to USA.

Figure 3: Aerial Image of Thorold Stone Road/Bridge Street Area

Four alternatives were considered for the Thorold Stone Road/Bridge Street area including Do Nothing, Widening Stanley Avenue, providing a new road connection to Victoria Avenue, or providing a new road connection to Bridge Street. **Figure 4** illustrates these conceptual alternatives.

Figure 4: Thorold Stone Road/Bridge Street Alternatives



Do Nothing

The Do Nothing alternative represents doing nothing beyond the TDM/Transit and road improvements that are currently planned or programmed. This alternative is also used as a benchmark to compare the benefits and impacts of the other alternatives.

Alternative 1 – Thorold Stone Road Extension to Bridge Street

This alternative would involve extending Thorold Stone Road from its current termination at Stanley Avenue to connect to Bridge Street in the vicinity of Victoria Ave. This alternative avoids a new crossing of the Rail yard between Stanley Avenue and Victoria Avenue.

The Thorold Stone Rd extension EA (2008) recommended a 4 lane cross section plus bike lanes, sidewalks and multiuse trail as requested by the City. The recommended alignment and the costs (Stage I at $4.76 million + Stage II at $3.80 m) are in the ESR document.

Further to the ESR the implementation of the extension is contingent upon the MOE acceptance of the risk assessment (undertaken by the owner-Cytec) and issuance of certificate of proper use, and the Region being successful in negotiating the right of way with the landowner(s).

Alternative 2 – Widen Stanley Avenue

This alternative would involve widening Stanley Avenue to six lanes between the north junction of Stanley Avenue and Bridge Street, and then widening the remaining section of Stanley Ave, from Bridge Street to Valley Way to four lanes.

Reconstruction of Stanley Avenue from Whirlpool Road to Highway 405 is ongoing as a part of the roads (capital) project. The existing cross-section of the Church's Lane to the Thorold Stone Road section is planned for reconstruction starting 2012. The existing cross-section of the Hamilton Street to Valley Way section, with a possibility of adding a centre turn lane, is planned for construction in 2012-2014. Both the works are subject to budget approvals.

Alternative 3 – Thorold Stone Road Extension to Victoria Avenue

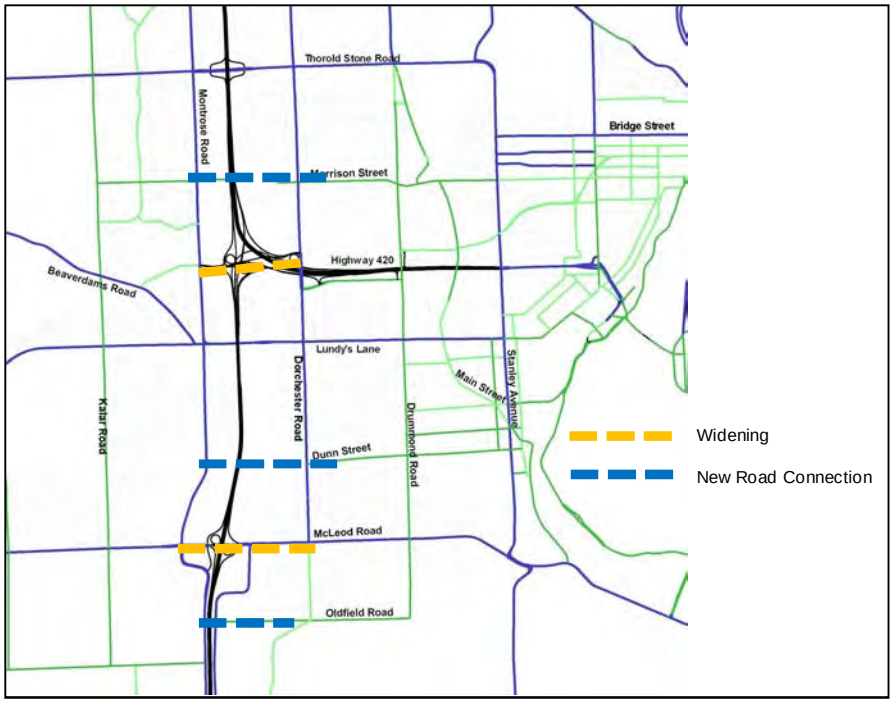
This alternative would involve extending Thorold Stone Road from its current termination at Stanley Avenue to connect to Victoria Avenue, just north of Bridge Street, in the vicinity of the Great Wolf Lodge Resort complex. This alternative requires a new crossing of the Rail yard between Stanley Avenue and Victoria Avenue.

2.3.2 QEW Crossings

Based on the screenline capacity assessment illustrated previously in **Figure 1**, five alternatives for providing increased capacity crossing the QEW were assessed. These include Do Nothing, providing a new grade separated crossing at Morrison Street, providing a new grade separated crossing at Dunn Street, widening McLeod Road across the QEW, and improving the existing Highway 420 crossing combined with a new crossing south of McLeod Road.

Figure 5 illustrates the conceptual alternatives that were evaluated to address this deficiency area.

Figure 5: QEW Crossing Alternatives



Do Nothing

The Do Nothing alternative is self explanatory, and essentially represents doing nothing beyond the TDM/Transit and road improvements that are currently planned or programmed. This alternative is also used as a benchmark to compare the benefits and impacts of the other alternatives.

Alternative 1 – Morrison Street Crossing

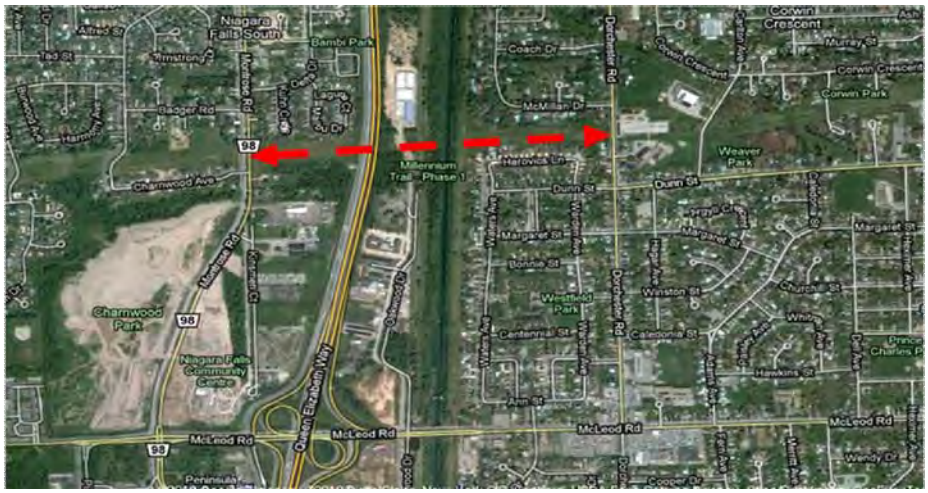
This alternative includes a new grade separated bridge crossing the QEW to connect the east and west section of Morrison Street. The new road connection would tie into the existing Morrison Street/Montrose Road intersection on the west side of QEW and would need to span over Kent Avenue in addition to QEW. On the east side of QEW, the new crossing would connect to the existing Morrison Street/Dorchester Road intersection through or adjacent to Optimist Park and the existing retail development on the south side of Morrison Street. **Figure 6** illustrates the conceptual location of the potential crossing.

Figure 6: Location of Morrison Street QEW Crossing

Alternative 2 – Dunn Street Crossing

This alternative includes a new grade separated bridge crossing of the QEW using the existing Hydro corridor north of McLeod Road. The new road connection would tie into Montrose Road on the west side of QEW and would cross over the Hydro canal and connect to Dorchester Road on the east side of QEW, just north of Dunn Street. **Figure 7** illustrates the conceptual location of the potential crossing.

Figure 7: Location of Dunn Street QEW Crossing



Alternative 3 – Widen McLeod Road

This alternative would involve widening McLeod Road to six lanes where it crosses the QEW, between Montrose Road and Dorchester Road. This would involve widening the bridge across QEW as well as the bridge across the Hydro Canal, just east of the QEW interchange.

Alternative 4 – New QEW Crossing South of McLeod (Oldfield Road) & Improvements to Highway 420 Crossing

This alternative would involve improvements to enhance capacity of the existing Highway 420 crossing of QEW, where it intersects Montrose Road. This would include minor widening of the existing ramps to eliminate lane drops and intersection enhancements at the Highway 420/Montrose Road intersection to accommodate increased volumes.

In addition, the construction of a new crossing over the QEW would connect Oldfield Road and Montrose Road, to the south of McLeod Road, as illustrated in **Figure 8**. This crossing would connect into the planned road network for the Garner South Secondary Plan area, covering the lands south of McLeod Road and East of QEW and would also access the potential Thundering Waters Secondary Plan area on the East side of the QEW, south of Oldfield Road to the Welland River.

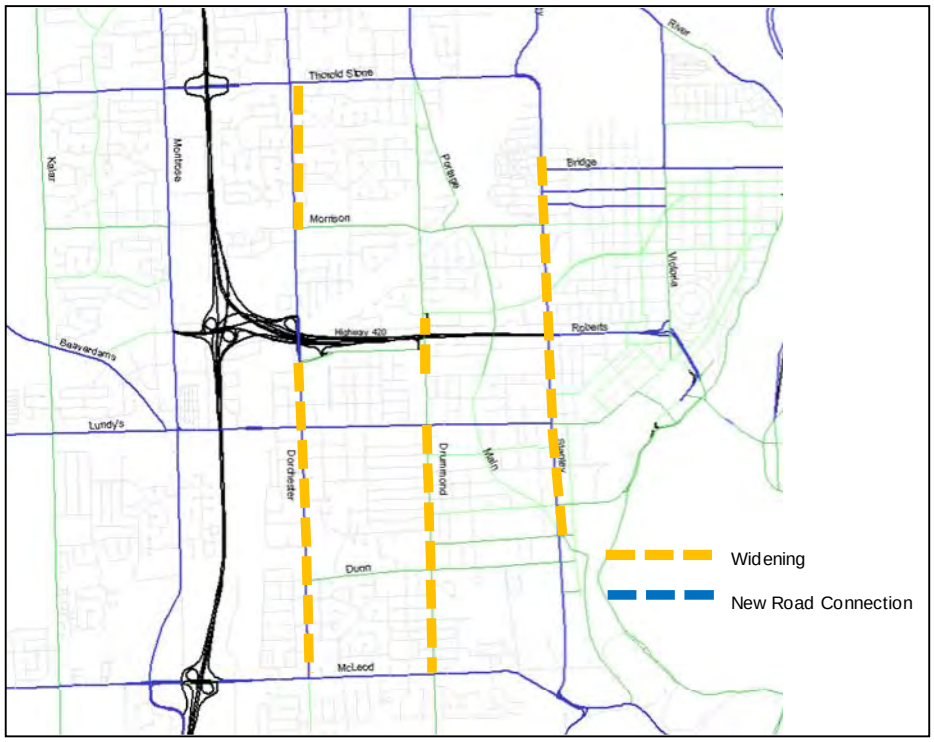
Figure 8: Location of Oldfield Road QEW Crossing

2.3.3 Highway 420 Crossings

Based on the screenline capacity assessment illustrated previously in **Figure 1**, four alternatives for providing increased capacity crossing Highway 420 were assessed. These include Do Nothing, completing the Dorchester Road widening to four lanes, Drummond Road widening to four lanes, or Stanley Avenue widening to six lanes.

Figure 9 illustrates the conceptual alternatives that were evaluated to address this deficiency area.

Figure 9: Highway 420 Crossing Alternatives



Do Nothing

The Do Nothing alternative represents doing nothing beyond the TDM/Transit and road improvements that are currently planned or programmed. This alternative is also used as a benchmark to compare the benefits and impacts of the other alternatives.

Alternative 1 – Dorchester Road Widening

This alternative would involve completing the widening of Dorchester Road to four lanes, between Thorold Stone Road and McLeod Road. To the north of Highway 420, the widening would be between Thorold Stone Road and Pinedale Drive. To the south of Highway 420 the section between Frederica Street and McLeod Road would also be widened to four lanes.

Alternative 2 – Stanley Avenue Widening (to six lanes)

This alternative would involve widening Stanley Avenue to six lanes between Valley Way and Main Street/Portage Road and would include upgrades to the Stanley Avenue/Highway 420 intersection.

Alternative 3 – Drummond Road Widening

This alternative would involve widening the Drummond Road bridge across Highway 420, from Valley Way to Frederica Street to four lanes. Drummond Road between Lundy's Lane and McLeod Road would also be widened to four lanes to complete the continuous four-lane arterial road between Morrison Street and McLeod Road.

3. EVALUATION CRITERIA

Under the four broad areas of evaluation, the Transportation System and the Social, Economic and Natural Environments, additional criteria were used to assist in assessing each alternative. The criteria included a series of quantitative and qualitative criteria that reflect the goals and objectives for the STMP, and the key environmental features and constraints in each area. A reasoned argument approach was used to identify the positive and negative aspect of each alternative and determine the preferred alternative considering all of the criteria.

3.1 TRANSPORTATION SYSTEM CRITERIA

Change in Congestion

This criterion measures the degree to which a transportation option affects congestion on the road network. It primarily relates to the goal of optimizing the transportation system, improving the way that components work together. Using the strategic model, congestion is measured by volume/capacity ratio on a network-wide basis during the summer weekday p.m. peak period.

Network Travel Time (Delay)

Certain network statistics are available through the model, including an estimate of travel time under future conditions. By comparing the difference between free-flow travel time (uncongested) versus congested travel times, the overall delay experienced by motorists can be estimated. Delay represents a societal cost that users experience on a daily basis, and if delay gets too extensive, this can lead to an economic loss to businesses and communities in general. This value is easily compared between alternatives to assess which alternative has the least or most delay. The preference is for lower total network delay, as this generally implies that fewer vehicle hours of travel time are required to travel on the network during the peak hour periods.

Support for Transit

This qualitative measure addresses the degree to which various improvements can support competitiveness of the public transit system in comparison to the automobile. The STMP seeks to promote transportation choice and support sustainable development and planning, while operating public transit services to be competitive with other modes is a key objective.

Use of Existing Infrastructure

An important objective of the STMP is to emphasize measures to improve the efficiency of the transportation system, as this is a component of optimizing existing infrastructure and supporting sustainable transportation choices.

3.2 SOCIAL/CULTURAL CRITERIA

Support for Walking/Cycling
This criterion assesses the degree to which an alternative encourages active transportation. The STMP includes objectives to make walking and cycling a priority for action and to provide integrated pedestrian and cycling facilities, including crossings.

Potential Noise Impacts
This qualitative criterion assesses the potential for impacts to noise sensitive receptors (hospitals, residential neighbourhoods, etc.) due to various transportation improvement alternatives.

Potential Effects on Cultural Heritage Features
This qualitative criterion compares the potential for each alternative to affect cultural heritage resources or archaeological features, in accordance with the STMP objective to limit environmental impacts. Measurement is done by assessing the extent of transportation infrastructure adjacent to and/or within the cultural/archaeological feature, taking into the account the type of infrastructure (e.g. pedestrian path compared to a new road or road widening). Since actual impacts cannot be known for certain until design is finished, this qualitative criteria assesses potential for impacts as opposed to actual impacts.

Potential Effects on Stable Residential Neighbourhoods
This is a qualitative assessment of the degree to which an alternative may affect or benefit any existing neighbourhoods and communities. The STMP seeks to create well-integrated walking and cycling networks and make new walking and cycling connections, while limiting environmental impacts and optimizing use of the existing transportation system. Land uses and community fabric may be altered by transportation features such as changes in roadway dimension and/or function, changes in traffic volumes, new roadways, new transit infrastructure and/or services, and new pedestrian and/or bicycle infrastructure.

3.3 NATURAL ENVIRONMENT CRITERIA

Potential Effects on Air Quality
This criterion addresses the sustainable development goal of the STMP. Traffic congestion and increased vehicular travel can contribute to higher levels of energy consumption and therefore higher levels of greenhouse gas emissions.

This criterion is evaluated by the total transportation energy consumption and emissions of greenhouse gases. For auto travel, this is estimated using vehicle-km of travel and average network speeds, which are translated into total estimates of carbon monoxide (CO), volatile organic compounds

(VOCs), and nitrogen oxides (NO_x), assuming continuous prevalent use of fossil fuels and the internal combustion engine.

Land Taken for Transportation Infrastructure

This measure seeks to capture the objective of minimizing environmental impacts. The amount of land taken for transport infrastructure is estimated based on the length of the improvement and relative potential for property impacts. Since actual property requirements are not known until design is finished, this qualitative criteria assesses potential for impacts as opposed to actual impacts.

Potential Effects on Designated Environmentally Sensitive Areas (ESAs)

This criterion assesses potential effects on provincially and/or municipally designated ESAs such as wetlands, watercourses, parkland and areas of habitat for fauna and flora species. The STMP includes an objective to limit environmental impacts. Effects could occur through the removal of such areas, the proximity of the transportation infrastructure to the feature and its characteristics. Since actual impacts are not known until design is finished, this qualitative criteria assesses potential for impacts based on the proximity to the ESA and its characteristics as opposed to actual impacts.

With specific reference to watercourses, it is considered that a more detailed evaluation of the potential impacts would be undertaken as part of the EA study process for each alternative taken forward for further investigation. This would cover key issues such as stormwater management and water quality.

Potential Effects on Other Natural Areas

This criterion assesses potential effects on other natural areas (i.e. parkland and areas of habitat for fauna and flora species) that may not be designated as Environmentally Sensitive but have the potential to be disturbed or affected by the transportation improvement. Effects could occur through the removal of such areas, the proximity of the transportation infrastructure to the feature and its characteristics. Since actual impacts are not known until design is finished, this qualitative criterion assesses potential for impacts based on the proximity to the area as opposed to actual impacts.

3.4 ECONOMIC ENVIRONMENT CRITERIA

Total Capital Cost ($M)

The capital cost of a transportation alternative is an important factor in selection. Order of magnitude cost estimates are used for the purpose of this evaluation. The supporting information for preparation of the cost estimates is included in **Appendices A, B** and **C**.

Support for Planned Residential/Employment Growth Areas

This is a qualitative measure that assesses the ability of each transportation alternative to support employment and employment growth by providing connectivity to existing and future economic centres and residential areas, using all modes of travel. It is a qualitative measure that considers how an alternative affects the accessibility of economic centres by walking, cycling, transit and automobile use.

This measure also includes a qualitative assessment of the extent to which alternatives support intensification nodes and/or corridors, as defined in Schedule A6 (Urban Structure Plan) of Official Plan Amendment 94 (OPA 94).

Support for Tourism

Given the importance of tourism to the economy of Niagara Falls, this is a qualitative measure that assesses the ability of each transportation alternative to support tourism by enhancing access or accessibility to prime tourist areas or relieving congestion in existing tourist areas.

Support for Goods Movement

Goods movement is an important part of the economy and the efficient, adaptable movement of goods is an objective in the STMP. This qualitative criterion assesses the degree to which an improvement supports goods movement by improving connections to border crossings, industrial parks, or into the downtown area to support local business.

Effects on Local Businesses

This is a qualitative assessment of the degree to which an alternative may affect or benefit any existing businesses. Since actual impacts are not known until design is finished and the method and timing of construction is known, this qualitative criterion assesses potential for impacts based on the proximity to businesses and potential for impacts to supporting infrastructure such as on street parking, loading zones, etc., as opposed to actual impacts.

4. EVALUATION OF ALTERNATIVES FOR IMPROVEMENTS TO NETWORK DEFICIENCY AREAS

Each of the areas identified as having future network deficiencies and the proposed alternatives for improvements in those areas were assessed using the evaluation criteria and process as outlined in the following sections.

4.1 EVALUATION TABLES BY NETWORK DEFICIENCY AREA

Within each of **Tables 4 to 6**, the most preferred alternative within the four broad areas of evaluation (Transportation System, Social, Economic and Natural Environments) is noted within the summary at the end of each evaluation area, and is also highlighted within the each table.

Quantitative measures were used to compare the advantages and disadvantages of each option in numeric terms where detailed measurement was possible. Qualitative measures were used to describe the advantages and disadvantages of each option where criteria were not easily quantified.

Tables 4 to 6 provide the detailed evaluation of alternatives. Each cell within the table includes the qualitative or quantitative measure plus a blue circle used for visual comparison. The size of the blue circle indicates the relative level of preference within the same criterion, with the largest circle being most preferred and smallest circle the least preferred alternative.

The Total Capital Cost criterion under the Economic evaluation category provides the summary cost information. Assumptions used in preparing Structure cost estimates are included in **Appendix A**. Additional details on the assumptions used to prepare the capital costs are included in **Appendix B**.

4.1.1 Thorold Stone Road/Bridge Street Area

Table 4 provides the results of the evaluation of options for the Thorold Stone Road/Bridge Street area.

