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

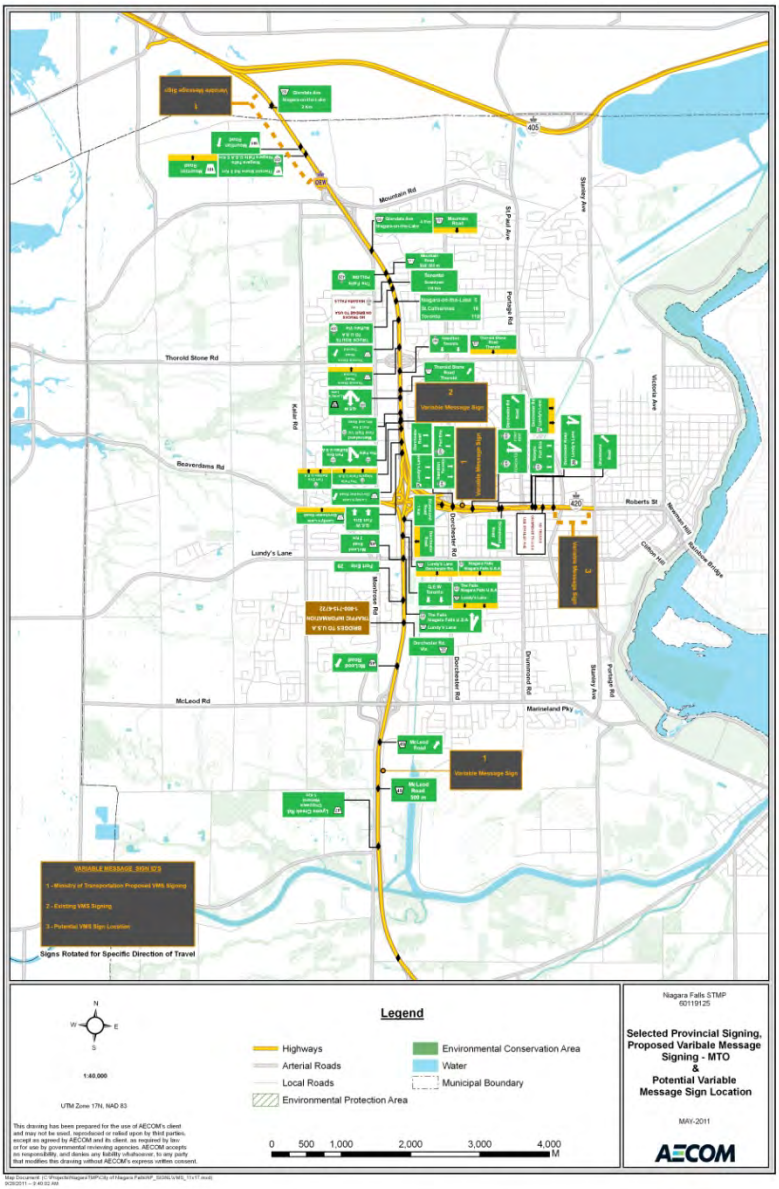
Strategies to Promote Active Transportation and Reduce Congestion	
Tourist Information Map	Map indicating Tourist Districts, parking, transit and active transportation information.
Tourist District Signage	Unique signage for the eight Tourist Districts identified in the City.
Parking Signage	Signage 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.