Table 4: Evaluation Summary for Thorold Stone Road/Bridge Street Area

Evaluation Criteria	Do Nothing	Alternative 1 – Thorold Stone Rd Extension to Bridge St	Alternative 2 – Widen Stanley Ave	Alternative 3 – Thorold Stone Rd Extension to Victoria Ave
Transportation System				
Change in Congestion (Measured in km)	LOS A-C 53.6 LOS D 4.2 LOS E 1.3 LOS F 1.5 Total 60.4 LOS E or Worse (km) 2.8	LOS A-C 55.4 LOS D 6 LOS E 0.3 LOS F 1.5 Total 63.2 LOS E or Worse (km) 1.8	LOS A-C 56.4 LOS D 2.9 LOS E 1.2 LOS F 0.1 Total 60.5 LOS E or Worse (km) 1.3	LOS A-C 55.7 LOS D 4.3 LOS E 0.8 LOS F 1.8 Total 62.6 LOS E or Worse (km) 2.6
Network Travel Time (Delay in seconds)	82.1	74.3	74.0	79.6
Support for transit	Minimal benefit of impact on current/future transit. Congestion will impede transit flow and reduce reliability of existing service.	Could accommodate new transit service and provide more direct route towards Bridge St. bus/rail station and direct access to Gail Centre	Could improve transit operation along Stanley Ave. only	Could accommodate new transit service and provide improved access towards Great Wolf Lodge
Use of Existing Infrastructure	Relies on existing infrastructure and could provide modest support for TDM	Involves new infrastructure	Improves existing roadway infrastructure	Involves new infrastructure
Transportation Summary Alternative 1 - Thorold Stone Road Extension to Bridge Street is preferred from a transportation system perspective				

Evaluation Criteria	Do Nothing	Alternative 1 – Thorold Stone Rd Extension to Bridge St	Alternative 2 – Widen Stanley Ave	Alternative 3 – Thorold Stone Rd Extension to Victoria Ave
Social/Cultural				
Support for Walking/Cycling	No new walking/cycling infrastructure. Higher traffic congestion impedes pedestrians/bikes. 	Could incorporate pedestrian/cycling facilities and provide connection to Millennium Trail and Gale Centre 	May allow for pedestrian/cycling facilities and provide link to Millennium Trail 	Could incorporate pedestrian/cycling facilities and provide connection to Millennium Trail and Great Wolf Lodge/Gale Centre 
Potential Noise Impacts	Minimal new positive/negative impact 	May divert traffic away from residential area to the north of Bridge Street by re-directing traffic to Gale Centre. Potential to reduce noise in local neighbourhoods. 	Increased traffic on Stanley Ave. would increase potential for noise in residential areas 	May divert traffic away from residential area to the north of Bridge Street by re-directing traffic to Gale Centre. Potential to reduce noise in local neighbourhoods. 
Potential effects on cultural heritage features	No positive/negative impact to existing features 	May divert traffic away from Fairview Cemetery – reducing potential impact on cultural heritage features 	Widening may impact on cultural heritage features such as Fairview Cemetery, CW Palmer Park, Elm St. Park, or Oakes Park. 	May divert traffic away from Fairview Cemetery – reducing potential impact on cultural heritage features 
Potential effects on stable residential neighbourhoods	No positive/negative impact 	May divert traffic away from residential area to the north of Bridge Street by re-directing traffic to Gale Centre and therefore benefit existing residential area 	Widening may impact residential properties along Stanley Ave. 	May divert some traffic away from residential area to the north of Bridge Street by re-directing traffic to Gale Centre and benefit existing residential area 
Social/Cultural Summary Thorold Stone Road Extension to Bridge Street and Thorold Stone Extension to Victoria Avenue are preferred from a social/cultural perspective.				

Evaluation Criteria	Do Nothing	Alternative 1 – Thorold Stone Rd Extension to Bridge St	Alternative 2 – Widen Stanley Ave	Alternative 3 – Thorold Stone Rd Extension to Victoria Ave
Natural Environment				
Potential effects on air quality	18,900 veh-km in area 	18,690 veh-km in area 	19,160 veh-km in area 	19,350 veh-km in area 
Land taken for transportation infrastructure	Does not require land take 	Significant land land take may be required – however not through existing developed or residential area 	Significant land land take may be required – impact upon adjacent land uses and vegetation between Thorold Stone Rd. and Valley Way 	Significant land land take may be required – however not through existing developed or residential area 
Potential effects on designated Environmentally Sensitive Areas (ESAs)	No impacts to ESAs 	No impacts to ESAs 	No impacts to ESAs 	No impacts to ESAs 
Potential effects on Other Natural Areas	No impacts to Other Natural Areas 	No impacts to Other Natural Areas 	Widening may impact on CW Palmer Park, Elm St. Park, or Oakes Park 	No impacts to Other Natural Areas 
Natural Environment Summary Do Nothing is preferred from a natural environment perspective				

Evaluation Criteria	Do Nothing	Alternative 1 – Thorold Stone Rd Extension to Bridge St	Alternative 2 – Widen Stanley Ave	Alternative 3 – Thorold Stone Rd Extension to Victoria Ave
Economic Environment				
Total capital cost	$0	$9,600,000	$12,600,000	$34,000,000
Support for Planned Residential/Employment Growth Areas	Does not provide transportation capacity to support growth	Supports future growth around Thorold Stone Rd./Stanley Ave. Industrial Area and for downtown. Provides more direct connection between Thorold Stone Road and Victoria Ave intensification corridors and supports Stamford and Downtown nodes.	Modest support for growth around Thorold Stone Rd./Stanley Ave. Industrial Area.	Supports future growth around Thorold Stone Rd./Stanley Ave. Industrial area and for area around Great Wolf Lodge on Victoria Ave. Supports Thorold Stone Road intensification corridor and Stamford node.
Support for Tourism	Does not provide capacity or accessibility to support tourist travel. Increased congestion may impact attractiveness of downtown for tourists.	Provides support through improved access to/from QEW and more direct access towards Bridge St bus/rail station and downtown	Provides support through improved access to/from QEW	Provides support through improved access to/from QEW and more direct access towards Great Wolf Lodge on Victoria Ave. and downtown.
Support for goods movement	Does not provide capacity or accessibility to support goods movement to industrial area	Provides support through improved access to/from QEW and access to industrial lands	Provides support through improved access to/from QEW	Provides support through improved access to/from QEW and access to industrial lands
Effects on Local Business	Does not impact upon or support local business	Provides support for local businesses around Stanley Ave./Thorold Stone Rd. and in downtown due to enhanced access	Provides support for local businesses along Stanley Ave.	Provides support for local businesses around Stanley Ave./Thorold Stone Rd. and on Victoria Ave.
Economic Environment Summary Thorold Stone Road Extension to Bridge Street is preferred from an economic perspective				

Evaluation Summary - The proposed Thorold Stone Road extension to Bridge Street is preferred from a transportation system, social/cultural and economic perspective. It addresses many of the capacity issues on Stanley Avenue at Bridge Street, and reduces potential traffic infiltration (plus negative effects of this) to neighbourhoods on the north side of Bridge St by re-directing traffic headed to Gale Centre from local roads. Enhanced access to the downtown and the opening up of lands for industrial development are key benefits from an economic perspective.

4.1.2 QEW Crossings

Table 5 provides the results of the evaluation of options for the QEW crossings.

Table 5: Evaluation Summary for QEW Crossings

Evaluation Criteria	Do Nothing	Alternative 1 – Morrison St Crossing	Alternative 2 – Dunn St Crossing	Alternative 3 – Widen McLeod Rd	Alternative 4 – New QEW Crossing South of McLeod Rd
Transportation System					
Change in Congestion (measured in km)	LOS A-C 95.2 LOS D 9.6 LOS E 3.3 LOS F 12.6 Total 120.7 LOS E or Worse (km) 15.9	LOS A-C 103.5 LOS D 8.7 LOS E 4.8 LOS F 6.4 Total 123.5 LOS E or Worse (km) 11.3	LOS A-C 95.5 LOS D 12.5 LOS E 5.6 LOS F 9.2 Total 122.8 LOS E or Worse (km) 14.8	LOS A-C 98.7 LOS D 8.2 LOS E 6.6 LOS F 7.3 Total 120.7 LOS E or Worse (km) 13.9	LOS A-C 102.9 LOS D 6.4 LOS E 5.7 LOS F 5.6 Total 120.7 LOS E or Worse (km) 11.3
Network Travel Time (Delay in seconds)	435	390	390	402	377
Support for transit	Minimal benefit of impact on current/future transit. Congestion will impede transit flow and reduce reliability of existing service.	Could accommodate new transit service across QEW – Morrison St. is existing transit route	Could accommodate new transit service across QEW – Dunn St. is existing transit route	May improve future transit movement – McLeod Rd. is existing transit route	New crossing could potentially accommodate new transit service between new development areas on either side of QEW.
Use of Existing Infrastructure	Relies on existing infrastructure and could provide modest support for TDM	Involves new infrastructure	Involves new infrastructure	Improves existing infrastructure	Involves new infrastructure
Transportation Summary Morrison St Crossing and New QEW crossing South of McLeod Road are preferred from a transportation system perspective					

Evaluation Criteria	Do Nothing	Alternative 1 – Morrison St Crossing	Alternative 2 – Dunn St Crossing	Alternative 3 – Widen McLeod Rd	Alternative 4 – New QEW Crossing South of McLeod Rd
Social/Cultural					
Support for Walking/Cycling	No new walking/cycling infrastructure. Higher traffic congestion impedes pedestrians /bikes	Could incorporate new pedestrian/cycling facilities and new midblock crossing of QEW between Thorold Stone Rd. and Lundy's Lane	Could incorporate new pedestrian/cycling facilities and new midblock crossing of QEW between McLeod Rd. and Lundy's Lane	Ability to improve pedestrian and cycling facilities on existing bridge. Widening may increase difficulty crossing McLeod Rd.	Could incorporate new pedestrian/cycling facilities to link new development areas south of McLeod Rd.
Potential Noise Impacts	Minimal new positive/negative impact	Located in largely commercial area – unlikely to have significant noise impact	May bring significant additional traffic through a largely residential area with associated noise impact	Unlikely to have significant noise impact – area is not residential	Unlikely to have significant noise impact – area is not currently residential
Potential effects on cultural heritage features	No positive/negative impact to existing features	May impact upon cultural land uses such as Optimist Park	May involve significant impact on residential area and associated cultural land uses	Unlikely to have significant impact	Unlikely to have significant impact
Potential effects on stable residential neighbourhoods	No positive/negative impact	Located in largely commercial area – unlikely to have significant impact	May bring significant additional traffic through an established residential area with associated impact	Unlikely to have significant impact	Unlikely to have significant impact on existing neighbourhoods but will increase traffic through new neighbourhoods in development areas
Social/Cultural Summary Widening of McLeod Road is preferred from a social/cultural perspective					

Evaluation Criteria	Do Nothing	Alternative 1 – Morrison St Crossing	Alternative 2 – Dunn St Crossing	Alternative 3 – Widen McLeod Rd	Alternative 4 – New QEW Crossing South of McLeod Rd
Natural Environment					
Potential effects on air quality	76,600 veh-km of travel in area 	78,100 veh-km of travel in area 	76,700 veh-km of travel in area 	76,350 veh-km of travel in area 	76,800 veh-km of travel in area 
Land taken for transportation infrastructure	Does not require land take 	Land take may be required from surrounding commercial land use or from Optimist Park 	May involve significant land take in residential area 	Land take is in largely undeveloped area 	Land take is in largely undeveloped area 
Potential effects on designated Environmentally Sensitive Areas (ESAs)	No impacts to ESAs 	No impacts to ESAs 	No impacts to ESAs 	No impacts to ESAs 	Potential to affect north edge of Environmental Protection Area on west side of QEW. Can mitigate through route planning and design. 
Potential effects on Other Natural Areas	No impacts to Other Natural Areas 	No impacts to Other Natural Areas 	New road through Hydro corridor would remove current open space in residential area 	No impacts to Other Natural Areas 	Potential to affect north edge of woodlots on east and west side of QEW. Can mitigate through route planning and design. 
Natural Environment Summary Do Nothing is preferred from a natural environment perspective					

Evaluation Criteria	Do Nothing	Alternative 1 – Morrison St Crossing	Alternative 2 – Dunn St Crossing	Alternative 3 – Widen McLeod Rd	Alternative 4 – New QEW Crossing South of McLeod Rd
Economic Environment					
Total capital cost	$ 0	$27,000,000	$16,000,000	$19,000,000	$19,500,000
Support for Planned Residential/Employment Growth Areas	Does not provide transportation capacity to support growth	Supports future growth around Morrison St./Dorchester Rd. and supports additional commercial growth in Dorchester Rd. Area. Supports Morrison/Dorchester intensification node.	Unlikely to provide significant support and would bring additional traffic through residential area	Supports future growth around McLeod Rd./QEW interchange and supports Garner South Secondary Plan Areas. Supports McLeod Road intensification corridor.	Supports future growth around McLeod Rd./QEW interchange and links Garner South with Thundering Waters Secondary Plan Areas
Support for Tourism	Does not provide capacity or accessibility to support tourist travel	Provides limited support for tourist travel	Provides limited support for tourist travel	Added capacity on key tourist route and improved accessibility to QEW	Provides modest support for tourism by relief of congestion on McLeod Rd.
Support for goods movement	Does not provide capacity or accessibility to support goods movement	Supports goods movement to businesses around Morrison St./QEW area	Unlikely to have significant benefit and would route goods vehicles through residential area	Supports the flow of goods to local businesses and also to/from QEW	Support goods movement to businesses around McLeod Rd./QEW area and links new Industrial areas on both sides of QEW
Effects on Local Business	Does not impact upon or support local business	May support local businesses around Morrison St./Dorchester Rd.	Unlikely to have significant benefit for local businesses	May support local businesses around McLeod Rd./QEW area	May support local businesses around McLeod Rd./QEW area
Economic Environment Summary Widening McLeod Road and New QEW Crossing South of McLeod Road are preferred from an economic perspective					

Evaluation Summary - The proposed new QEW crossing south of McLeod Road is preferred from a transportation and economic perspective. Modest potential for environmental affects to designated Environmental Areas and woodlots can be minimized through routing of crossing and design measures. Linkage to new growth areas provides enhanced connectivity for auto and non-auto traffic and separates tourist and local traffic flows in south end of community.

4.1.3 Highway 420 Crossings

Table 6 provides the results of the evaluation of options for the Highway 420 crossings.

Table 6: Evaluation Summary for Highway 420 Crossings

Evaluation Criteria	Do Nothing	Alternative 1 – Dorchester Rd Widening	Alternative 2 – Stanley Ave Widening (6 lanes)	Alternative 3 – Drummond Rd Widening
Transportation System				
Change in Congestion (measured in km)	LOS A-C 115.9 LOS D 13.7 LOS E 4.3 LOS F 13.6 Total 147.5 LOS E or Worse (km) 17.9	LOS A-C 122.5 LOS D 12.1 LOS E 6.2 LOS F 8.5 Total 149.2 LOS E or Worse (km) 14.7	LOS A-C 120 LOS D 15.1 LOS E 6 LOS F 8.2 Total 149.3 LOS E or Worse (km) 14.2	LOS A-C 118.3 LOS D 15.6 LOS E 6.7 LOS F 6.8 Total 147.4 LOS E or Worse (km) 13.5
Network Travel Time (Delay in seconds)	628	577	573	562
Support for transit	Minimal benefit of impact on current/future transit	May support transit movement – Dorchester Rd. is existing key transit corridor	May support future transit movement to tourist areas	May support transit movement – Drummond Rd. is existing key transit corridor
Use of Existing Infrastructure	Relies on existing infrastructure and could provide modest support for TDM	Improves existing infrastructure	Improves existing infrastructure	Improves existing infrastructure
Transportation Summary Drummond Road Widening is the preferred alternative from a transportation system perspective				

Evaluation Criteria	Do Nothing	Alternative 1 – Dorchester Rd Widening	Alternative 2 – Stanley Ave Widening (6 lanes)	Alternative 3 – Drummond Rd Widening
Social/Cultural				
Support for Walking/Cycling	No new walking/cycling infrastructure. Higher traffic congestion impedes pedestrians/bikes	May incorporate pedestrian/cycling facilities – however primarily vehicle oriented	May incorporate pedestrian/cycling facilities – however primarily vehicle oriented	May incorporate pedestrian/cycling facilities – however primarily vehicle oriented
Potential Noise Impacts	Minimal new positive/negative impact	Extensive widening may have significant noise impact through residential areas	Extensive widening may have significant noise impact through residential areas	Extensive widening may have significant noise impact through residential areas
Potential effects on cultural heritage features	No positive/negative impact to existing features	Extensive widening may have significant impact on cultural heritage features	Extensive widening may have significant impact on cultural heritage features	Extensive widening may have significant impact on cultural heritage features
Potential effects on stable residential neighbourhoods	Increased congestion may lead to short cutting through adjacent residential areas	Extensive widening may have significant impact on stable residential neighbourhoods	Extensive widening may have significant impact on stable residential neighbourhoods	Extensive widening may have significant impact on stable residential neighbourhoods
Social/Cultural Summary Do Nothing is preferred alternative from a social/cultural perspective				

Evaluation Criteria	Do Nothing	Alternative 1 – Dorchester Rd Widening	Alternative 2 – Stanley Ave Widening (6 lanes)	Alternative 3 – Drummond Rd Widening
Natural Environment				
Potential effects on air quality	83,800 veh-km of travel in area 	84,500 veh-km of travel in area 	84,100 veh-km of travel in area 	83,500 veh-km of travel in area 
Land taken for transportation infrastructure	Does not require land take 	Extensive widening would involve significant land take 	Extensive widening would involve significant land take 	Extensive widening would involve significant land take
Potential effects on designated Environmentally Sensitive Areas (ESAs)	No impacts to ESAs 	No impacts to ESAs 	No impacts to ESAs 	No impacts to ESAs 
Potential effects on Other Natural Areas	No impacts to Other Natural Areas 	No impacts to Other Natural Areas 	No impacts to Other Natural Areas 	No impacts to Other Natural Areas 
Natural Environment Summary Do Nothing is preferred alternative from a natural environment perspective				

Evaluation Criteria	Do Nothing	Alternative 1 – Dorchester Rd Widening	Alternative 2 – Stanley Ave Widening (6 lanes)	Alternative 3 – Drummond Rd Widening
Economic Environment				
Total capital cost	$ 0	$25,700,000	$22,100,000	$21,100,000
Support for Planned Residential/Employment Growth Areas	Does not provide transportation capacity to support growth	Provides support for future growth in south of city. Supports Morrison/Dorchester intensification node.	Supports Drummondville intensification node.	Provides support for future growth in south of city. Supports Drummondville intensification node and McLeod Road corridor.
Support for Tourism	Does not provide capacity or accessibility to support tourist travel	Minimal support to tourism	Extensive widening through tourist area may significantly impact tourist operators.	Improved alternate route may relieve some capacity in the vicinity of tourist area.
Support for goods movement	Does not provide capacity or accessibility to support goods movement	May provide support for goods movement to destinations along Dorchester Rd.	Unlikely to significantly support goods movement	May provide support for goods movement to destinations Drummond Rd.
Effects on Local Business	Does not impact upon or support local business	Supports improved access to existing and future local businesses in Dorchester Rd. corridor	Extensive widening through tourist area may significantly impact tourist operators	Supports improved access to existing and future local businesses in Drummond Rd. corridor. Less potential for business impact during construction.
Economic Environment Summary Drummond Road Widening is preferred from an economic perspective				

Evaluation Summary - The proposed Drummond Road widening is preferred from a transportation and economic perspective. While the "Do Nothing" alternative is preferred from a social/cultural and natural environment perspective, it does not address the transportation deficiencies and is least preferred from an economic perspective.

4.2 NETWORK RECOMMENDATIONS

Taking into consideration the preferred alternatives discussed in **Section 3**, the preferred improvement alternatives were combined into a preferred network and additional model runs were undertaken to identify the need for additional improvements. Improvements identified through previous transportation planning studies were also considered, particularly where recommendations were made to address localized deficiencies that may not show up in a regional transportation model.

Additional Project Recommendations

Despite the original evaluation results and findings that supported the widening of Drummond Road to address the Highway 420 screenline capacity deficiencies, it was found that in time, widening of both Drummond Road and Dorchester Road will be required to support future growth in the City. For that reason, the Dorchester Road widening project was also added to the recommended improvement program.

With the planned growth in the Garner South Planning Area and along Kalar Road, the two lane section of McLeod Road, west of Pin Oak Drive will be operating over capacity by 2031. The primary traffic using this section of McLeod Road is traffic from the new development areas along Kalar Road and west to Garner Road, and future potential traffic from the Garner South Secondary Plan area. Lane widening through the McLeod Road/Kalar Road intersection has already been implemented to provide capacity at the intersection. Additional widening to a full four-lane cross section, from Pin Oak Drive to Parkside Drive will be required by 2031.

Previous EA studies have already recommended the widening of Kalar Road to four lanes south of Lundy's Lane and the City has been proceeding with the construction of these works. The modelling work has assumed these improvements to be in place. Additional widening of Kalar Road, between Lundy's Lane and Beaverdams Road will be required by 2031 to address continued growth in traffic, and to provide capacity across the current at grade rail crossing.

Within the tourist area along Stanley Avenue, continued growth will result in significant congestion during the peak summer months. The widening of Stanley Avenue would have significant impacts to many of the tourist businesses and hotels along this route and was therefore not recommended. Given the underutilization of the parallel collector roads; Allendale Avenue and Buchanan Avenue/Fallsview Boulevard, it is recommended that the City investigate improvements to these routes to provide an alternate corridor to support tourist traffic flows as an alternate to Stanley Avenue. These improvements may also stimulate additional economic development along these corridors as they are improved and better connected to the major road

network. To implement this couplet system, Allendale Avenue would need to be extended north of Ferry Street and would connect back to Stanley Avenue in the vicinity of Forsythe Street. Allendale Avenue would also need to be extended south of Dunn Street to connect back to Stanley Avenue in the vicinity of Livingston Street. A Schedule C EA study would be required to confirm the proposed limits of this work and the most appropriate locations to connect back to Stanley Avenue.

As part of this EA study it may be worthwhile considering potential opportunities to improve connectivity from the Fallsview Tourist Area towards the Historic Drummondville Area. The existing alignment of the Portage Road/Main Street/Stanley Avenue/Dixon Street intersection does not presently allow traffic from the Fallsview Tourist Area to access Main Street towards Historic Drummondville, as a raised median prevents left turn movements. Instead, traffic is required to travel north on Stanley Avenue and turn west on Murray Street. Therefore, as part of the EA study the feasibility of improving Dixon Street to join up with the improved Allendale Avenue should be considered.

Improvements may also be considered to the existing Allendale Avenue/Main Street/Murray Street intersection to improve traffic operations at this location, including the feasibility of constructing a roundabout. A new potential connection from Main Street to Allendale Avenue, south of this location could also be investigated to reduce the number of entrance roadways that converge at this intersection. An improved road network in this vicinity may resemble **Figure 10**.

Figure 10: Potential Improvements Near Allendale Avenue/Main Street/Murray Street

On the east side of Stanley Avenue, a similar couplet can be created via an improved Livingston Street connection to Fallsview Boulevard. The jog at Fallsview Boulevard and Buchanan Street should be eliminated to create a continuous north-south route across Ferry Street. Buchanan Avenue should be upgraded between Ferry Street and Forsythe Street, and the City should consider opportunities to connect Buchanan Street directly to Roberts Street using a right-in/right out entrance design to provide some relief to the Highway 420/Stanley Ave intersection. The feasibility of this connection would need to be investigated in more detail during a Schedule C EA study.

Portage Road, to the east of Marineland Parkway is also forecast to be deficient during summer tourist peaks and will need to be widened to four lanes, as far south as Upper Rapids Boulevard. There is no viable alternative to this widening that will accommodate the combination of the tourist traffic using this roadway combined with local traffic from the Chippawa area.

The existing offset intersections of Stanley Avenue and Marineland Parkway are also forecast to be operating over capacity by 2031 during peak periods, and there is limited opportunity to widen Marineland parkway between the two intersections due to the existing Railway grade separation. The Region should undertake an EA study to investigate improvements to this area in an attempt to eliminate the jog and line up the north and south approaches of Stanley Avenue. **Figure 11** shows a conceptual alignment with the south leg of Stanley Avenue shifted north, although a realignment of the north leg may also be viable, and should be examined in more detail during the EA Study. Either option would likely require a second railway grade separation.

Stanley Avenue and Marineland Parkway intersection improvements were carried out in 2002 as per the recommendations of the Stanley Avenue EA. The jog elimination should be taken up as a part of comprehensive review of the access to the Fallsview area and include the potential utilization of the unused rail tracks and the structure.

It is considered that the proposed corridor for the Morrison Street crossing of the QEW should be protected. This may negate the need for further improvements to Thorold Stone Road (i.e. widening) in order to address future capacity issues.

Finally, the existing section of Portage Road, between Marineland Parkway and Buchanan Street will also require improvements to address erosion issues on the current steep embankment. It is recommended that the City consider a new connection from Portage Road to Oakes Drive/Livingston Street intersection across the rail line, to allow for current section of Portage Road to the north of this point to be converted to a walking/cycling trail, with less risk of damage due to traffic.
In the longer term the Region may consider upgrading Lyons Creek Road to provide an alternate route to the McLeod Road corridor towards the tourist area, via Stanley Avenue. This may require an eastbound left-turn lane at the Stanley Avenue intersection.

Based on this additional assessment the overall network recommendations from the modelling and evaluation process are shown in **Figure 11.** For each project, **Table 7** includes a summary of the costs, EA schedules for subsequent studies, and an initial assessment of the jurisdiction that would be the most suitable proponent for subsequent EA studies and construction. The 18 recommendations shown in **Figure 11** are numerically cross-referenced to **Table 7**. Supporting data for the cost estimates shown in **Table 7** are included in **Appendix C**.

As previously described, the Mountain Road/Highway 405 area (items 1, 2, and 3 in **Figure 11** and **Table 7**) is undergoing an additional study by the Region and for this reason the suggested improvement recommendations in this report are subject to the more detailed EA study being undertaken by the Region.

Figure 11: Recommended Network Improvement

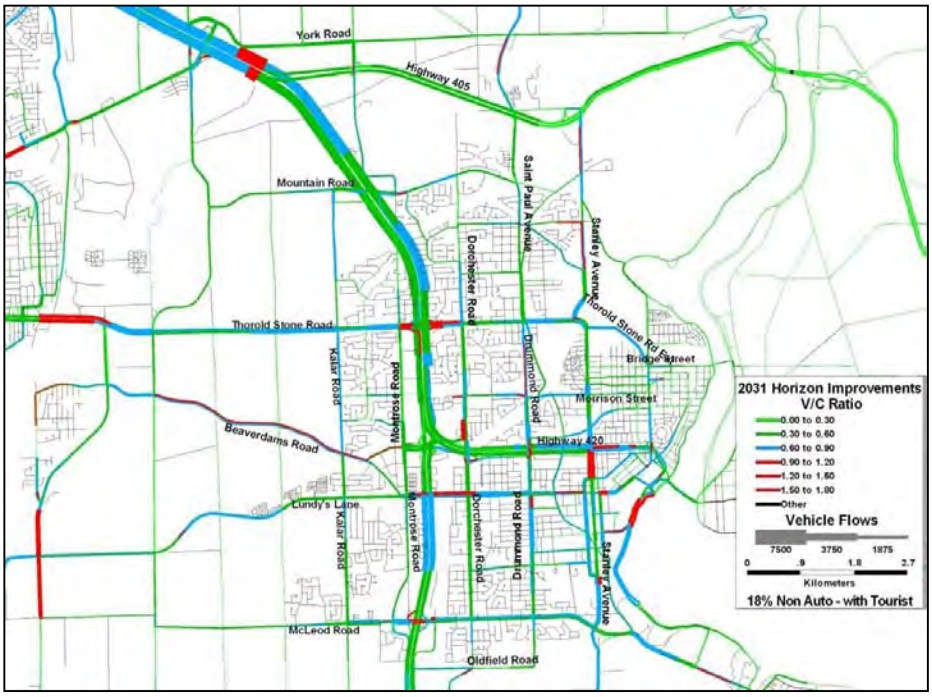
Table 7: List of Recommended Improvements

	Project	Limits	Length (km)	Total Estimated Cost ($ 2009)	Implementation/EA Schedule
1	Highway 405/Conc. 6 Interchange		1.2	6,197,000	Region/Schedule C
2	Mewburn Road Reconstruction	Mountain Rd to York Rd	2.0	6,673,000	City/Schedule C
3	Mountain Road Widening	Kalar Rd to Olden Ave	1.27	12,063,500	Region/Schedule C
4	Stanley Ave Widening	Church's Lane to Thorold Stone	1.69	10,136,500	Region/Schedule C
5	Thorold Stone Rd Extension	Stanley Ave to Bridge St	1.43	9,585,900	Region/Schedule C
6	Stanley Ave Widening	Hamilton St to Valley Way	1.19	7,371,340	Region/Schedule C
7a	Dorchester Rd Widening	Thorold Stone Rd to Pinedale	1.1	6,515,100	City/Schedule C
7b	Dorchester Rd Widening	Frederica St to McLeod Rd	2.6	19,194,000	City/Schedule C
8	Hwy 420/Montrose Rd Improvements	Widening Ramps and Improve Intersection	0.6	3,900,000	Region/MTO/ MTO Schedule B
9	Drummond Rd/Hwy 420 Bridge Widening	Valley Way to Frederica St	0.3	5,109,000	City/Schedule C
10	Drummond Rd Widening	Lundy's Lane to McLeod Rd	2.1	15,948,000	City/Schedule C
11	Kalar Rd Widening	Beaverdams Rd to Lundy's Lane	0.74	4,589,200	City/Schedule C
12	McLeod Rd Widening	Pin Oak Dr to Parkside Rd	0.9	5,265,000	City/Schedule C
13a	New Hydro Canal Crossing	Dorchester to Oakwood	1	9,672,000	City/Schedule C
13b	New QEW Crossing	Oakwood to Montrose	0.9	9,780,000	City/Schedule C
14	Stanley Ave/Marineland Pkwy Intersection	Jog Elimination or Intersection Imp.	0.4	6,721,000	Region/Schedule C
15	Portage Rd Widening	Marineland Pkwy to Upper Rapids Blvd	1.3	7,605,000	City/Schedule C
16a	Allendale Ave Widening	Forsythe St to South of Dunn St	1.2	7,320,000	City/Schedule C
16b	Allendale Ave New Connections to Stanley Ave	Dixon St to Stanley Ave & Ferry St to Forsythe	0.87	4,849,000	City/Schedule C
17	Buchanan/Fallsview Widening	Roberts to Livingston St	2.3	17,001,000	City/Schedule C
18	Livingston St/Fallsview Connection to Portage Rd		0.5	3,550,000	City/Schedule C
			Total	179,045,540	
			City	123,070,300	
			Region	55,975,240	

5. CONCLUSIONS

Based on the recommended improvement program suggested in this working paper, an additional model run was undertaken to assess the overall network-wide benefits of the proposed improvements. **Figure 12** illustrates the p.m. peak hour capacity deficiencies within the City with the target 18% non-auto mode share and the recommended improvements in place.

Figure 12: 2031 P.M. Peak Hour Conditions – With Improvements



With the improvements in place 2031 summer weekday peak hour delays are anticipate to be reduced by 17% compared to the Do Nothing scenario, or 275 vehicle-hours in the typical summer peak. This translates into an annual delay savings of about 715,000 vehicle-hours, representing a societal benefit of approximately $8.6 million per year (assuming an average value of travel time of $12/hr).

With the recommended improvements in place the total extent of the network operating at LOS D (approaching capacity conditions) during peak hours is reduced from 21% of the road network to just under 16%. The share of the network operating in congested conditions (LOS E-F) reduces from 46 km to 27 km (a reduction of 41%).

Appendix A

Structure Cost Estimate Assumptions

- Remove existing - $1200/m2 (based on deck area of existing bridge)
- New Bridge – $3300/m2 based on deck area of new bridge
  typical W=12m for 2 lane structure
- Add 35% for EA, design and CA
- Add $150,000 - $200,000 for road approaches

Construction Benchmark Costs	Cost / Metre	Calculated Benchmark Cost	Rounded Benchmark Cost
Road Widening - 2 to 4 lanes Full Reconstruction	$ 4,293.00		**$ 4,500,000.00**
Road Widening - 4 to 6 lanes Full Reconstruction	$ 5,033.00		**$ 5,000,000.00**
Road Widening - 2 to 6 lanes Full Reconstruction	$ 5,033.00		**$ 5,500,000.00**
New Construction - 2 lane Urban	$ 3,988.00		**$ 4,000,000.00**
New Construction - 4 lane Urban	$ 4,793.00		**$ 5,000,000.00**
New Construction - 6 lane Urban	$ 5,751.60		**$ 6,000,000.00**
Freeway Widening - 4 - 6 lanes			**$ 6,500,000.00**
New Interchange			**$ 10,000,000.00**
Interchange - Widening			**$ 5,000,000.00**
Land Purchasing Cost			

Appendix B

Niagara Falls STMP | **Road Network Improvement Cost Estimates - Alternatives** | January, 2011

Alt	Project	Limits	Length km	Unit Cost ($M/km)	Roadworks	Structures	Property	Rail Crossings	Design/CA 15%	Contingency 15%	Total Estimated Cost ($2009)
	Bridge St / Stanley Area										
1	Thorold Stone Rd Extension	Stanley Ave to Bridge St	1.43	$ 5,100,000	$ 7,293,000	$ -	$ 105,000		$ 1,093,950	$ 1,093,950	**$ 9,585,900**
2	Stanley Ave. Widening	Hamilton St. to Valley Way	1.19	$ 4,500,000	$ 5,355,000	$ -	$ 409,840		$ 803,250	$ 803,250	$ 7,371,340
2	Stanley Ave. Widening	Stanley Ave to Hamilton	0.75	$ 5,000,000	$ 3,750,000	$ -	$ 375,000		$ 562,500	$ 562,500	$ 5,250,000
											$ 12,621,340
3	Thorold Stone Rd Extension	Stanley Ave to Victoris Ave	1.1	$ 4,500,000	$ 4,950,000	$ 20,690,000	$ 586,000		$ 3,846,000	$ 3,846,000	**$ 33,918,000**
	QEW Crossings										
1	Morrison Street	Montrose to Dorchester	0.85	$ 4,500,000	$ 3,825,000	$ 14,480,000	$ 3,221,000		$ 2,745,750	$ 2,745,750	**$ 27,017,500**
2	Dunn St	Montrose to Dorchester	0.7	$ 4,000,000	$ 2,800,000	$ 4,300,000	$ 140,000		$ 1,065,000	$ 1,065,000	$ 9,370,000
	New Hydro Canal Crossing		0.4	$ 4,000,001	$ 1,600,000	$ 3,440,000	$ 80,001		$ 756,000	$ 756,000	$ 6,632,001
											$ 16,002,001
3	McLeod Rd Widening	Montrose to Dorchester	1.33	$ 5,000,000	$ 6,650,000	$ 4,300,000	$ 266,000		$ 1,642,500	$ 1,642,500	$ 14,501,000
	Widen Hydro Canal Crossing					$ 3,440,000			$ 516,000	$ 516,000	$ 4,472,000
											$ 18,973,000
4	New QEW Crossing	Oakwood to Montrose	0.9	$ 4,000,000	$ 3,600,000	$ 3,900,000	$ 30,000		$ 1,125,000	$ 1,125,000	$ 9,780,000
4	New Hydro Canal Crossing	Dorchester to Oakwood	1	$ 4,000,000	$ 4,000,000	$ 3,440,000	$ -		$ 1,116,000	$ 1,116,000	$ 9,672,000
											$ 19,452,000
	420 Crossings										
1	Dorchester Rd Widening	Thorold Stone Rd to Pinedale	1.1	$ 4,500,000	$ 4,950,000	$ -	$ 80,100		$ 742,500	$ 742,500	$ 6,515,100
1	Dorchester Rd Widening	Frederica St to Mc Leod Rd	2.6	$ 4,500,000	$ 11,700,000	$ -	$ 3,984,000		$ 1,755,000	$ 1,755,000	$ 19,194,000
											$ 25,709,100
2	Stanley Ave Widening to 6 lanes	Valley Way to Main St	2	$ 5,000,000	$ 10,000,000	$ -	$ 6,500,000		$ 1,500,000	$ 1,500,000	$ 19,500,000
	Stanley Ave / Hwy 420 Intersection		1	$ 2,000,000	$ 2,000,000	$ -	$ -		$ 300,000	$ 300,000	$ 2,600,000
											$ 22,100,000
3	Drummond Rd / Hwy 420 Bridge Widening	Valley Way to Frederica St	0.3	$ 4,500,000	$ 1,350,000	$ 2,580,000	$ -		$ 589,500	$ 589,500	$ 5,109,000
3	Drummond Rd Widening	Lundy's Lane to McLeod Rd	2.1	$ 4,500,000	$ 9,450,000	$ -	$ 3,663,000		$ 1,417,500	$ 1,417,500	$ 15,948,000
											$ 21,057,000

Appendix C

Niagara Falls STMP

Road Network Improvement Cost Estimates

January, 2011

	Project	Limits	Length km	Unit Cost ($M/km)	Roadworks	Structures	Property	Rail Crossings	Design/CA 15%	Contingency 15%	Total Estimated Cost ($2009)	Implementation
1	Highway 405/Conc. 6 Interchange		1.2	$ 2,000,000	$ 2,400,000	$ 2,290,000	$ 100,000		$ 703,500	$ 703,500	$ 6,197,000	Region
2	Mewburn Rd Reconstruction	Mountain Rd to York Rd	2.0	$ 2,000,000	$ 4,000,000	$ 1,110,000	$ 30,000		$ 766,500	$ 766,500	$ 6,673,000	City
3	Mountain Road Widening	Kalar Rd to Olden Ave	1.27	$ 4,500,000	$ 5,715,000	$ 3,540,000	$ 32,000		$ 1,388,250	$ 1,388,250	$ 12,063,500	Region
4	Stanley Ave Widening	Church's Lane to Thorold Stone Rd	1.69	$ 4,500,000	$ 7,605,000	$ -	$ -	$ 250,000	$ 1,140,750	$ 1,140,750	$ 10,136,500	Region
5	Thorold Stone Rd Extension	Stanley Ave to Bridge St	1.43	$ 5,100,000	$ 7,293,000	$ -	$ 105,000		$ 1,093,950	$ 1,093,950	$ 9,585,900	Region
6	Stanley Ave. Widening	Hamilton St. to Valley Way	1.19	$ 4,500,000	$ 5,355,000	$ -	$ 409,840		$ 803,250	$ 803,250	$ 7,371,340	Region
7a	Dorchester Rd Widening	Thorold Stone Rd to Pinedale	1.1	$ 4,500,000	$ 4,950,000	$ -	$ 80,100		$ 742,500	$ 742,500	$ 6,515,100	Region
7b	Dorchester Rd Widening	Frederica St to Mc Leod Rd	2.6	$ 4,500,000	$ 11,700,000	$ -	$ 3,984,000		$ 1,755,000	$ 1,755,000	$ 19,194,000	Region
8	Hwy 420 / Montrose Rd Improvements	Widening Ramps and Improve Intersection	0.6	$ 5,000,000	$ 3,000,000	$ -	$ -		$ 450,000	$ 450,000	$ 3,900,000	Region
9	Drummond Rd / Hwy 420 Bridge Widening	Valley Way to Frederica St	0.3	$ 4,500,000	$ 1,350,000	$ 2,580,000	$ -		$ 589,500	$ 589,500	$ 5,109,000	City
10	Drummond Rd Widening	Lundy's Lane to McLeod Rd	2.1	$ 4,500,000	$ 9,450,000	$ -	$ 3,663,000		$ 1,417,500	$ 1,417,500	$ 15,948,000	City
11	Kalar Rd Widening	Beaverdams Rd to Lundy's Ln	0.74	$ 4,500,000	$ 3,330,000	$ -	$ 10,200	$ 250,000	$ 499,500	$ 499,500	$ 4,589,200	City
12	McLeod Rd widening	Pin Oak Dr to Parkside Rd	0.9	$ 4,500,000	$ 4,050,000	$ -	$ -		$ 607,500	$ 607,500	$ 5,265,000	Region
13 a	New Hydro Canal Crossing	Dorchester to Oakwood	1	$ 4,000,000	$ 4,000,000	$ 3,440,000	$ -		$ 1,116,000	$ 1,116,000	$ 9,672,000	City
13 b	New QEW Crossing	Oakwood to Montrose	0.9	$ 4,000,000	$ 3,600,000	$ 3,900,000	$ 30,000		$ 1,125,000	$ 1,125,000	$ 9,780,000	City
14	Stanley Ave / Marineland Pkwy Intersection	Jog Elimination or Intersection Imp.	0.4	$ 5,000,000	$ 2,000,000	$ 3,050,000	$ 156,000		$ 757,500	$ 757,500	$ 6,721,000	Region
15	Portage Rd Widening	Marineland Pkwy to Upper Rapids Blvd.	1.3	$ 4,500,000	$ 5,850,000	$ -	$ -		$ 877,500	$ 877,500	$ 7,605,000	Region
16a	Allendale Ave. widening	Forsyth St to South of Dunn St	1.2	$ 4,500,000	$ 5,400,000	$ -	$ 300,000		$ 810,000	$ 810,000	$ 7,320,000	City
16b	Allendale Ave New Connections to Stanley Ave	Dixon St to Stanley Ave & Ferry St to Forsythe	0.87	$ 4,000,000	$ 3,480,000	$ -	$ 325,000		$ 522,000	$ 522,000	$ 4,849,000	City
17	Buchanan / Fallsview Widening	Roberts to Livingston St	2.3	$ 4,500,000	$ 10,350,000	$ -	$ 3,546,000		$ 1,552,500	$ 1,552,500	$ 17,001,000	City
18	Livingston St / Fallsview Connection to Portage Rd		0.5	$ 5,000,000	$ 2,500,000	$ -	$ 50,000	$ 250,000	$ 375,000	$ 375,000	$ 3,550,000	City
	Total		25.59		$ 107,378,000	$ 19,910,000	$ 12,821,140	$ 750,000	$ 19,093,200	$ 19,093,200	$ 179,045,540	
		City							City		$ 84,491,200	
		Region							Region		$ 94,554,340	

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TRANSPORTATION BEYOND TOMORROW 2031

City of Niagara Falls

SUSTAINABLE TRANSPORTATION MASTER PLAN

TRANSPORTATION BEYOND TOMORROW 2031

Morrison Street Flyover Position Paper

June 7, 2011

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AECOM
300 Water Street
Whitby, ON, Canada L1N 9J2
www.aecom.com

905 668 9363 tel
905 668 0221 fax

June 7, 2011

Marzenna Carrick
City of Niagara Falls
7150 Montrose Road
Unit #1
Niagara Falls, Ontario
L2H 3N3

Dear Marzenna:

Project No: 60119125 Sustainable Transportation Study and Master Plan (STMP)

Regarding: Morrison Street Flyover

As noted in our recent telephone conversation on May 12, 2011, Optimist Park is currently for sale. The City was approached by a land developer concerning the adjacent property, which we shall refer to in this letter as the Morrison Street right-of-way (ROW). The Morrison Street ROW, between the existing Morrison Street and the QEW highway is owned by the City, and has been indefinitely reserved for the future Morrison Street flyover alignment, as per the 1998 TMP. Recently, it was requested that the City release the Morrison Street ROW to the developer.

City staff requested that available information should be provided now, as to the current direction of the STMP, for City review. For AECOM's review, a preliminary site plan was provided, along with a plan showing existing property lines, and one email correspondence from a city resident (correspondence was also in a local newspaper editorial).

The issues, along with a discussion of the available information primarily taken from the findings of the draft STMP working papers, including "Evaluation of Proposed Options" and "Active Transportation", are listed below:

1) The need for a structure at Morrison Street for vehicles to cross over QEW (flyover; no connection to QEW)

Based on the capacity assessment completed for the STMP, five QEW crossing alternatives were evaluated, including a Do Nothing scenario where no additional crossings were provided. The four crossing locations/alternatives included in the evaluation were: Morrison Street; Dunn Street; McLeod Road (widening of existing crossing); and a new crossing south of McLeod (at Oldfield Road) in addition to improvements at the Highway 420 crossing. The Morrison Street alternative considered a new grade separated bridge crossing the QEW to connect the east and west section of Morrison

Street. On the west side of the QEW, the new crossing would connect to the existing Morrison Street/Dorchester Road intersection through or adjacent to Optimist Park and the existing retail development on the south side of Morrison Street.

Four broad categories were included in the analysis, and each category included multiple evaluation criteria under the following categories:

- Transportation System
- Social/Cultural
- Natural Environment
- Economic Environment

From a Transportation System perspective, either the Morrison Street Crossing or a new crossing south of McLeod Road is the preferred alternatives. Widening McLeod Road was determined to have the least social/cultural impact on the community. The Do Nothing alternative would have the least impact on the natural environment, and the best economic impacts would come from either widening McLeod Road or providing a new crossing south of McLeod Road.

As noted in the working paper, "the proposed new QEW crossing south of McLeod Road is preferred from a transportation and economic perspective. Modest potential for environmental affects to designated Environmental Areas and woodlots can be minimised through routing of crossing and design measures. Linkage to new growth areas provides enhanced connectivity for auto and non-auto traffic and separates tourist and local traffic flows in south end of community."

The Morrison Street Crossing is not currently the preferred QEW crossing location within the time horizon and growth forecasts developed for this study. With the new crossing south of McLeod Road the QEW screenline will operate at acceptable levels of service and this crossing more directly serves the new growth areas in the south west area of the City. This information was presented to the public at PIC 2. It is noted however, that Thorold Stone Road, the next QEW crossing to the north, is forecast to be operating close to capacity by 2031. In the interest of protecting long term opportunities to address needs beyond 2031 we would suggest that the Morrison Street ROW be protected for a potential future road crossing in the event that Thorold Stone Road cannot be widened to provide the necessary capacity in the future (beyond 2031) without significant impacts.

As an alternative to a new flyover at Morrison Street, we also tested how well an extension of Highway 420, west to Beaverdams Road, would address capacity deficiencies on Thorold Stone Road. For this test it was assumed that a new connection would be provided along the MTO right-of-way to link the existing Highway 420/Montrose Road intersection directly to Beaverdams Road via a new high capacity arterial road connection. While some longer distance traffic was attracted to this connection, most of that traffic was redirected from Lundy's Lane, with a smaller share diverting from Thorold Stone Road. When the Morrison Street extension was tested, the reduction in traffic using Thorold Stone Road was equivalent to about 1/3 of a lane of capacity. There was a minimal change in volumes using Thorold Stone Road when the Highway 402 connection was added. The Morrison Street crossing also attracted a number of local truck trips, providing access between Dorchester Road and the downtown area to the industrial sites on the west side of the QEW. Table 1 summarizes the difference in volumes using Thorold Stone Road for each of the scenarios.

Table 1: 2031 PM Peak Volumes Using Thorold Stone Road at QEW

Scenario	Westbound	Difference	Eastbound	Difference
Recommended				
Total Vehicles	1432	n/a	1179	n/a
Trucks	(287)		(408)	
Morrison St Ext				
Total Vehicles	1214	- 218	1058	-121
Trucks	(196)	(-91)	(388)	(-20)
Hwy 420 Extension				
Total Vehicles	1402	-30	1171	-8
Trucks	(280)	(-7)	(404)	(-4)

From this assessment it appears that the benefits of providing a new connection for local traffic crossing the QEW has a greater benefit in terms of relieving congestion on Thorold Stone Road than providing a Highway 420 extension to Beaverdams Road to redirect longer distance traffic.

2) The need for a cyclist/pedestrian QEW crossing at this location

The Active Transportation draft working paper noted that a pedestrian/cyclist crossing at the Morrison Street/Zimmerman Avenue would provide an east-west route that connected well with planned on and off-road routes. In addition, the connection is considered to have lower traffic volumes than other adjacent roadways.

The draft working paper also noted that this facility should be provided if proposals to connect Morrison Street to Woodbine Street were to proceed. The working paper will also include a statement that, as a long term improvement, in the case where the Morrison Street/Woodbine connection is not required for motorists, the property should be reserved for a pedestrian/cyclist connection across the QEW should it be a necessary component in the overall cycling route.

3) Service road connection between Morrison Street with Dawson Street for congestion relief and alternate route during rail crossing blockages

As AECOM noted in our January 13th, 2011 meeting with the project steering committee, a secondary road access to the commercial area west of Dorchester Road at Morrison Street was considered. The potential road connection would proceed south across the CN rail line to connect to Dorchester Road in the vicinity of Dawson Street. While a service road may help to alleviate congestion at the Dorchester Street / Morrison Street intersection during peak periods, this new connection would provide limited benefit in terms of addressing congestion when a train passes through the Morrison Street and Dorchester Road at grade crossings. Due to the spacing of this potential crossing to the existing crossing on Dorchester Road and the length of the typical trains that pass through the City, the lights / and or gates at the new grade crossing on the service road would likely be activated as soon as a train activates the crossing at Dorchester Road resulting in both crossings being closed simultaneously, as illustrated in Figure 1, below.

Figure 1 – At Grade Rail Crossing on Service Road

Another option for this connection would be to utilize the existing grade separation for the Highway 420 ramps to QEW northbound and try to fit a separate two lane service under this existing bridge (avoiding the need for an at grade crossing). Figure 2 shows the existing opening under this structure.

Figure 2 – Existing Rail Crossing of Hwy 420-QEW NB ramp

The width of the existing structure opening may allow sufficient space for a single lane of traffic, but would not accommodate a two lane service road plus the necessary concrete barriers and shoulders required to meet safety standards without re-construction of the existing structure. Given the nature of the existing bridge abutment and its proximity to the edge of pavement, a complete reconstruction would likely be required to move the abutment further back to allow for the additional width to accommodate the potential service road. The reconstruction of this structure would likely require a new CN Rail structure be built beside the existing bridge so that train traffic could be maintained during construction. Given the costs for this type of bridge construction, it would likely be more cost effective to provide a separate grade separation for the service road across the CN Rail line. This would address the localized concerns about capacity when a train passes through but does not address the longer term capacity needs for vehicular crossing of QEW.

4) The public process for STMP review and approval

The draft recommended road network improvement plan was presented to the public at Public Meeting#2 (January 27, 2011). Comments received following that Public Meeting have been generally in agreement with the proposed road network plan. One email comment received from the public commented that the City should buy enough of Optimist Park property to allow room for the Morrison Street extension across the QEW. One comment sheet submitted at Public Meeting#2 noted that additional QEW crossings should be placed at already developed City locations, not at Oldfield Road as it is an environmentally sensitive area, and a second comment sheet noted that an extension of Morrison Street is a good idea, but an overpass of the railway crossing is necessary. The issue of the need for rail grade separations has been identified by a number of stakeholders.

City staff have advised that a decision on the release of the property should wait for the completion of the STMP, to confirm the direction and approach for the Morrison Street flyover. AECOM is in agreement with this approach.

Based on our evaluation work to date, we identified that the best overall solution to provide new capacity across the QEW would be to provide a new crossing south of McLeod Road, in line with planned future development in this area of the City. As such, we would not see the need for the Morrison Street flyover in the next 20 years (to 2031) to address auto demands. However, given the limited opportunity for additional widening on Thorold Stone Road in the future, we would suggest that the City continue to protect for this future crossing, to provide maximum flexibility to accommodating future demands beyond the 2031 planning horizon, and to address the need for additional routes for walking and cycling trips to cross the QEW corridor. This position should be incorporated into our final recommendations presented at the Public Meeting for the STMP to obtain feedback from the public on this approach.

Irrespective of the need for a flyover, the Draft Plan of Subdivision for the Optimists Park Lands should be revised to provide a minimum 26m ROW (plus any additional width required to accommodate approach fills for a future structure) to allow for a future connection across QEW. If a secondary entrance to Morrison Street is required to service these lands (or an interim connection to Morrison Street is to be permitted), the location of this connection road or intersection should be situated approximately 350m west of Dorchester Road, to allow suitable intersection spacing while maintaining maximum flexibility for developing suitable approach grades to a potential future structure across QEW.

If you have any questions on the attached, please do not hesitate to contact me at your convenience.

Sincerely,
AECOM Canada Ltd.

Doug Allingham, P.Eng.
Executive Vice President
doug.allingham@aecom.com

DA:sh
cc:
Sheri Harmsworth, AECOM
Kevin Jones, AECOM

AECOM

NiagaraFalls CANADA

TRANSPORTATION BEYOND TOMORROW 2031

City of Niagara Falls

SUSTAINABLE TRANSPORTATION MASTER PLAN

TRANSPORTATION BEYOND TOMORROW 2031

Wayfinding/Signing Strategy

September 2011

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The attached Report (the "Report") has been prepared by AECOM Canada Ltd. ("Consultant") for the benefit of the client ("Client") in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations")
- represents Consultant's professional judgement in light of the Limitations and industry standards for the preparation of similar reports
- may be based on information provided to Consultant which has not been independently verified
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued
- must be read as a whole and sections thereof should not be read out of such context
- was prepared for the specific purposes described in the Report and the Agreement
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time

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- as required by law
- for use by governmental reviewing agencies

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This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.

Executive Summary

An updated wayfinding/signing strategy was identified as a priority of the Niagara Falls Sustainable Transportation Master Plan (STMP) study. This strategy builds from the Signing Strategy prepared as part of the 1998 Transportation Master Plan (1998 TMP).[1] It identifies current issues in the community related to various aspects of route signs, and provides a strategy for updating, removing and adding relevant signs based on the *Transportation Beyond Tomorrow 2031* recommended network. The recommended network is discussed in two separate working papers, titled "Modelling" and "Evaluation of Proposed Road Improvements", both of which contribute to this STMP study.

The purpose of the wayfinding/signing strategy is to outline a recommended plan that provides clear direction and information to all City travellers, regardless of travel mode. A wayfinding strategy can support and promote use of transit and active transportation travel modes. It can benefit a community through improved economic environment, reduced congestion for residents, and a positive impact to the overall visitor experience.

Myriad agencies were contacted to discuss wayfinding/signing requirements and related concerns. Based on these discussions, three primary issues to be addressed by the wayfinding/signing strategy were identified:

- Sign clarity;
- Congestion and tourist traffic;
- Stakeholder satisfaction.

Past studies included a visitor survey, and a public survey was completed as part of the STMP. Both surveys indicated that there was room for improvement with respect to sign clarity: e.g. road and highways systems are confusing and signage is inadequate, particularly for tourists. Enhanced signage for the active transportation network was also requested. Road signage, parking and transit must be integrated into a program which forms one component of an effective Transportation Demand Management (TDM) strategy to alleviate congestion, especially through non-structural improvements. Implementation of this wayfinding/signing strategy will contribute to the overall effectiveness of the TDM strategy.

The strategic transportation objectives are oriented in consideration of the governing policies at provincial, regional, and municipal levels. The four goals of the STMP are outlined in the Goals and Objectives working paper, and include:

- Optimize the Transportation System;

[1] *Niagara Falls Transportation Master Plan, Volume 4, Signing Strategy and Detailed Signing Plan, City of Niagara Falls, Regional Municipality of Niagara, Ontario Ministry of Transportation, "Signage Working Plan" prepared by totten sims hubicki associates (TSH) and MM Dillon Limited, July 1997.*

- Promote Transportation Choice;
- Foster a Strong Economy; and
- Support Sustainable Development and Growth.

A supporting objective to the STMP goals is development of a wayfinding/signing strategy that maximizes the use of existing infrastructure and eliminates the need for additional infrastructure through such means as encouraging alternative routes to tourist attractions at congested times and developing high-detail tourist mapping.

Through discussion with the Province (MTO), Niagara Region, the City of Niagara Falls, Niagara Parks Commission (NPC), and the International Bridge Commission it was evident that a philosophy exists where signs in the City of Niagara Falls, regardless of the road authority, are to focus on clarity for the traveller (neither too little nor too much information), from both safety and convenience perspectives.
Based on this philosophy, the objectives of this wayfinding/signing strategy have been identified as follows:

1. Introduce a wayfinding strategy for all City travellers, especially for tourists, which promotes the use of transit and active transportation modes and reduces congestion;
2. Remove existing non-use signage to reduce or eliminate confusion and improve clarity;
3. Introduce common sign design, with generic sizing of signs, to improve clarity and reduce time required for travelers to interpret a sign; and
4. Recommend a process to undertake a regular signage inventory, conduct a signage effectiveness survey, and complete strategy review updates.

The STMP wayfinding/signing strategy involves an expanded focus on promoting transit and active transportation by considering pedestrian and cyclist needs and looking at signing requirements beyond those required for automobiles; however, the requirements for signing are still similar to those set out in the 1998 TMP, and the appropriate type of signing/wayfinding measures should be provided for the following:

- Directional signing for both auto and non-auto travel modes that leads to “The Falls” and other designated tourist attraction areas, or districts, within which a number of individual tourist attractions may be located;
- Signing for Ontario-bound travelers at the end of the bridges;
- Advisory information on alternate routes to the Falls during congestion, or periods of construction and road closure. Information could be posted to the City’s website or VMS (Variable Message Signs); the previous Highway Advisory Radio (HAR) system is no longer in use for this type of information dissemination.
- Directional signing to international bridge crossings for pedestrians and cyclists, where applicable, and automobiles;

- Directional signing for trucks (commercial vehicles), especially to international bridge crossings; and
- Directional signing to the downtown or business district of local communities.

A limited existing conditions survey was conducted, and results confirmed high compliance with the 1998 TMP Signing Strategy. This survey provided a base from which to build the 2031 STMP wayfinding/signing strategy.

Recommended signs are included in **Appendix A**:

- **Figure 1**: Proposed New/Additional Signing
- **Figure 2**: Selected Provincial Signing and Potential VMS Sign Locations

The recommended wayfinding/signing strategies that are further discussed within this report include four categories based on the four objectives, noted above. The first category, ***Strategies that Promote Transit and Active Transportation and Reduce Congestion***, includes the following strategies:

1. Tourist Information Map;
2. Tourist District Signage: Eight "Tourist Districts" were identified in the 1998 TMP Signing Strategy and generally remain the same (or very similar) for the STMP Wayfinding/Signing Strategy;

   - Chippawa
   - Clifton Hill
   - Fallsview Boulevard
   - Lundy's Lane
   - Marineland
   - Queen Street/Downtown
   - The Falls
   - Whirlpool

3. Parking Signage;
4. On-Street Information Maps: On-street information maps give "you are here" visual detail and either point to or directly incorporate information on the closest transit stop and the cycling and walking trail system, in addition to the nearby attractions;
5. Transit Signage/People Mover Information;
6. Signage for Active Transportation (Figures included in **Appendix B**);
7. Signage for Public Gathering and Historical/Heritage Locations; and
8. Special Event Signage.

The second category, ***Strategies That Divert and Manage Congestion***, considers the implementation of Variable Message Signs to provide information to motorists concerning Highway 420 Route congestion and use

of McLeod as an alternate route to the falls. This category also discusses MTO's proposed ATMS strategy (draft) that looks at providing other traveller information using the same or similar signs. Strategies include:

1. Variable Message Signs (VMS);
2. Advisory Signs for Canal Crossings;
3. Commercial Vehicles and International Bridge Crossing;
4. Border Wait Time Advisory System; and
5. Emergency Detour Routes (EDR) (Figures included in **Appendix C**).

There are additional sign requirements beyond those that promote active transportation or reduce/manage congestions. These sign requirements discussed in the report include:

1. Signage for Recommended Network Updates
2. Casino Signage; and
3. Niagara Region Sign Requirements, including Wine Route Signage (Figures included in **Appendix D**).

The new and/or revised directional signs required upon completion/construction of the road improvements recommended by the STMP include:

1. New/Revised Signs will be required for the following three locations, which represent the areas where the road network and current traveller routes will be changed from a signing perspective:
   - Thorold Stone Road extension to Bridge Street;
   - Allendale widening and connection to Stanley Avenue (north of Ferry, south of Dunn); and
   - Buchanan/Fallsview widening and realignment (Livingstone – Forsythe).

2. Temporary signing conditions will likely be required for the following two recommended road improvements primarily to inform locals of changes to the existing road network. As these signing requirements are temporary, they are not shown on the detailed signing plan.
   - New Crossing of Q.E.W./Hydro Canal south of McLeod Road (temporary signs for locals only to inform of new route); and
   - Stanley Avenue/Marineland Parkway realignment (temporary signs to inform of new turning location/access).

Other recommended wayfinding strategies discussed in this working paper include:

- Sign Clarity Through Design and Placement; including removal of existing non-use signage; and
- Signing Inventory and Effectiveness Survey.

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1. INTRODUCTION

An updated way finding/signing strategy was identified as a priority of the Niagara Falls Sustainable Transportation Master Plan (STMP) study. This strategy builds from the Signing Strategy prepared as part of the 1998 Transportation Master Plan (1998 TMP).[2] It identifies current issues in the community related to various aspects of route signs, and provides a strategy for updating, removing and adding relevant signs based on the *Transportation Beyond Tomorrow 2031* recommended network. The recommended network is discussed in two separate working papers, titled "Modelling" and "Evaluation of Proposed Road Improvements", both of which contribute to this STMP study.

The purpose of the wayfinding/signing strategy is to outline a recommended plan that provides clear direction and information to all City travellers. It is important to note that a wayfinding strategy is not limited to posted signs, which is a traditional way for directing vehicle traffic to destinations. Where the past signing strategy focussed on the road user (primarily auto users including visitors, commuters, and commercial vehicles), the current trend to reduce vehicle travel and support active transportation and transit travel modes means that the signing strategy must broaden its scope to improve wayfinding for all travellers regardless of travel mode.

A wayfinding strategy can support and promote use of transit and active transportation travel modes. In addition, the benefit of implementing this wayfinding/signing strategy, in conjunction with the implementation of the STMP recommendations, will be improved economic environment and reduced congestion for residents, and a positive impact to the overall visitor experience.

1.1 PRIMARY ISSUES AND CONCERNS

Myriad agencies were contacted to discuss wayfinding/signing requirements and related concerns. Based on these discussions, the following primary issues and concerns were identified where a cohesive strategy would be of most benefit:

- **Sign clarity.** Clarity of the information on each sign and the size and visibility of signs is a concern, primarily for signs targeted to visitors. Currently there are a number of agencies that post signs of inconsistent colour, size, and content. In addition, the vast number of signs contributes to information overload for both residents and tourists. Designated tourist areas have contributed to significant

[2] *Niagara Falls Transportation Master Plan, Volume 4, Signing Strategy and Detailed Signing Plan, City of Niagara Falls, Regional Municipality of Niagara, Ontario Ministry of Transportation, "Signage Working Plan" prepared by totten sims hubicki associates (TSH) and MM Dillon Limited, July 1997.*

progress in sign clarity; however, there is still some confusion with tourist area designations, such as “Downtown” which technically refers to the City business centre on Queen Street, not the tourist centre along Clifton Hill.

- **Congestion and tourist traffic.** The 1998 TMP signing strategy included a recommendation for addition of variable message signs to address congestion and tourist traffic. The traffic of concern is primarily along the Queen Elizabeth Way (Q.E.W.) and Highway 420, as visitors (particularly summer visitors) travel towards the Falls parking lot at Table Rock by way of the Rainbow Bridge and lower Clifton Hill area. With greater congestion today than in the past 10 years, there is now a recognized need for congestion management. As such, variable message signs are reconsidered in this strategy as a means to manage that congestion. A separate parking strategy will address signs that are required to clearly delineate available parking areas, with the goal of reducing added traffic congestion due to vehicles circulating in search of available parking.
- **Stakeholder satisfaction.** Due to competition, the objectives of each stakeholder are difficult to align under one strategy, primarily when it comes to signs that are perceived to provide an advantage to one stakeholder over another. There is significant effort made in this strategy to recognize potential impacts to stakeholders that may result through the removal of existing signs or addition of new signs.

1.2 PAST STUDIES SUPPORTING NEED FOR WAYFINDING/SIGNING STRATEGY

Prior to completion of the 1998 Transportation Master Plan signing strategy, visitor surveys were conducted in the community (Niagara Falls People Mover Feasibility Study[3]). In that survey, it was found that of the 13% of visitors who indicated that they had difficulty finding their destination, 33% said signs were difficult to follow, and 23% said there was a lack of signs. Road signage, parking and transit must be integrated into a program which forms one component in an effective part of a Transportation Demand Management (TDM) strategy to alleviate congestion, especially through non-structural improvements.

Although a new visitor survey was not conducted as part of the STMP, the above statement still generally applies with respect to the need for an integrated strategy that can alleviate congestion through non-structural improvements. A TDM strategy has been prepared as part of the STMP, and implementation of this wayfinding/signing strategy will contribute to the overall effectiveness of the TDM strategy.

The Public Survey that was completed as part of this STMP update noted that trail promotion and encouraging people to use the trail system could come about through enhanced signage and provision of trail maps. It also recorded that road and highway systems are confusing and signage is inadequate, particularly for tourists.

[3] *ibid, pg. 1.*

2. OBJECTIVES

2.1 STRATEGIC TRANSPORTATION OBJECTIVES

The strategic transportation objectives are oriented in consideration of the governing policies at provincial, regional, and municipal levels. The goals of the STMP (refer to STMP "Goals, Principles and Objectives" working paper) were based on a high level policy framework and include the following:

- **Optimize the Transportation System –** Make the most of what exists; preserve and maximize the use of facilities and services — avoid or defer the need for new infrastructure that does not support the other goals.
- **Promote Transportation Choice –** Provide and maintain a transportation system that offers competitive choices for moving all people and goods in an integrated and seamless manner while minimizing single occupancy vehicle trips.
- **Foster a Strong Economy –** Provide a transportation system that supports the retention of existing businesses and attraction of sustainable economic activity.
- **Support Sustainable Development and Growth –** Provide and maintain a transportation system, in both new and existing areas of the community, which supports sustainable growth and green initiatives.

> *"The goals, principles and objectives reflect a broad vision for the City for an inclusive, thriving and sustainable community. These goals and principles recognize the transportation needs of current and future generations and also the differing requirements of residents throughout the community and the large visitor population. The guiding principles form the foundation for the transportation objectives."*

The objective of the STMP goals is to ensure that the transportation and land use decisions are consistent with the policies and direction of the Regional Growth Management Strategy,[4] Niagara Falls Official Plan,[5] and the Provincial Growth Plan.[6]

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[4] *"Regional Niagara Sustainable Community Policies: Places to Grow/ 2005 Provincial Policy Statement Conformity and Niagara 2031 Amendment", Adopted by Niagara Regional Council May 2009.*

[5] *"Official Plan for Niagara Falls", approved by Minister of Municipal Affairs, October 2003, Amended to January 2010.*

[6] *"Growth Plan for the Greater Golden Horseshoe", Ministry of Public Infrastructure Renewal, 2006. Prepared under the Places to Grow Act, 2005.*

The objectives are prioritized to assist pedestrians, followed by public transit users, smart commuters,[7] and then single occupant vehicles. A supporting objective to the STMP goals is development of a wayfinding/signing strategy that maximizes the use of existing infrastructure and eliminates the need for additional infrastructure through such means as encouraging alternative routes to tourist attractions at congested times and developing high-detail tourist mapping.

2.2 WAYFINDING/SIGNING STRATEGY OBJECTIVES

Network signage encompasses a wide range of transportation and traffic related issues on roads operated by the Province (MTO), Niagara Region, the City of Niagara Falls, Niagara Parks Commission (NPC), and the International Bridge Commission. Through discussion with these agencies it was evident that a philosophy exists where signs in the City of Niagara Falls, regardless of the road authority, are to focus on clarity for the traveller (neither too little nor too much information), from both safety and convenience perspectives.

Based on this philosophy, the specific objectives of this wayfinding/signing strategy have been identified as follows:

1. Introduce a wayfinding strategy for all City travelers, especially for tourists, which promotes the use of transit and active transportation modes and reduces congestion.
2. Remove existing non-use signage or signs that are not generally "used" (i.e. signs considered ineffective at disseminating relevant information, also duplicate or irrelevant signing) to reduce or eliminate confusion and improve clarity.
3. Introduce common sign design, with generic sign sizing, to improve clarity and reduce time required for travelers to interpret a sign.
4. Recommend a process to undertake a regular signage inventory, conduct a signage effectiveness survey, and complete strategy review updates.

One section of the 1998 TMP discussed "Additional Complementary Visitor Information Measures".[8] This component of the overall wayfinding strategy demands significant focus and expansion in the future to meet the first objective noted above.

The additional information measures of the 1998 TMP primarily discussed a tourist information map/brochure, which is a critical piece of the active

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[7] *An example of "Smart Commute", which includes alternate travel modes such as car-pooling, can be found at www.smartcommute.ca. Sourced May 3, 2011.*

[8] *Niagara Falls Transportation Master Plan, Volume 4, Signing Strategy and Detailed Signing Plan, City of Niagara Falls, Regional Municipality of Niagara, Ontario Ministry of Transportation, "Signage Working Plan" prepared by totten sims hubicki associates (TSH) and MM Dillon Limited, July 1997. Pg. 9*

transportation and transit wayfinding strategy; however, additional supporting measures are required, such as:

- Signs that direct vehicles to parking areas.
- On-street information maps that give "you are here" visual detail and either point to the closest transit stop and the cycling and walking trail system, in addition to the nearby attractions, or directly incorporate this information. Further details on a recommended strategy are discussed in **Section 5.1**.
- Transit route and schedule details, for both the People Mover and City Transit, posted at transit stops, bus terminals, and the rail station.
- Walking and cycling (Active Transportation) route information posted at bus terminals, bicycle rental facilities/outposts, and the rail station, including cycling route information for Bike Train[9] users, with directional signs posted at relevant points along the trail network. Bicycle rental facilities,[10] should be located close to parking lots, the rail and bus terminal, and tourist attractions.
- The Niagara Region is preparing a Cycling Map that could be distributed in the same locations as the City's Tourist Map. Future versions of the cycling map should incorporate the signage and wayfinding information described in this document.
- Introduction of "real-time" traffic demand management measures (primarily congestion/detour related information signs).

Although the STMP wayfinding/signing strategy involves an expanded focus on promoting transit and active transportation by considering pedestrian and cyclist needs and looking at signing requirements beyond those required for automobiles, the requirements for signing are still similar to those set out in the 1998 TMP. The appropriate type of wayfinding/signing measures should be provided for the following:

- Directional signing for both auto and non-auto travel modes that leads to "The Falls" and other designated tourist attraction areas, or districts, within which a number of individual tourist attractions may be located;
- Signing for Ontario-bound travelers at the end of the bridges;
- Advisory information on alternate routes to The Falls during congestion, or periods of construction and road closure. Information could be posted to the City's website or VMS (Variable Message Signs); the previous Highway Advisory Radio (HAR) system is no longer in use for this type of information dissemination;
- Directional signing to international bridge crossings for pedestrians and cyclists, where applicable, and automobiles;
- Directional signing for trucks (commercial vehicles), especially to international bridge crossings; and
- Directional signing to the downtown or business district of local communities.

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[9] *Refer to www.biketrain.ca for more information on this service. Sourced May 3, 2011*

[10] *An example of an applicable bicycle rental facility includes BiXi. Additional information can be found at www.bixi.com. Sourced May 3, 2011.*

3. SIGNING STRATEGY ASSUMPTIONS

The following assumptions have been used in the preparation of the signing strategy; most are identical to the 1998 TMP Signing Strategy:

- The status of the Whirlpool Bridge has not changed since 1998, and as a result the two primary international bridge crossings for trucks continue to be the Queenston-Lewiston (Highway 405) Bridge and the Peace Bridge at Fort Erie (Q.E.W.). The Whirlpool Bridge remains reserved for subscribers to NEXUS, a program for pre-approved clearance.[11] Commercial traffic is also restricted from the Rainbow Bridge.
- The Niagara Falls Bridge Commission (NFBC) provided confirmation of the following pedestrian and cyclist usage for the international bridge crossings:
    - The Queenston-Lewiston Bridge does not allow pedestrians; however, it does allow crossing by licensed taxi service. No restrictions concerning bicycles are listed on the Bridge Commission's website or in its printed matter. As of the 2008 cycling season, there does not appear to be any problem, other than slow traffic, for cyclotourists crossing the Queenston-Lewiston Bridge. Previously, some cyclotourists reported they were stopped from using this bridge during heavy periods of construction, but this work has since been completed and bicycles are now allowed. Toll is collected one way, with a $0.50 (US or Canadian currency) toll being levied for a bicycle crossing into Canada. There is no longer a pedestrian walkway on the bridge, and cyclists must ride with live traffic. It is a steeper climb up to the bridge from Lewiston than from Queenston.
    - The Rainbow Bridge allows pedestrian and bicycle crossings. Toll is collected one way, with a $0.50 (US or Canadian currency) toll being levied for a bicycle crossing into Canada. Cyclists must ride with live traffic and cannot use the pedestrian walkway on this bridge for passage. The walkway is strictly designated for pedestrians only.
    - Whirlpool Bridge is a Nexus only crossing. As such, both bicycle and pedestrian traffic are prohibited on this bridge, even if the user has a Nexus card. Only automobile traffic is permitted at this crossing, and pedestrians/cyclists should use the Rainbow Bridge as an alternate location to cross the Niagara River.
- The designated tourist areas or "districts" identified in the 1998 TMP signage strategy are unchanged and will continue to be signed.
- The signage approach for The Falls will continue to direct vehicles along the primary route, Highway 420, with Stanley Avenue providing

[11] http://www.niagarafallsbridges.com/which_bridge.php3, *sourced May 3, 2011.*

an alternate route. This approach is satisfactory for most time periods; however, when congestion increases to a certain level, principally on summer and holidays weekends from May to September, alternate (diversion) signage will be provided (through variable message signs), rerouting traffic to McLeod Road as a alternate access to the Falls.

- Any non-tourism oriented signing on provincial highways must be developed in concert with MTO. While recommendations for provincial highway signage are included in this report, MTO, as owner of the provincial highways, has taken and will take the lead in defining the approving revisions to provincial highway signage;
- The Niagara Region Sign By-Law will be followed, as applicable;
- NPC roadways are "Controlled Access Highways", and as such are subject to the Public Transportation and Highway Improvement Act (the Act), R.S.O. 1990, Chapter P.50, Part II – Controlled Access Highways. As such, any directional signs on NPC lands that lead to the Q.E.W. of Highway 420 are to follow Section 38 of the Act and previous sign strategy, such as maintaining white text on a blue background. NPC is in the process of updating the NPC Sign Manual for NPC signs and signs that fall within Section 38 of the Act.
- Directional signs leading to the Q.E.W. and Highway 420 will comply with Section 4.2.3 of the Ontario Traffic Manual, Book 8;
- Basic provincial policies/standards must be adhered to regarding the design, locations and implementation of non-tourism oriented signing; and
- Directional signing will need to be developed in conjunction with Canadian Tourism Oriented Directional Signs (TODS) Ltd., MTO and Ministry of Economic Development, Trade and Tourism (MEDTT).

4. EXISTING CONDITIONS SURVEY

A limited assessment of the existing posted signs that are directed at auto traffic was conducted at the start of this assignment. The objective of the assessment was to gauge the level of compliance with the 1998 TMP Signing Strategy.

The City completed a 2003 Tourist Destination Sign Inventory. This inventory was used as a compliance check against the 1998 TMP Signing Strategy. Any sign placement/existence that could not be confirmed through the 2003 Inventory was checked using Google Maps™. Any signs that could not be confirmed through either the 2003 Inventory or Google Maps™ were checked in the field.

The existing conditions survey confirmed high compliance with the 1998 TMP Signing Strategy, and provides a base from which to build the 2031 STMP wayfinding/signing strategy.

5. RECOMMENDED WAYFINDING STRATEGIES

In the past, the greatest challenge towards creating a comprehensive signing strategy was conflicting stakeholder objectives. Significant progress has been made since the creation and subsequent implementation of the 1998 TMP Signing Strategy.

The STMP Signing Strategy takes into account residents, tourists/visitors, and commercial vehicles. Based on the four strategy objectives discussed in Section 3, the recommended strategies to meet user requirements are discussed in the following sub-sections.

The first of those strategy objectives was divided into two separate categories, discussed below in sections 5.1 and 5.2 as promoting transit/active transportation, and divert/manage congestion, respectively. Strategy objectives 2 and 3, improving clarity/sign design, are combined below in section 5.3. Section 5.4 discusses signing inventory and effectiveness surveys. Section 5.5 covers additional sign requirements beyond those noted in the four strategy objectives.

5.1 STRATEGIES THAT PROMOTE TRANSIT AND ACTIVE TRANSPORTATION AND REDUCE CONGESTION

Is it time to make a shift in the mindset and philosophy that drives the need for directional signs? Directional signs that are posted for vehicles to all City attractions encourage a driver to stay in his or her car and drive to each attraction. Directional signs that lead visitors to park their vehicles can encourage use of transit and active transportation modes; however, this approach to signing/wayfinding requires significant support through complementary methods.

The following is presented as one example of signing and wayfinding methods geared towards pedestrians and transit users. The Legible London (U.K.) program was completed by AECOM and was produced to create a step change improvement in the information available to pedestrians. The challenge was to create maps linking rail and bus services. The success of the program was dependant on pedestrian signing, colours and contrast, and mapped features.

Pedestrian signing was produced and situated where people could take their time to understand their surroundings. The placement of the signs allowed the movement of other pedestrians to be uninterrupted by the new way finding figures. These wider signs included directional information along with a walking map displaying the key features within a five minute walk in any direction.

Where the availability of space was not as abundant, taller narrower signs were used. The sign height allowed them to be easily spotted from a distance and the information available would not cause pedestrians to stop and clutter sidewalk areas. The unique signing logos notified pedestrians and worked in concert with the larger directional maps to assist in wayfinding to key sights and features. Each of the signs produced in the wayfinding project were designed using similar colors and logos to assist pedestrians by association.

Sign preparation also included the following considerations:

- **Heads-up Mapping** – To assist pedestrians understand their surroundings, maps were produced which were rotated to match the direction of the user, rather than having the traditional north at the top. The objective of this was to eliminate trying to discover which direction the street presented was running.
- **Accessibility** – Detailed information was presented on the maps regarding pavement widths, steps, and pedestrian crossings. This information was valuable to the visually impaired and users with limited mobility.
- **Timing –** By using Time as the scale of the map rather than distance, pedestrians are easily able to gauge the nearness of their location to surrounding features.
- **3D Buildings –** Since the scaling of the maps were designed to display a smaller area, the level of detail can increase. By using 3D buildings, users who have difficulty finding their locations will have more landmarks to reference.

- **Planner Map –** The scaling of the planner map was designed to reflect a 15-minute walk. The maps were drawn buffering the users' current location by a 15-minute circle highlighting the features and major streets.
- **Finder Map –** Similar to the planner map the extents of these maps are designed to guide pedestrians up to five minutes from their current location.
- **Integrated Transport –** The maps unified the various means of transport. Pedestrians could easily arrive at their destination using a combination of public transit, "Tube" Station (i.e. metro or subway station), or taxi.

The Legible London Project produced positive results amongst stakeholders and tourists. Users were more inclined to walk and explore unfamiliar areas with the help of the Legible London information. A 1000-person user survey conducted produced results such as:

- The number of pedestrian getting lost dropped by 65%;
- 83% of users said Legible London helped them find their way; and
- 87% support the roll out of the system across London.

Another point to keep in mind, especially in future updates of the wayfinding plan, is to look for ways to take advantage of available and emerging technology. For example, it is becoming quite common for people to use their handheld device to receive immediate, on-the-ground information and directions. It might be feasible to one day soon have a wayfinding application to replace and/or supplement wayfinding signage. Another possible scenario is that handheld devices could be used to communicate with wayfinding signage to provide interactive audio and/or text information and directions, similar to self-guided audio tours widely used today in museums.

5.1.1 Tourist Information Map

It is recommended that the City, in conjunction with the Tourist Industry and NPC, focus on creating a City Tourist Information Map that clearly marks the Tourist Districts (discussed on **Section 5.1.2**) and potentially lists the major attractions in each district as well as the heritage/historical points of interest. A map that combines Tourist District information with parking, transit (including the People Mover System), and active transportation information, would be of greatest benefit to visitors. The maps should be made available

for distribution at bridge crossings, tourist information centres, City hall, bus and rail terminals, and major attractions, as well as posted on the City website.

Selecting one objective for the map, such as a focus on moving visitors through the City to the major attractions on transit or by active transportation modes, will assist with creating a clear, easy to decipher map that includes only relevant details.

5.1.2 Tourist District Signage

Due to the multiple individual tourist attractions in Niagara Falls and the practical impossibility of providing signage for each one, the 1998 TMP Signing Strategy identified that the greatest benefit to the community and visitors, and only feasible approach to creating a signing strategy, was to adopt a common goal and unified approach to dealing with tourist signage. The agreed unified approach that was adopted involved designated tourist areas, where each tourist area would contain a number of tourist attractions. The approach was consistent with other signing strategies previously prepared by the City of Niagara Falls (i.e. Tourism Master Plan).[12]

The following eight **"Tourist Districts**" for guide signing were identified in the 1998 TMP Signing Strategy and generally remain the same for the STMP Wayfinding/Signing Strategy:

- Chippawa
- Clifton Hill
- Fallsview Boulevard
- Lundy's Lane
- Marineland
- Queen Street/Downtown
- The Falls
- Whirlpool

The one notable change in designations is "Queen Street/ Downtown", which was previously named "Downtown". To improve clarity, "Queen Street" has been added to the "Downtown", as some people refer to the Clifton Hill tourist area "Downtown". The actual Central Business District (CBD) and historical Downtown is located in the Queen Street area. Also, "Fallsview Boulevard" was previously referred to as "Fallsview". The 1998 TMP recommended that the Fallsview name be modified as it was a potentially misleading name, giving the impression that it is the primary spot from which to view the Falls.

[12] *Niagara Falls Transportation Master Plan, Volume 4, Signing Strategy and Detailed Signing Plan, City of Niagara Falls, Regional Municipality of Niagara, Ontario Ministry of Transportation, "Signage Working Plan" prepared by totten sims hubicki associates (TSH) and MM Dillon Limited, July 1997. Pg. 5.*

The Tourist Districts are still endorsed by the staff of the City of Niagara Falls and by the various BIA's. The strategy for signing Tourist Districts from the perspective of signing for auto users remains essentially the same as in the 1998 TMP, although new requirements for sign design and placement are introduced in this updated strategy (refer to **Section 5.3**).

Table 1, following page, includes the most recent version of each Tourist District logo, where available, plus several additional logos. Proposed signage maps include either the logos or alternately a text identifier where a logo is not yet available for use.

Table 1 – Tourist Areas and Other Designated Logos

Tourist Area	Logo and/or Text
Chippawa	Chippawa Tourist Area
Clifton Hill	Clifton Hill
Fallsview Boulevard	FALLSVIEW BOULEVARD IT HAPPENS ON THE BOULEVARD
Lundy's Lane	Lundy's Lane WWW • LUNDYSLANE • COM
Marineland	MarineLand
Queen Street, Downtown	Queen Street DOWNTOWN, NIAGARA FALLS ***Note:** At the time of report writing, the Queen Street/Downtown logo was not formally adopted by the Downtown BIA; this logo is still under review and will be finalized and approved at a later date.

Tourist Area	Logo and/or Text
The Falls	
Whirlpool	
Other Logos	**Logo and/or Text**
Bridges	(insert name of bridge) Bridge to USA
Greater Niagara Circle Route	
Wine Route	
Niagara Nature Trails	
Niagara River Recreational Trail	

In general it is recommended that as much as possible, no new signs be posted to direct auto users to the Tourist Districts, as additional signs will contribute to information overload and detract from the visual impact of the City. In particular, there are no additional road signing requirements for the following tourist areas:

- **Chippawa** – Continues to be signed on the Q.E.W., City and Regional roads as a local community destination.

- **Fallsview Boulevard** – No additional signing requirements.
- **Lundy's Lane** – Signs for Lundy's Lane exist on Highway 420 and the Q.E.W., both southbound and northbound, and are complimented by the appropriate signing on the City and Regional roadways. Signage for Lundy's Lane is critical as there is no direct connection to the Q.E.W. or Highway 420.
- **Whirlpool** – No additional signing requirements.

With respect to proposed signs on the Q.E.W., it is recommended that additional tourist district logos be incorporated onto existing signage where feasible, rather than adding entirely new signage.

Variations to the 1998 TMP strategy for signing Tourist Districts are noted below, and are shown in **Figure 1 (Appendix A)**. Any signs shown along the Q.E.W. are subject to CTODs requirements and approval, and the location of the proposed sign may change from that shown in **Figure 1**.

- **The Falls** – As a primary tourist district and tourist attraction, ease of access is a primary concern. For the Q.E.W. southbound and northbound, primary tourist signing for Niagara Falls should continue to be routed along Highway 420. Primary tourist signing for The Falls should continue to be routed along Highway 420 for Q.E.W. southbound and along McLeod Road for Q.E.W. northbound (to take advantage of the Rapidsview parking lot south of Queen Victoria Park).

  It was previously identified that at certain times during the summer, and particularly during the weekend peak periods, the "entry" to the Park and the primary tourist area is congested with vehicles often backing up on Highway 420 to a point west of Stanley Avenue. The access to the Rainbow Bridge to the U.S.A. is one source of congestion along Highway 420, and often vehicles turn on to Stanley Avenue to access the Falls and avoid this congestion. There had been a perception that congestion was beneficial to the business community, despite the frustration that was actually felt by visitors and by residents. Perception has slowly been changing, and a "real time" traffic management system has become a much more acceptable traffic management solution in light of the current congestion level. Discussion of a real-time traffic management and signing plan for the area is found in **Section 5.2** of this report.

- **Queen Street/Downtown** – The primary change is to the designated tourist area logo. As there has been some confusion as to the location of Downtown, it was determined to add "Queen Street" text to clarify that Downtown refers to the Central Business District and historic City of Niagara Falls Downtown in the Queen Street area. There have been multiple instances where the Clifton Hill area is referred to as "Downtown", and although it is a primary

tourist area and shopping district, this reference is a misnomer. Aside from the change in name and the appearance of the logo, some adjustments have been made to sign placement (see **Figure 1)**, primarily a recommendation to sign this area from the Q.E.W.[13]

- **Marineland** - Continues to be a significant traffic generator within the community (and Niagara Region) and patrons are directed to the site via several major routes including the Q.E.W. to McLeod Road, primarily from the Q.E.W. north of McLeod Road. Appropriate signing is available on local roadways within the City to direct visitors to Marineland. The level of signing provided for this facility reflects its importance to the economic viability of the community. Additional signs are shown in **Figure 1**.

- **Clifton Hill** - Visitors are directed to this district through signing on the City, Regional, and the Provincial highway system. One additional sign has been added to the network, as shown in **Figure 1**.

5.1.3 Parking Signage

The draft proposed Parking Strategy, to be completed as a separate item from the STMP, noted that the majority of tourist traffic enters the City via Highway 420 or the Rainbow Bridge and navigates towards the Falls through the congested lower Clifton Hill area. Traffic then reaches the Table Rock parking lot, and if the lot is full, vehicles circulate within the Park searching for alternate parking. When complete, the Parking Strategy will address signing related to parking. Regardless of the location of the parking lots, one goal is to direct passenger vehicles to park their vehicles and travel throughout the City by transit (i.e. People Mover System), and/or use Active Transportation modes.

To support this goal, it will be imperative to provide adequate signage to direct motorists to either the parking structures or parking lots with available public parking space. For example, NPC notes that once the Table Rock parking lot is at or nearing capacity, vehicles should be directed to the Rapidsview parking lot. Although it is not feasible to sign every parking lot in Niagara Falls, well-placed signage, especially signs with real-time information on currently available parking space, could improve traffic circulation and reduce congestion. It is recommended that variable message signs (VMS) be used at principal entry routes into the City including the Q.E.W. and the Rainbow Bridge.

[13] *As noted in **Table 1**, at the time of report writing, the Queen Street/Downtown logo has not been formally adopted by the Downtown BIA; this logo is still under review and will be finalized and approved at a later date.*

Although directional parking signs will not be present on the Q.E.W or Highway 420, parking signage can be located near Roberts Street and Stanley Avenue, depending on the selected locations for directing vehicles to municipal parking; this would accommodate general non-congested traffic conditions.

During congested periods the proposed VMS on Q.E.W. directs motorists to take an alternate route to The Falls on McLeod Road. From McLeod Road people will have more than one option for parking. East of Drummond Road the signing options will include moving people south on Marineland Parkway or north to parking available on Portage Road. All signed parking facilities should be coordinated with the People Mover routes.

It is also important to consider accessibility between parking areas and key tourist attractions to provide complete trip integration. Appropriate wayfinding/signage for pedestrians and other users should be incorporated into a future signing strategy and the design of parking areas.

5.1.4 On-Street Information Maps

On-street information maps give "you are here" visual detail and either point to or directly incorporate information on the closest transit stop and the cycling and walking trail system, in addition to the nearby attractions. An example of an on-street information system was provided at the beginning of **Section 5.1.**

An on-street information system promotes walking often just by removing the fear of getting lost, and can even assist cyclists with wayfinding for the same reason. Information on the directional signs could include distance and average walking time information.

5.1.5 Transit Signage/People Mover Information

Figure 1 identifies locations for signage directing motorist to the adjacent GO Station and VIA Station. Some of the proposed signs would require MTO approval prior to posting. Two of the signs for GO and VIA located along the Niagara Parkway are intended for tourists. The Bike Train, in particular, has potential to bring in tourists that could need directional assistance in returning to the train at the end of their sightseeing excursion. Existing and proposed sign placement should be reviewed by GO/VIA.

The wayfinding signs for pedestrians and cyclists could incorporate the GO Station and VIA Station locations as well as the People Mover system routes. Other useful information that supports Transit route and timing information (particularly for the People Mover) should be posted at transit stops, bus terminals, and the rail station.

5.1.6 Signage for Active Transportation

Appropriate signing will be important to support the implementation of the Cycling and Walking (Active Transportation) route plan. Relevant information that is useful, particularly for tourists but also for locals, includes:

- Walking and Cycling route information posted at bus terminals, bicycle rental facilities/outposts and the rail station, including cycling route information for Bike Train users, with directional signs posted at relevant points along the trail network.
- The Niagara Region is preparing a Cycling Map that could be distributed in the same locations as the City's Tourist Map.
- Directional signing for the international bridge crossings for pedestrians and cyclists, including where pedestrians and cyclists are not allowed to cross these bridges. Existing direction/ information signs for cyclists include the follow:
  - Rainbow Bridge – there is signage at the pedestrian turnstiles indicating that bicycles are not permitted on the walkway – it is for pedestrians only. It informs cyclists that they must travel in the auto lanes of the bridge with live traffic.
  - Whirlpool Bridge – there is signage advising that Whirlpool Bridge is a Nexus only crossing and that cyclists are not permitted and must cross at Rainbow Bridge.
  - Queenston-Lewiston Bridge – there is signage to inform the cyclists that they must cross the bridge with the live traffic.

Signing for commuters generally has a different focus, as commuters are often familiar with their usual route. Good visibility of street signs, including street and trail names is important. At crossroads along off-road routes, arrow signs that point in directions to major streets or destinations would be useful in providing directional assistance.

The Niagara Regional Bicycle Network Signage and Wayfinding Pilot Project has developed specific signs to be used along the cycling routes, and examples of these signs are included in **Appendix B**.
The Active Transportation working paper prepared as part of the STMP also discusses applicable signs and route details for the City's active transportation (walking and cycling) network.

5.1.7 Signage for Public Gathering and Historical/Heritage Locations

With appropriate signage the following list of locations would be better identified for residents and visitors alike:

- Niagara Falls History Museum
- Niagara Falls Farmer's Market (currently Silvia Place Market)
- Willoughby Historical Museum Drummond Hill Cemetery (a national heritage site)

Minimal posted signs should be used for directing visitors to these locations, rather a well-organized and clear "tourist map" should be developed and readily available for anyone to collect at common arrival facilities, like information booths, all tourist attractions, bus and rail stations, bridge crossings, and the City website. Refer to **Section 5.1.1** for additional information on a Recommended Tourist Map.

The introduction of on-street maps for pedestrians would assist with directing visitors to the above locations (refer to **Section 5.1.4**) and work towards eliminating the need for printed maps.

5.1.8 Special Event Signage

Specific signage for tourist events that will take place over multiple years is a new component of the signing strategy. Although only one future long-term event and one annual event have currently been identified, there is a need for a strategy to direct people to event locations. The one currently identified long-term event is the 1812 War Museum event to take place from 2012 to 2014; the annual event is the Winter Festival of Lights.

The City website http://cityhall.niagarafallsevents.ca/about.php provides a day by day searchable listing of City events. It may be possible to include a link to this site, or through another City website link, that provides information on long-term events.

If properly positioned, the on-street tourist mapping could direct people to a permanent location(s) where long-term events, and other information of interest to tourists and residents, could be posted. The permanent posting location(s) would be best suited in high-traffic tourist locations. This primarily provides information to people who are walking through the City.

Should a permanent parking structure be constructed and operated by the City, there may be an opportunity to provide event details (including walking directions) to motorists through a permanent notice board posted at the pedestrian entrance/exit to the parking structure.

It is critical that all special event signage be removed at the end of the event.

5.2 STRATEGIES THAT DIVERT AND MANAGE CONGESTION

5.2.1 Variable Message Signs (VMS)

At certain times there is heavy congestion along Highway 420, which is the major route in and out of the City and the route tourists are directed to take to access The Falls. During these congested periods, drivers experience significant delays. It is proposed that a system of variable message signs (VMS) be implemented along the Q.E.W. to manage congestion on Highway 420 by diverting traffic once congestion reaches a specific level

(congestion level to be defined). For example, traffic could be diverted to use McLeod Road as an alternate route to The Falls. A similar recommendation was previously made in the 1998 TMP.

Figure 2 (Appendix A) shows the location of three proposed VMS. The VMS locations are based on information provided by MTO with respect to their Advanced Traffic Management System (ATMS) study, as discussed in the following section. General sign messaging along the Q.E.W. should be short and, depending on the available character spacing, could display messages such as that shown in the three examples on the right.

Each VMS is on a fixed support and existing displays contains amber text. Future sign installations (new and replacement installations) may include full colour that would allow for use of colour graphics and multilingual messages.

Both the MTO COMPASS system and Intelligent Border Crossing Action Plan, discussed in the following section, may provide an opportunity to combine monitoring and information dissemination for border crossing with other congestion information for both commercial and passenger vehicles (including tourists) using the same ATMS and VMS.

5.2.1.1 MTO Advanced Traffic Management System (ATMS)

Currently, MTO is completing a study that looks at ATMS [14] along the Q.E.W. corridor in the area of Niagara Falls (MTO Study). The MTO Study draft report recommends inclusion of VMS along Q.E.W. and Highway 420.

The data analysed for the MTO Study drew the following conclusions:

- "A majority of the tourist traffic originates from the north (i.e. Greater Toronto and Hamilton Area)
- Relative to other travel origins, there is not as much tourist traffic originating from the Fort Erie area, indicated by the relatively similar AADT and SADT counts for the segment south of McLeod Road."[15]

This data was used to assess need for ATMS components along the corridor.

[14] *"ATMS Feasibility Study and Preliminary Design Report: Q.E.W. – Mountain Road to McLeod Road and Highway 420 – Q.E.W. to Stanley Avenue" G.W.P. 2165-05-00, November 2010 – Draft.*

[15] *ibid, pg. 15.*

Existing Q.E.W. ATMS

There is an existing ATMS system that was deployed on the Garden City Skyway and the Thorold Tunnel to manage traffic during a multi-year rehabilitation project. A traffic operations centre (TOC) was also established nearby to operate the ATMS. After completion of the rehabilitation project, the components were retained for traffic management purposes, although the Arterial Advisory Sign and Highway Advisory radio subsystems were not actively used post project completion, and the TOC was transferred from St. Catharines to Burlington. At part of the system, two full size VMS were constructed along the Q.E.W.:

1. Niagara Falls bound, in advance of Highway 406;
2. Toronto bound, in advance of Thorold Stone Road.

A Closed Circuit Television Camera (CCTV) system is used to monitor traffic conditions and to verify and manage traffic incidents. Vehicle detection systems are used to capture traffic flow and composition data. The VMS (currently LED – Light Emitting Diode displays) provide real-time traffic information of upstream conditions and incidents.

Action Plan for Intelligent Border Crossings

The Transport Canada/MTO Intelligent Border Crossing project identified ITS technologies that could be implemented to provide for more efficient movements of goods and people between Canada and the USA within Ontario. As part of this project, short-term initiatives would provide traveller information using VMS at the Q.E.W./Highway 420 interchange, and would have traffic conditions monitored at Thorold Stone Road.

MTO COMPASS System

The Intelligent Border Crossing Action Plan looks to an expansion of the MTO COMPASS system along the Q.E.W. and Highway 420, which includes CCTV, vehicle detection, VMS, power and communications, in addition to Automated Incident Detection along the Q.E.W. from Highway 406 to Highway 420, and on Highway 420 between Q.E.W. and Stanley Avenue.[16]

5.2.1.2 MTO Recommended ATMS and Corresponding VMS

Corridor 1: Q.E.W. from Mountain Road to the Highway 420 Interchange

A new VMS sign in the southbound direction may be considered to provide more border crossing related information to travelers. MTO notes in their study that the purpose of this additional VMS would be “to provide border crossing information rather than recurring traffic congestion information”;[17] however, “the sign could also be used for informing travelers of traffic conditions on the Region of Niagara arterial roadways if supporting traffic

[16] *ibid, pg. 24.*
[17] *ibid, pg. 35.*

data collection and monitoring subsystems are implemented by the Region".[18]

The report does not otherwise mention potential to provide alternate route information (e.g. redirecting traffic from Highway 420 to McLeod Road). The size and location of the VMS was not noted in the study, but was referred to future development for a specific deployment strategy.

Figure 2 shows a potential location for VMS for southbound vehicles on the Q.E.W. between Highway 405 and Mountain Road.

Corridor 2: Highway 420 from the Q.E.W. Interchange to Stanley Avenue

ATMS is considered beneficial for this corridor, and a VMS for the westbound direction on Highway 420 was included as a recommended subsystem (roadside pole mounted VMS).

Figure 2 shows a separate VMS recommended for the STMP for eastbound traffic on Highway 420.

Corridor 3: Q.E.W. from Highway 420 Interchange to McLeod Road

The MTO assessment concluded that deployment of a full ATMS system in Corridor 3 is not cost effective for the near future. It was determined that a CCTV subsystem could provide data to assist with analysis of traffic movement in the corridor. This analysis would support future projects to improve traffic management activities on arterial roadways in the surrounding area.

It is understood that a VMS is to be deployed, under a current contract, for northbound Q.E.W. south of McLeod Road. **Figure 2** shows a possible location for this VMS, based on information in the MTO study.

5.2.2 Advisory Signs for Canal Crossings

The implementation of advisory signs for canal crossings should be considered, such as for the Allanburg crossing (a lift bridge). Strategic placement of advisory signs would provide travellers with real-time information on crossing closures (i.e. that a crossing would be closed until an estimated or specific time). Implementation of such signs would require co-ordination with the St. Lawrence Seaway Authority.

Advisory signs would assist with reducing congestion at the closed canal crossing and allow motorists to re-route to an open crossing while they are passing critical routing decision points.

[18] *ibid, pg. 35.*

This type of advisory sign would be relevant in the Thorold Master Plan since any such signage would be placed beyond the City of Niagara Falls boundary.

5.2.3 Commercial Vehicles and International Bridge Crossing

Commercial vehicles entering Niagara Falls with the intention of border crossing have defined signage and routing throughout the Municipality. As shown on **Figure 2** (and at left), updated signage installed on the Q.E.W. for southbound vehicles, south of Mountain Road indicates that trucks are not permitted on bridge to USA via Highway 420.

Following this "No Trucks" sign is another sign indicating that trucks should be travelling to the USA via the Q.E.W. (also shown on **Figure 2,** and at left).

If trucks do enter Highway 420 eastbound with intentions of crossing into the USA, an alternate route sign is present between Drummond Road and Portage Road diverting trucks north on Stanley Road with the intention of using the Queenston-Lewiston Bridge.

For commercial vehicles travelling southeast on the Q.E.W., there is signing to inform trucks to avoid the Rainbow Bridge; however, NITTEC (Niagara International Transportation Technology Coalition) has requested that additional signs be placed at each of the major intersections along Stanley Avenue from Marineland Parkway to Highway 405. These additional signs are marked on **Figure 1**. For purposes of this signing strategy, the directional signs to the international bridges are marked on **Figure 1** as follows (directional arrow changes as required):

Queenston-Lewiston Bridge	Rainbow Bridge	Whirlpool Bridge
		

5.2.4 Border Wait Time Advisory System[19]

MTO is currently developing a Border Wait Time Advisory system to provide information to both passenger and commercial vehicles. The intent would be to provide the latest anticipated wait time at upstream border crossings at key decision points. The information would be provided through purpose built roadside signs. These signs are not shown on either Figures 1 or 2.

[19] *ibid, pg. 52.*

5.2.5 Emergency Detour Routes (EDR)

Emergency Detour Routing (EDR) for the Niagara Region was completed in 2008. Routes marked with yellow signing labelled EDR were placed on defined sections along the Q.E.W. to assist motorist in case of highway closure. These alternative route options were carefully selected to guide motorist through the Region on rural and residential streets, within several of the Niagara Municipalities. Signing route options were taken into account and approved by the Ministry of Transportation, Ontario Provincial Police, and City officials.

The completion of the project resulted in 12 EDR routes signed beginning in Beamsville extending to Lyons Creek Road in Niagara Falls. The signing system utilizes the regional road network so roadways which were not designed for high traffic volumes and trucks are no longer used during highway closures. Niagara Falls has four route options in case of highway closure passing through Niagara Falls.

All route maps are included in **Appendix C**, and include the following:

- Regional Emergency Detour Routes – illustrates the sectional breakdown of the routing system within Niagara Region;
- (Section 9) EDR Signing Between Mountain Road and Glendale Avenue – The indexed zones extend vertically from Glendale Avenue to Lyons Creek Road within Niagara Falls. This figure illustrates the EDR signing and roadways used in the event of highway closure;
- (Section 10) EDR Signing Between Thorold Stone Road and Mountain Road;
- (Section 11) EDR Signing Between McLeod Road and Thorold Stone Road; and
- (Section 12) EDR Signing Between Lyons Creek Road and McLeod Road.

5.3 SIGN CLARITY THROUGH DESIGN AND PLACEMENT

For tourists and residents to get the most out of directional signing, the sign design and placement is critical. The planning and design of an effective signing system can be the cornerstone of a healthy tourist community. Through a combination of aesthetics and commonality a general flow will be more recognizable in the signing system, contributing to the overall wayfinding of the City.

Depending on the location of a sign (which often attributed the sign jurisdiction), and the type of sign, whether regulatory or non-regulatory, there are several resources that are to be referenced for sign design and placement. The *"Manual of Uniform Traffic Control Devices for Canada*

(MUTCDC)"[20] by the Transportation Association of Canada (TAC) is one reference guide. The US version of this document, the MUTCD[21], is more recent and introduced several major changes from its earlier version. TAC is considering publishing an updated version of the MUTCDC. Specific to the Province of Ontario is the Ontario Traffic Manual (OTM) Book 8 *"Guide and Information Signs"*[22]. There is much similar information between OTM Book 8 and the MUTCDC.

Any directional signs on NPC lands that lead to the Q.E.W. or Highway 420 are to follow Section 38 of the Public Transportation and Highway Improvement Act (the Act), R.S.O 1990, Chapter P.50, Part II – Controlled Access Highways. NPC is in the process of updating the NPC Sign Manual for NPCsigns and signs that fall within Section 28.

Directional signs on the Q.E.W. are to be developed in conjunction with Canadian TODS Ltd., MTO, and the Ministry of Economic Development, Trade and Tourism (MEDTT). Signs on Niagara Region roads are to conform to CTODS specifications, and Niagara Region are in the process of developing a new tourism signage policy.

Aside from the section discussing "Placement", the following design practices are taken from the *"VIA Rail Code of Practice Sign Manual".* VIA Rail's design-practice attributes work together in conveying sign messages in the appropriate fashion. VIA Rail's design practice are not applicable for signs that are already specified in one of the previously listed guides (e.g. regulatory signs), or for signs that meet one of the sign categories defined in the previously listed guides.

General

Through clear consistent appearance, messages will have the following properties:

- High contrast between text and background elements;
- Hierarchy of information;
- Standard symbols and messages;
- Large direction arrows; and
- Modular layout of messages.

Logos & Identity

Once logos have been developed and trademarked it is important to match the logo with working background colors. Create a color palette of which the

[20] *"Manual of Uniform Traffic Control Devices for Canada (MUTCDC)", Transportation Association of Canada (TAC), 1998.*

[21] *"Manual of Uniform Traffic Control Devices", US Federal Highway Administration (FHWA), 2009.*

[22] *"Guide and Information Signs", Ontario Traffic Manual (OTM) Book 8, Ministry of Transportation Ontario, May 2010.*

logo can only be put on. Keep in mind color contrast must be adequate between the two colors for readability.

Typography

Tiresias signfont allows for distinction between upper and lower case lettering while containing limited confusing characters. Only certain words are permitted to use strictly uppercase lettering including CAUTION, DANGER, and ATTENTION. For other messages initial lettering can be capitalized followed by lowercase lettering.

With respect to legibility and distance it is recommended that the type size is to follow a general rule of 25mm of capital height for every 7.5 m of viewing distance. However, vehicle velocity can impact this as well. The capital height for speeds up to 30 kph is 68-82mm, changing to 1102-136mm for speeds up to 50kph. The information provided is based on a sign containing up to four messages. As such, sign size often depends on roadway speed with larger signs (i.e. larger font) required for higher speed roadways.

Colour

Six different colors are acceptable for use in Via Rail signing properties and all signs must use the colors within this palette.

Official Language

Signing is to be developed in conjunction with the Canadian Charter of Rights and Freedoms and Official Languages Act. Signing developed for buildings, service areas, and non-public areas may be in English only.

Arrows

Guidelines for arrows include a centred position and appear to be dragging the message.

Pictograms and Symbols

The use of symbols is strongly encouraged and decreases the amount of text that is required on signs. Much like logo design symbols should be created to meet the criteria of colours and contrasts. Symbols should remain consistent between signing.

Layout

Sign layout follows a grid system design which preserves all the design standards. The grid system assures placement, sizing and relationships between elements is maintained.

Placement

Each specific type of sign has a different requirement for placement. Typically, a sign should be place in the most visible location for its intended viewer, with safety and decision sight distance being major considerations. In particular, signs that are placed in a location that is too close to the decision point will be effectively useless, or worse, hazardous, should people attempt to make a last second decision without due consideration for their surroundings.

5.3.1 Removal of Existing Non-Use Signage

"Non-use signage", in this paper, refers to signs that are not generally "used" and this includes any and all signs that are considered ineffective at disseminating relevant information (including signs that are too small and deemed illegible), and also includes duplicate/irrelevant signing.

Although sign clutter is a concern in any location for reasons of clarity, no signage removal for existing signs is currently recommended. It was noted during the review of existing signage that several signs proposed in the 1998 TMP Signing Strategy were consolidated, where possible.

5.4 SIGNING INVENTORY AND EFFECTIVENESS SURVEY

It is recommended that the City of Niagara Falls continue to update their database of signs. The last data was collected in 2003, and should be updated within 10 years from the previous update. This information will be useful for updating the Signing Strategy on a regular basis.

In general, the Signing Strategy should be updated in concert with the next revision of the Sustainable Transportation Master Plan, or every five years, unless a specific need is identified prior to the STMP update timeline.
A signage effectiveness survey should be incorporated into the next Public Survey and/or visitor survey to be conducted as part of the STMP update. It would be useful to collect data prior to the anticipated STMP update.
It is recommended that a survey target specific feedback from travellers and residents including:

- Signage effectiveness and completeness related to various users and the multiple wayfinding/signing needs and objectives. For example, commuters, recreational users, and commercial operators could be surveyed on the following, as applicable:
    - Tourist Districts and attractions;
    - Pedestrian trails;
    - Cycling routes;
    - Transit, including People Mover, routes, times, stop locations, etc.;
    - Parking – both location and availability;
    - Event signage;

- Bridge crossings; and
- Commercial vehicle routes.

- Sign message(s) - clarity (i.e. are any signs considering confusing) and legibility/design; and
- Sign location(s).

5.5 OTHER SIGNAGE CONSIDERATIONS

There are additional sign requirements beyond those that promote active transportation or reduce/manage congestions. These types of requirements are discussed in the following sub-sections.

5.5.1 Signing Plan For Recommended Network Updates

The following new directional signs will be required upon completion and/or construction of the recommended road improvements noted in the "Modelling" working paper and "Evaluation of Proposed Road Improvements" working paper, should those recommended improvements be approved. Changes to traffic patterns will occur and consequently the currently posted signs will need to be updated in the field:

1. New/Revised Signs will be required for the following three locations, which represent the areas where the road network and current traveller routes will be changed from a signing perspective:
   - Thorold Stone Road extension to Bridge Street.
   - Allendale widening and connection to Stanley Avenue (north of Ferry, south of Dunn).
   - Buchanan/Fallsview widening and realignment (Livingstone – Forsythe).
2. Temporary signing conditions will likely be required for the following two recommended road improvements primarily to inform locals of changes to the existing road network. As these signing requirements are temporary, they are not shown on the detailed signing plan.
   - New Crossing of Q.E.W./Hydro Canal south of McLeod Road (temporary signs for locals only to inform of new route).
   - Stanley Avenue/Marineland Parkway realignment (temporary signs to inform of new turning location/access).

5.5.2 Casino Signage

No specific information was obtained with respect to requirements for additional casino signage beyond what is currently in place today.

5.5.3 Niagara Region

Niagara Region noted that at this time any signage on regional roadways is to comply with the Regional sign specifications (CTODS). Niagara Region, in consultation with the area municipalities, is in the process of developing a

new tourism signage policy. Upon approval, the existing Sign By-Law (approved 1980) will likely undergo amendment to incorporate the new tourism signage policy.

5.5.3.1 Regional Wine Route Signage

The Niagara Region specializes in the creation of world-renowned wines, and has developed a Wine Route that allows visitors a map-guided tour of the wine country **(Appendix D)**.

A complementary signing system is also in place. The Wine Council of Ontario is responsible for any changes, additions, or deletions to signs along the route. If approved, winery specific wayfinding signs are provided by CTODS, and/or the Region. The Wine Route logo, once approved, is installed by the Region along regional roads. The current Wine Route does not occupy any Regional Roads; it follows St. David's Road in the Town of Niagara-On-The-Lake and along the Niagara River Parkway in the City of Niagara Falls.

6. CONCLUSION

There has been significant improvement in the overall wayfinding and signing strategies that have been implemented in the past, and the City of Niagara Falls is well-positioned to implement the strategies noted in this paper. The noted strategies are intended to support the overall goals and objectives of the STMP, and should be reviewed on a regular basis (in conjunction with the next STMP update) to confirm the recommended strategies remain up-to-date and applicable.

TRANSPORTATION BEYOND TOMORROW 2031

Appendix A

Signing Strategy Figures

Figure 1: Additional Proposed Signing

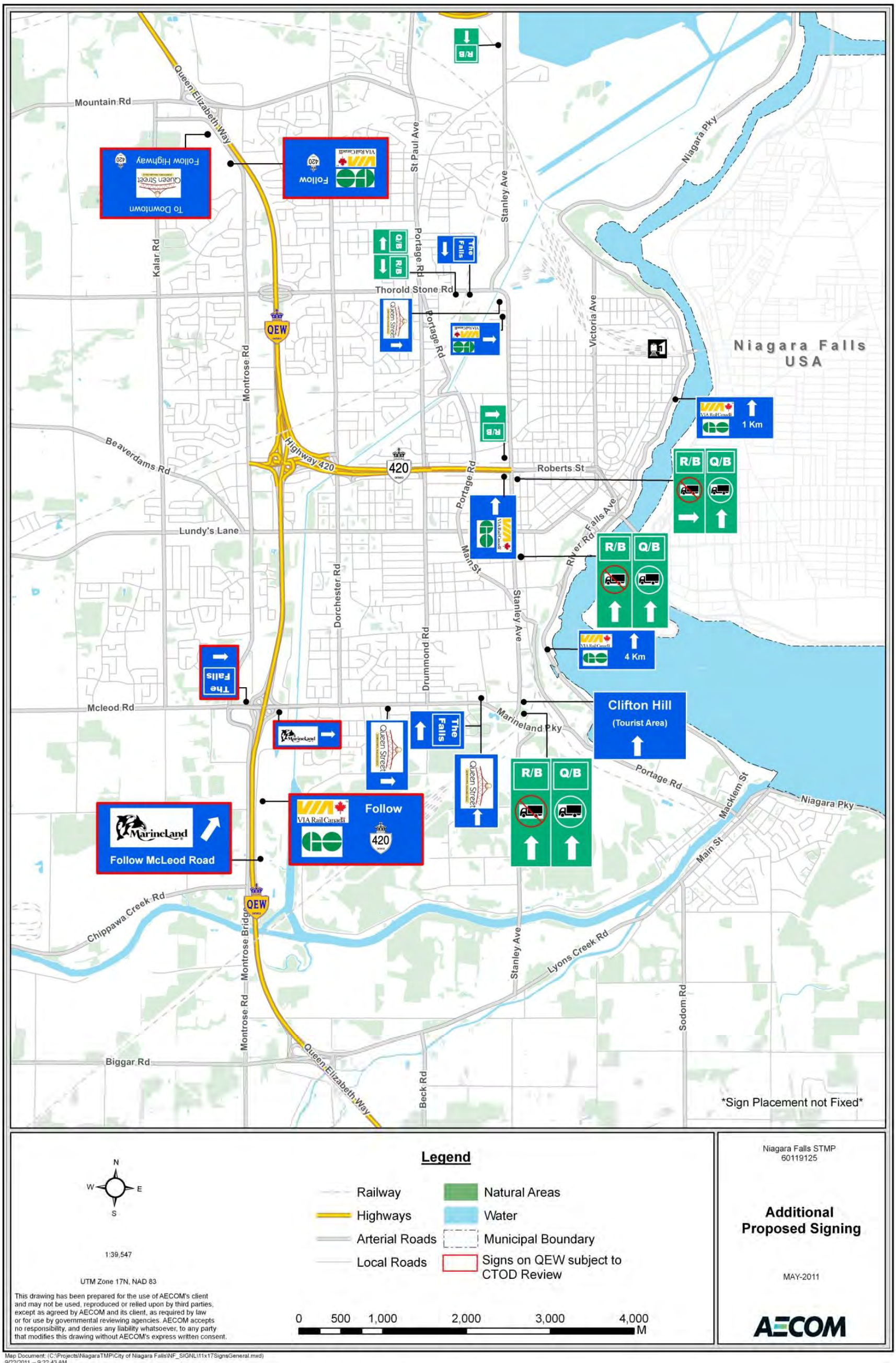
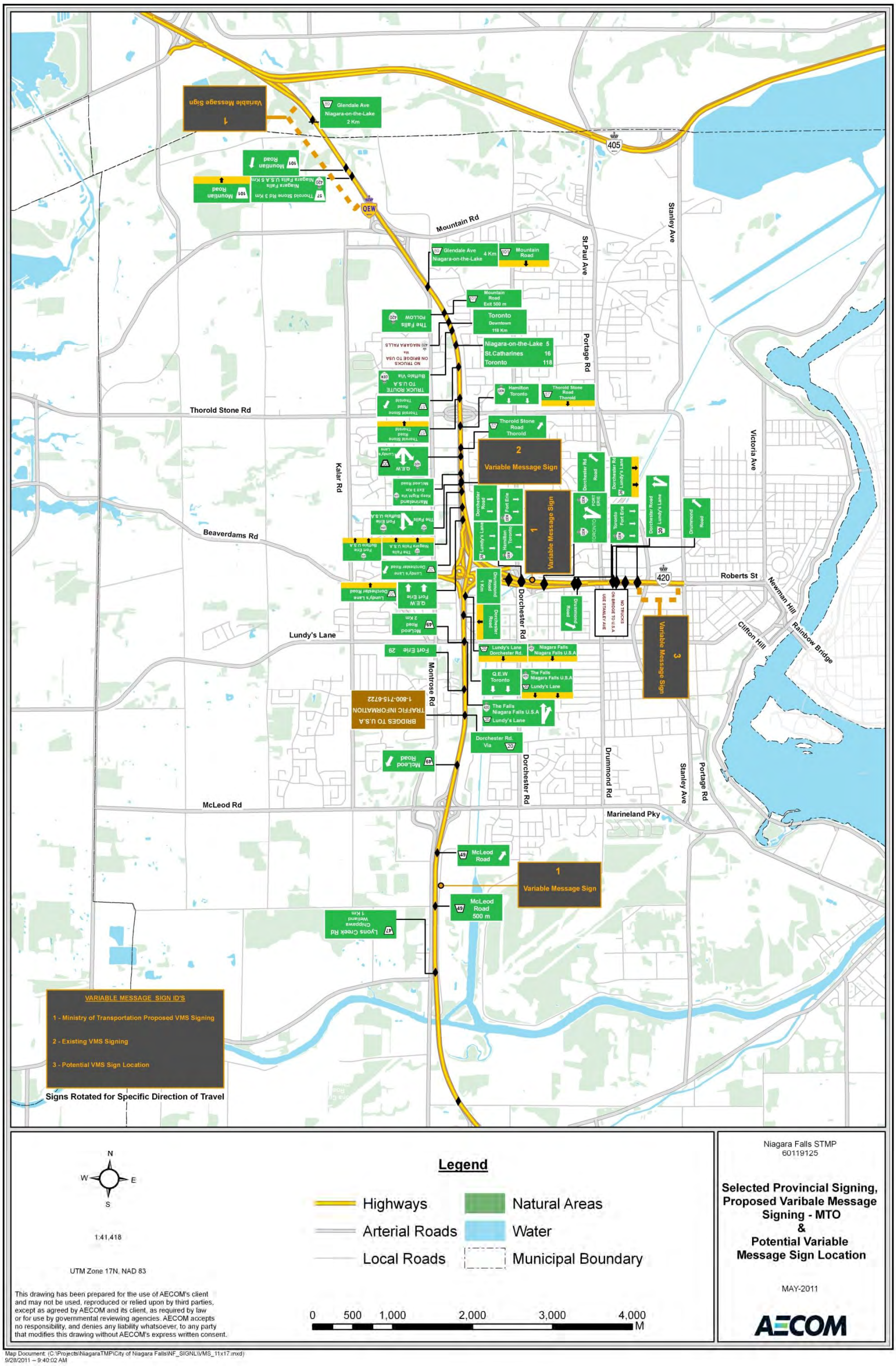


Figure 2: Selected Provincial Signing. Proposed Variable Message Signing – MTO & Potential Variable Message Sign Location



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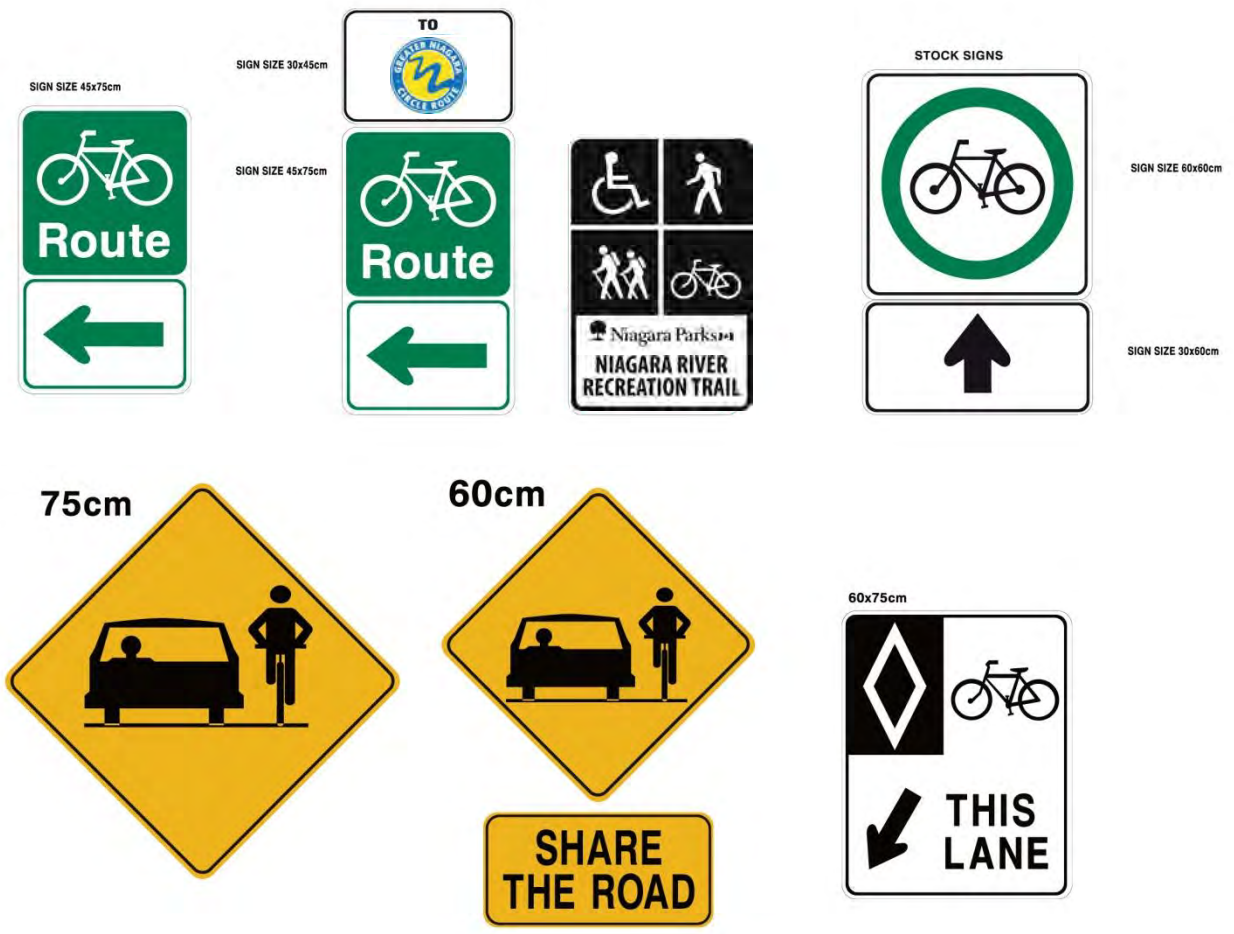
Appendix B

Niagara Regional Bicycle Network Signage and Wayfinding Pilot Project: Sign Images

Figure 3: Niagara Regional Bicycle Network Signage and Wayfinding Pilot Project: Sign Images



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Appendix C

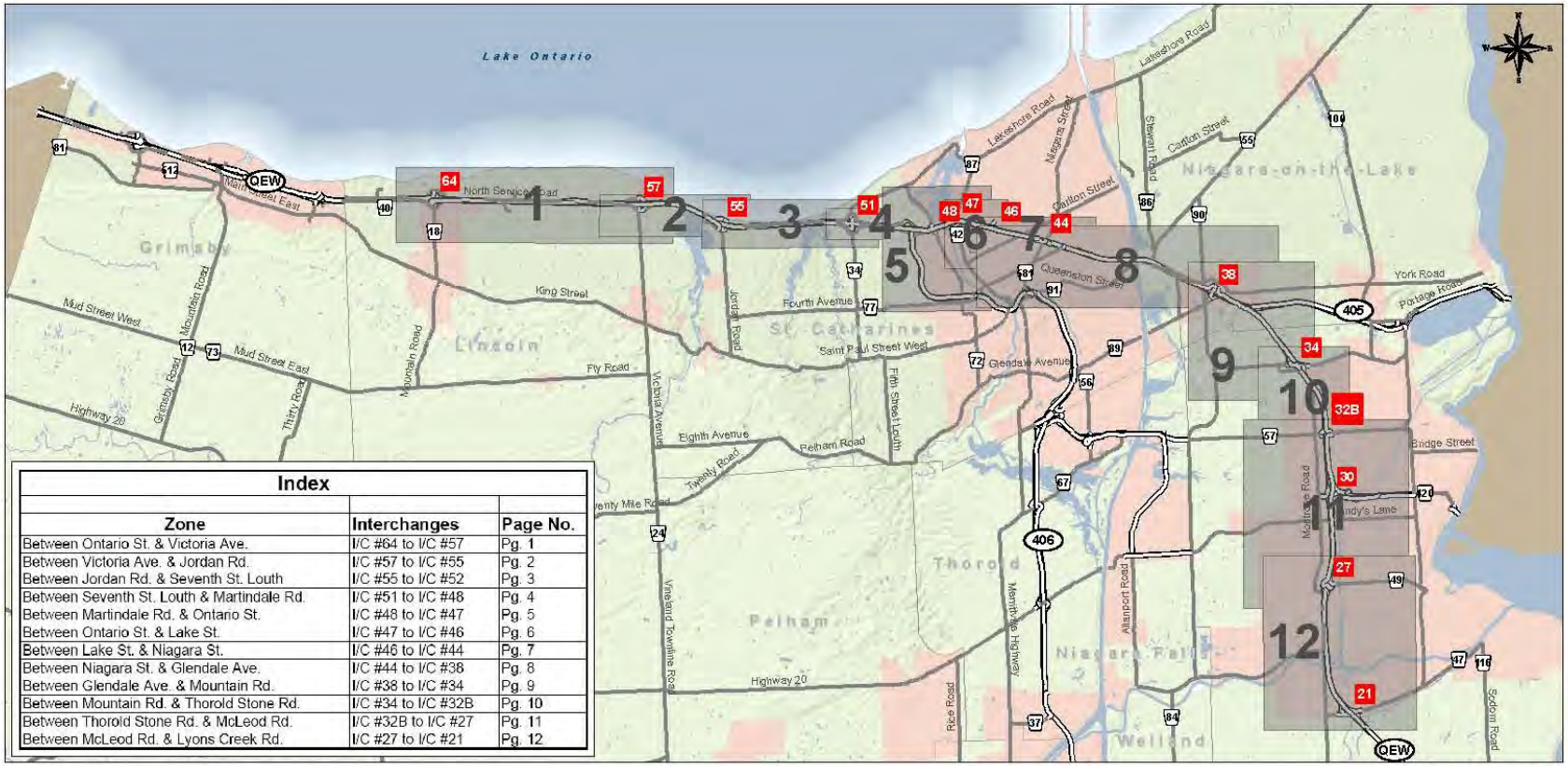
Emergency Detour Route Mapping

Figure 4: Regional Emergency Detour Routing

Niagara Region
PUBLIC WORKS

EMERGENCY DETOUR ROUTES

Queen Elizabeth Way (QEW)



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Zone	**Interchanges**	**Page No.**
Between Ontario St. & Victoria Ave.	I/C #64 to I/C #57	Pg. 1
Between Victoria Ave. & Jordan Rd.	I/C #57 to I/C #55	Pg. 2
Between Jordan Rd. & Seventh St. Louth	I/C #55 to I/C #52	Pg. 3
Between Seventh St. Louth & Martindale Rd.	I/C #51 to I/C #48	Pg. 4
Between Martindale Rd. & Ontario St.	I/C #48 to I/C #47	Pg. 5
Between Ontario St. & Lake St.	I/C #47 to I/C #46	Pg. 6
Between Lake St. & Niagara St.	I/C #46 to I/C #44	Pg. 7
Between Niagara St. & Glendale Ave.	I/C #44 to I/C #38	Pg. 8
Between Glendale Ave. & Mountain Rd.	I/C #38 to I/C #34	Pg. 9
Between Mountain Rd. & Thorold Stone Rd.	I/C #34 to I/C #32B	Pg. 10
Between Thorold Stone Rd. & McLeod Rd.	I/C #32B to I/C #27	Pg. 11
Between McLeod Rd. & Lyons Creek Rd.	I/C #27 to I/C #21	Pg. 12

Public Works Department, Transportation Services

Print Date: July 7, 2008

Figure 5: (Section 9) EDR Signing Between Mountain Road and Glendale Avenue

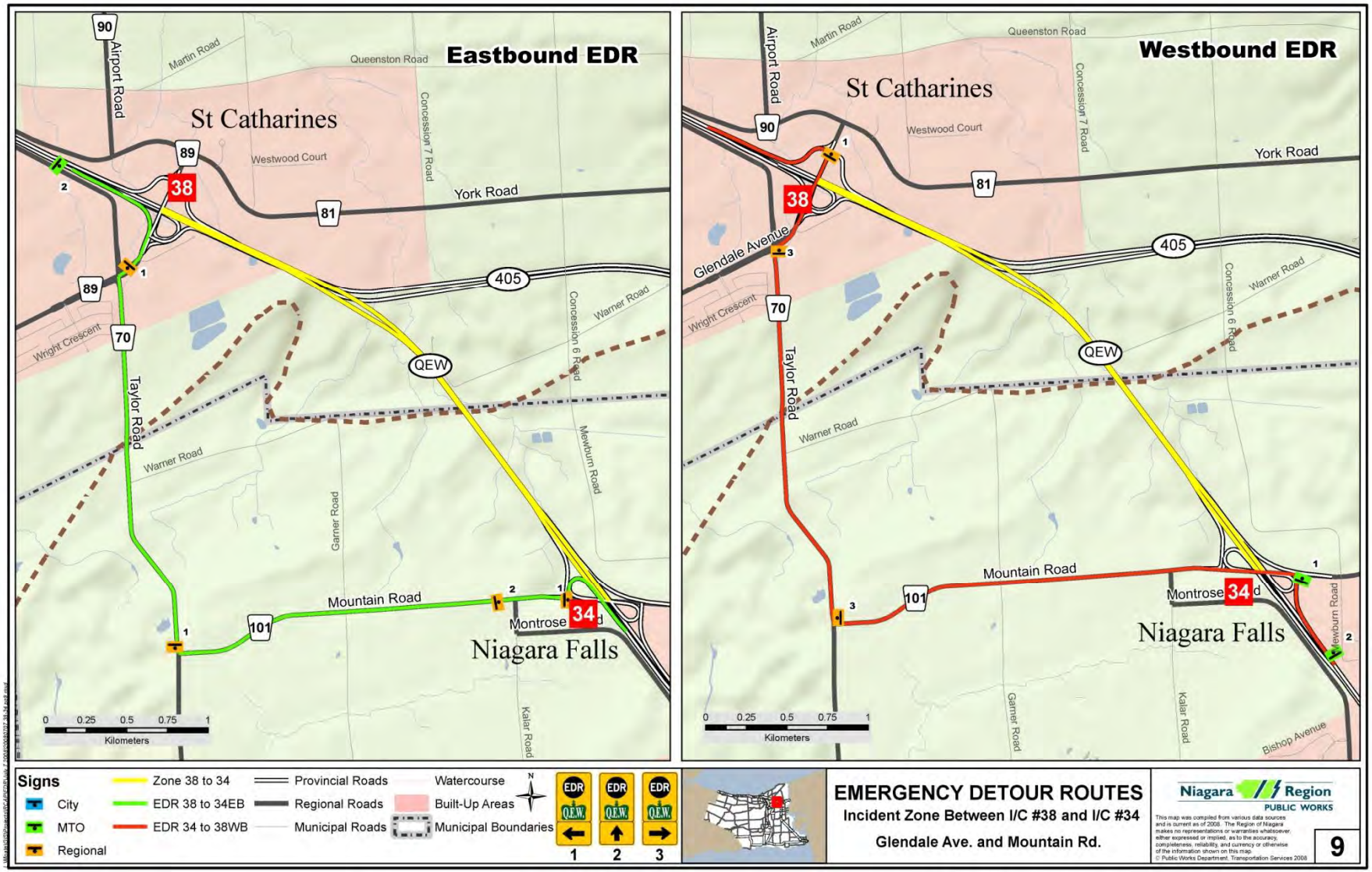


Figure 6: (Section 10) EDR Signing Between Thorold Stone Road and Mountain Road

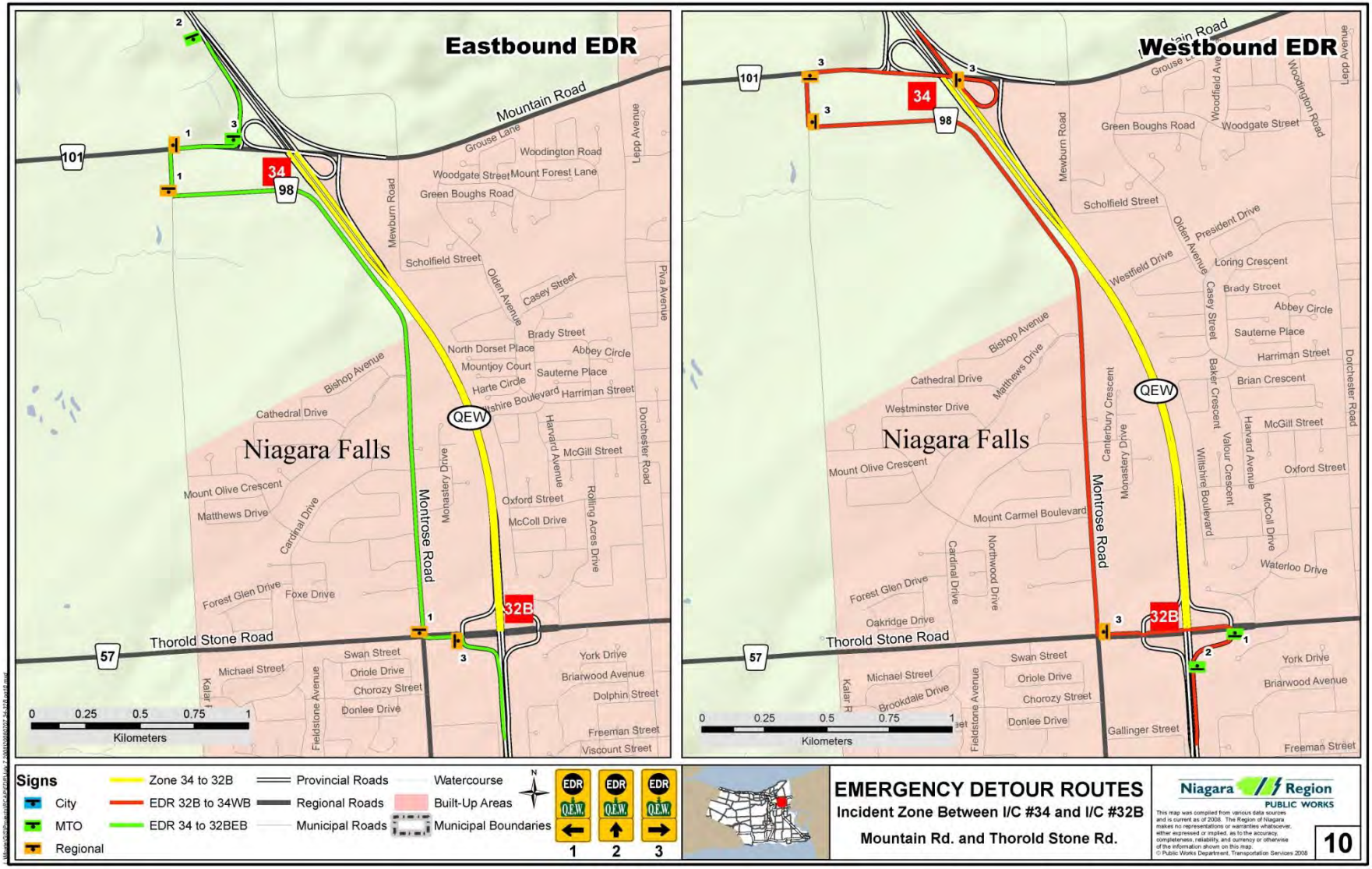


Figure 7: (Section 11) EDR Signing Between McLeod Road and Thorold Stone Road

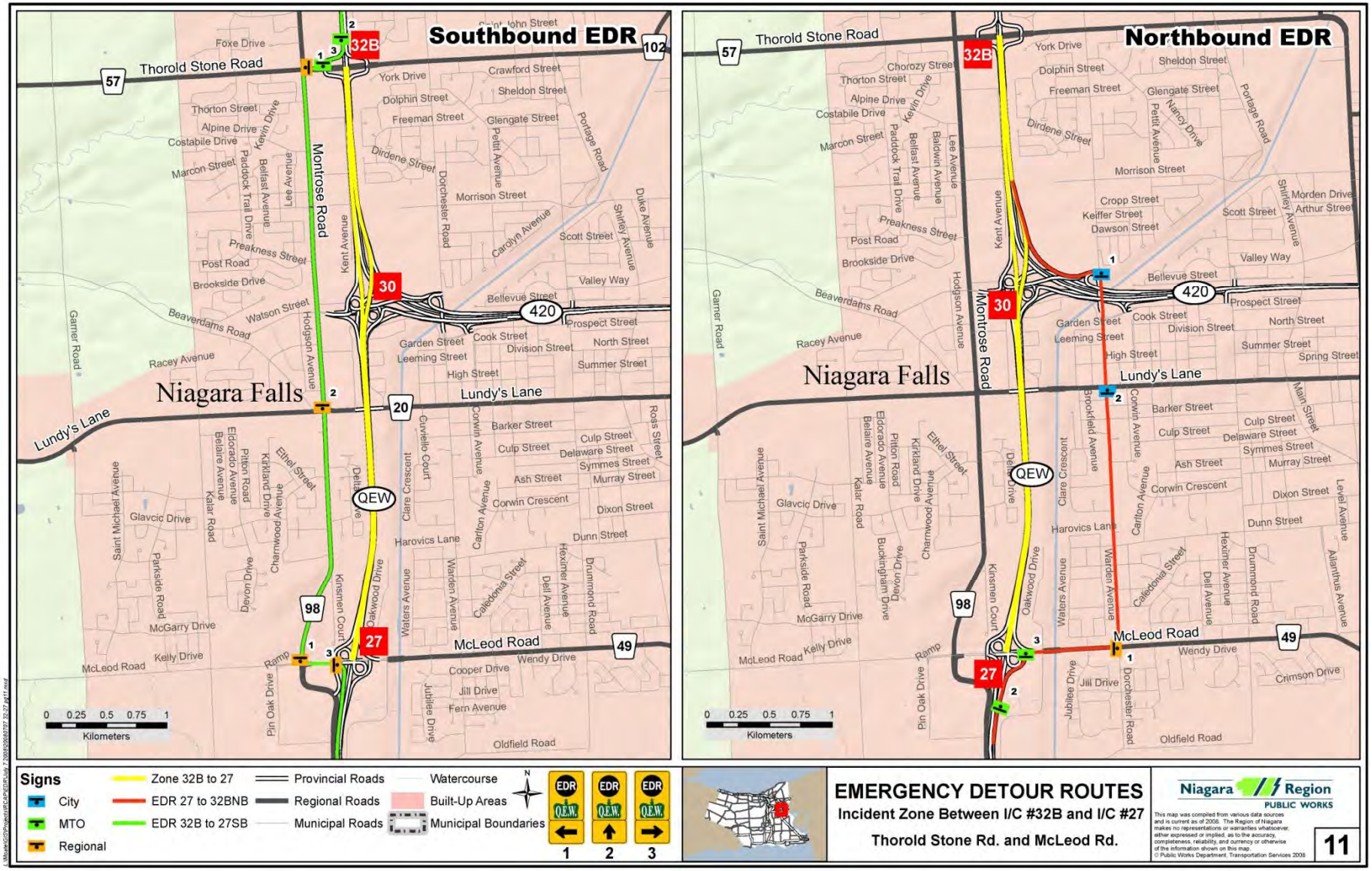
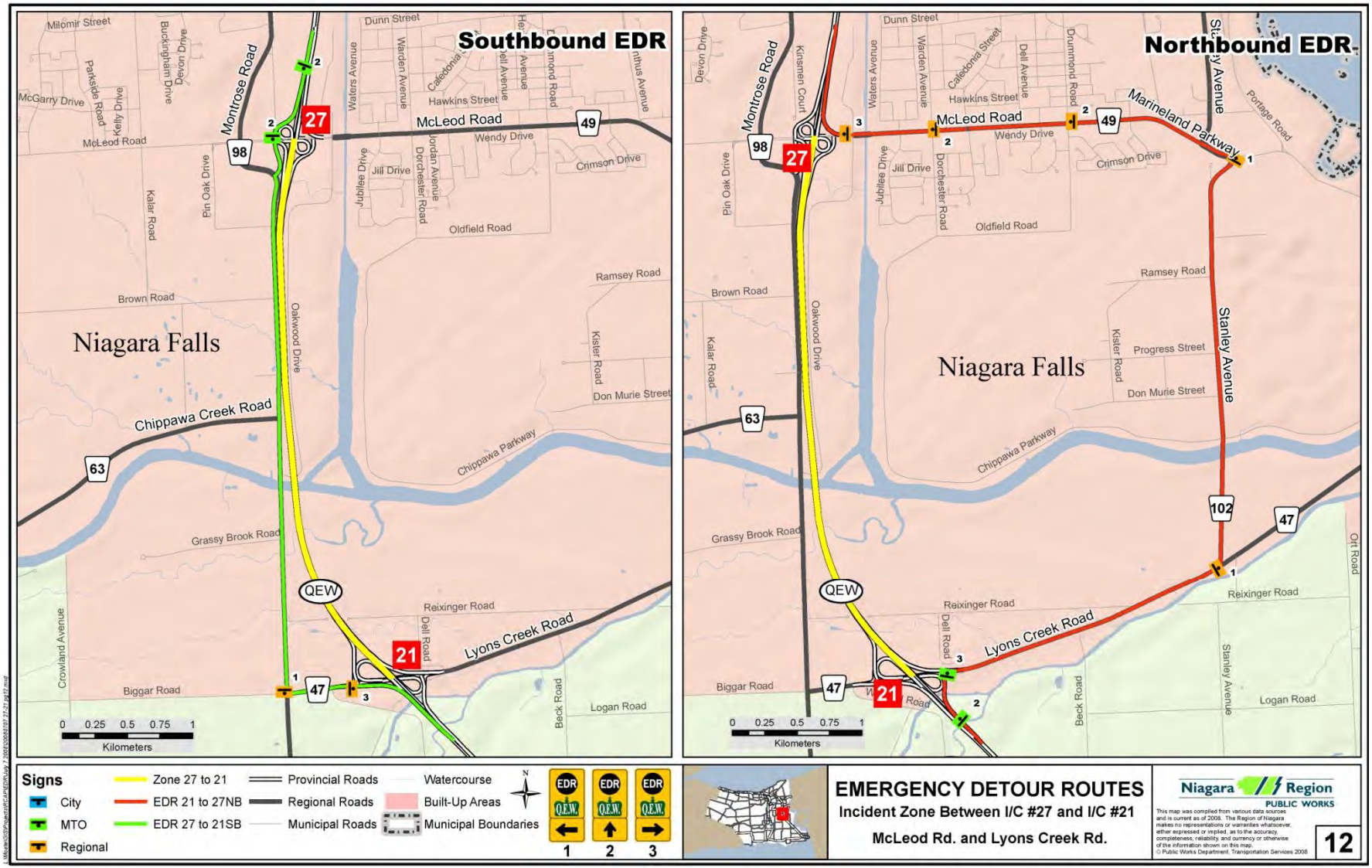


Figure 8: (Section 12) EDR Signing Between Lyons Creek Road and McLeod Road



TRANSPORTATION BEYOND TOMORROW 2031

Appendix D

Wine Route Map

Figure 9: Wine Route Map

Wineries of Ontario

Lake Erie North Shore & Pelee Island

35G Mastronardi Estate Winery 1193 Concession 3, Kingsville N9Y 2E6 1.800.320.6040
35G Pelee Island Winery 455 Seacliff Dr., Kingsville N9Y 2K6 1.800.597.3533
37H Pelee Island Winery Pavilion 20 East West Rd., Pelee Island N0R 1M0 1.800.597.3533
35G Sprucewood Shores Estate Winery 7258 County Rd. 50 West, Harrow N0R 1G0 1.866.938.9253

Niagara Escarpment & area

19F 13th Street Winery 1776 Fourth Ave., St. Catharines L2R 6P9 905.984.8463
16E Alvento Winery 3048 Second Ave., Vineland L0R 2E0 905.562.1212
10E Angels Gate Winery 4250 Mountainview Rd., Beamsville L0R 1B2 1.877.ANGLGATE
16F Calamus Estate Winery 3100 Glen Rd., Jordan L0R 1S0 1.888.225.9695
16F Cave Spring Cellars 3836 Main St., Jordan L0R 1S0 905.562.3581
12E Cornerstone Estate Winery 4390 Telford Rd., Beamsville L0R 1B0 905.563.6756
16F Creekside Estate Winery 2170 4th Avenue, Jordan Station L0R 1S0 1.877.262.9463
11F Crown Bench Estates 3890 Aberdeen Rd., Beamsville L0R 1B7 1.888.537.6192
10F De Souza Wine Cellars 3783 Quarry Rd., Beamsville L0R 1B2 905.563.7259
10F EastDell Estates Winery 4041 Locust Lane, Beamsville L0R 1B2 905.563.9463
16F Featherstone Winery & Vineyard 3678 Victoria Ave., Vineland L0R 2C0 905.562.1949
10F Fielding Estate Winery 4020 Locust Lane, Beamsville L0R 1B2 1.888.778.7756
16F Flat Rock Cellars 2727 Seventh Ave., Jordan L0R 1S0 905.562.8994
16D Foreign Affair Winery, The 4890 Victoria Ave. North, Vineland Station L0R 2E0 1.800.262.7551
10D Good Earth Vineyard and Winery, The 4366 Lincoln Ave., Beamsville L0R 1B3 1.800.308.5124
14D GreenLane Estate Winery 4679 Cherry Avenue Beamsville L0R 1B1 Opening summer 2010 905.562.7207
16E Harbour Estates Winery 4352 Jordan Rd., Jordan Station L0R 1S0 905.562.6279
20G Henry of Pelham Family Estate Winery
1469 Pelham Rd., St. Catharines L2S 0E7 1.877.PELHAM.7
10E Hidden Bench Vineyards and Winery 4152 Locust Lane, Beamsville L0R 1B0 905.563.8700
16F Kacaba Vineyards 3650 Hwy 8, Vineland L0R 2C0 1.866.522.2228
6D Kittling Ridge Estate Wines & Spirits 297 South Service Rd., Grimsby L3M 4E8 1.800.694.5796
11D Legends Estates Winery 4888 Ontario St., North, Beamsville L0R 1B3 905.563.5500
11D Magnotta Winery 4701 Ontario St., Beamsville L0R 1B4 1.800.461.9463
13E Malivoire Wine Company 4260 King St., East, Beamsville L0R 1B0 1.866.644.2244
14F Megalomaniac (John Howard Cellarz of Distinction)
3930 Cherry Ave., Vineland, ON L0R 2C0 1.888.MEGALO1
11F Mountain Road Wine Company 4016 Mountain St., Beamsville L0R 1B7 905.563.0745
10E Organized Crime Winery, The 4043 Mountainview Rd., Beamsville L0R 1B2 905.563.9802
9E Peninsula Ridge Estates Winery 5600 King St. West, Beamsville L0R 1B0 905.563.0900
4D Puddicombe Estate Farms & Winery 1458 #8 Highway, Winona L8E 5H9 905.643.6682
14F Ridgepoint Wines 3900 Cherry Ave., Vineland L0R 2C0 905.562.8663

19G Rockway Glen Golf Course & Estate Winery
3290 Ninth St., St. Catharines L2R 6P7 1.877.762.5929
10E Rosewood Estates Winery & Meadery 4302 Mountainview Rd., Beamsville L0R 1B2 1.866.633.3246
14E Royal DeMaria Wines 4661 Cherry Ave., Vineland L0R 1B0 905.228.2593
14F Tawse Winery 3965 Cherry Ave., Vineland L0R 2C0 905.562.9600
10E Thirty Bench Wine Makers 4281 Mountainview Rd., Beamsville L0R 1B0 905.953.1696
16F Vineland Estates Winery 3620 Moyer Rd., Vineland L0R 2C0 1.888.846.3626
14F Wayne Gretzky Estate Winery 3751 King St., Vineland L0R 2C0 905.562.4945

Niagara-on-the-Lake

27C 20 Bees Winery 1067 Niagara Stone Rd., NOTL L0S 1J0 905.685.8673
30C Caroline Cellars 1020 Line 2, NOTL L0S 1J0 905.468.8614
28C Cattail Creek Estate Winery 1155 Concession 6, NOTL L0S 1J0 905.988.9463
28E Château des Charmes 1025 York Rd., NOTL L0S 1P0 905.262.4219
29E Coyote's Run Estate Winery 485 Concession 6 Rd., NOTL L0S 1P0 1.877.COYOTE3
31C Frogpond Farm Organic Winery 1385 Larkin Rd., NOTL L0R 1J0 1.877.569.0166
28C Hillebrand Winery 1249 Niagara Stone Rd., NOTL L0S 1J0 1.800.582.8412
31D Ice House, The 14778 Niagara Pkwy., NOTL L0S 1J0 905.262.5161
32C Inniskillin Wines 1499 Line 3, NOTL L0S 1J0 1.888.466.4764 ext. 6400
30A Jackson-Triggs Niagara Estate Winery 2145 Niagara Stone Rd., NOTL L0S 1J0 905.468.4637
29B Joseph's Estate Wines 1611 Niagara Stone Rd., NOTL L0S 1J0 1.866.468.1259
27A Konzelmann Estate Winery 1096 Lakeshore Rd., NOTL L0S 1J0 905.935.2866
31B Lailey Vineyard 15940 Niagara Pkwy., NOTL L0S 1J0 905.468.0603
27E Maleta Estate Winery 450 Queenston Rd., NOTL L0S 1J0 905.685.8485
31C Marynissen Estates Winery RR 6, 1208 Concession 1, NOTL L0S 1J0 905.468.7270
Mike Weir Wine Location opening 2011 1.888.924.7444
26F Niagara College Teaching Winery 135 Taylor Rd., NOTL L0S 1J0 905.641.2252
27A Palatine Hills Estate Winery 911 Lakeshore Rd., NOTL L0S 1J0 905.645.9617
31B Peller Estates Winery 290 John St. East, NOTL L0S 1J0 1.888.673.5637
29E Pillitteri Estates Winery 1696 Niagara Stone Rd., NOTL L0S 1J0 905.468.3147
23C PondView Estate Winery 925 Line 2, NOTL L0S 1J0 Opening summer 2010 905.468.0777
29E Ravine Vineyard 1366 York Road, St. Davids NOTL L0S 1P0 905.262.8463
32C Reif Estate Winery 15608 Niagara Pkwy., RR 1 NOTL L0S 1J0 905.468.WINE
32C Riverview Cellars Estate Winery 15376 Niagara Pkwy., NOTL L0S 1J0 905.262.0635
26D Southbrook Vineyards 581 Niagara Stone Rd., NOTL L0S 1J0 1.888.581.1581
26B Stonechurch Vineyards 1242 Irvine Rd., NOTL L0S 1J0 905.935.3535
30B Strewn 2069 Niagara Stone Rd., NOTL L0S 1J0 905.468.1605
28A Strewn Winery 1339 Lakeshore Rd., NOTL L0S 1J0 905.468.1229
29A Sunnybrook Farm Estate Winery 1425 Lakeshore Rd., NOTL L0S 1J0 905.468.1122
29B Vignoble Rancourt Winery 1623 Concession 4 NOTL L0S 1J0 905.468.2882

Toronto & York Region

36C Magnotta Winery 271 Chrislea Rd., Vaughan L4L 8N6 1.800.461.9463
36C Milan Wineries Inc. 5811 Steeles Ave., West, Toronto M9V 4R9 1.800.218.7052
39A Willow Springs Winery 5672 Bethesda Rd., Stouffville L4A 7X3 905.642.9463

Prince Edward County & area

7G Black Prince Winery 13370 Loyalist Pkwy., Picton K0K 2T0 1.866.470.9463
5G Chaz-Dea Estates Winery 1195 Greer Rd., Wellington K0K 3L0 613.399.3939
5G Closson Chase 629 Closson Rd., Hillier K0K 2J0 613.399.1418
5G The Grange of Prince Edward Vineyards & Estate Winery
990 Closson Rd., Hillier K0K 2J0 1.866.792.7712
5G Huff Estates Winery 2274 County Rd. 1, Bloomfield K0K 1G0 613.393.5602
5G Norman Hardie Winery and Vineyard 1150 Greer Rd., Wellington K0K 3L0 613.399.8837
2F Oak Heights Estate Winery 337 Covert Hill Rd., Wallworth K0K 3H0 1.866.625.6051
5G Rosehall Run 1243 Greer Rd., Wellington K0K 3L0 1.888.399.1183
5G Sandbanks Estate Winery 17600 Loyalist Pkwy., Wellington K0K 3L0 613.399.1839
8G Waupoos Estates Winery 3016 County Rd. 8, Picton K0K 2T0 613.476.8338

Amenities
Accommodations · Patio fare · Restaurant · Wheelchair access · Sustainable Winemaking Ontario

Visit, discover and enjoy

Winery tours, fine dining, charming hospitality: Your wine country adventure begins here. With this map, we've aimed to make the navigation easy—along with the distinctive white and blue Wine Route road signs, you will soon discover that Ontario's wineries are as easy to find as they are to love.

Tasting environments are friendly, informative and helpful, making it a pleasure to sample and learn about the great wines produced by Ontario's dedicated winemakers.

Whether you make it a day trip or a weekend escape, in summer or winter, you're certain to find a getaway that's as close—or as far away—as you want it to be.

Be sure to call ahead to confirm tour times, or visit www.winesofontario.ca for information.

To help you plan your trip geographically, we've divided our winery listings into five popular destination areas.

Beginning in the west, you will find the southern warmth of Lake Erie North Shore and Pelee Island. Centrally, Niagara Escarpment and area and Niagara-on-the-Lake offer the province's greatest concentration of wineries. Close to the vibrant urban setting of Canada's biggest city you find the wineries of Toronto and York Region. Finally, to the east, Prince Edward County and area contrasts a rapidly growing wine and food culture with the quaint setting of historic towns and villages.

No matter which area you choose to visit, enjoy fine cuisine, great shopping, warm hospitality and, of course, distinctive wines that express the uniqueness of the region in which they were grown.

Start planning your adventure today!

Ontario's Wine Route

YOUR OFFICIAL 2010 MAP

For additional copies of this map, please visit www.winesofontario.ca or call 1.800.ONTARIO

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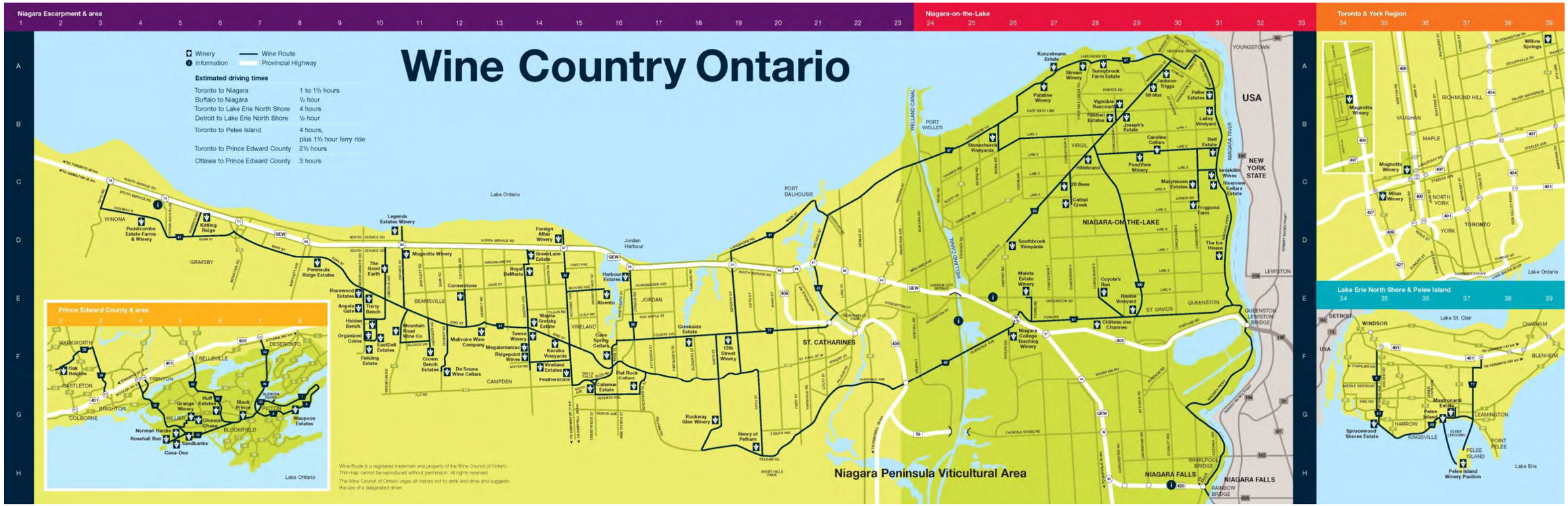
Niagara Escarpment & area
Niagara-on-the-Lake
Toronto & York Region
Wine Country Ontario
Winery
Information
Wine Route
Provincial Highway
Estimated driving times
Toronto to Niagara 1 to 1½ hours
Buffalo to Niagara ½ hour
Toronto to Lake Erie North Shore 4 hours
Detroit to Lake Erie North Shore ½ hour
Toronto to Pelee Island 4 hours, plus 1½ hour ferry ride
Toronto to Prince Edward County 2½ hours
Ottawa to Prince Edward County 3 hours
Prince Edward County & area
Lake Ontario
Niagara Peninsula Viticultural Area
Lake Erie North Shore & Pelee Island
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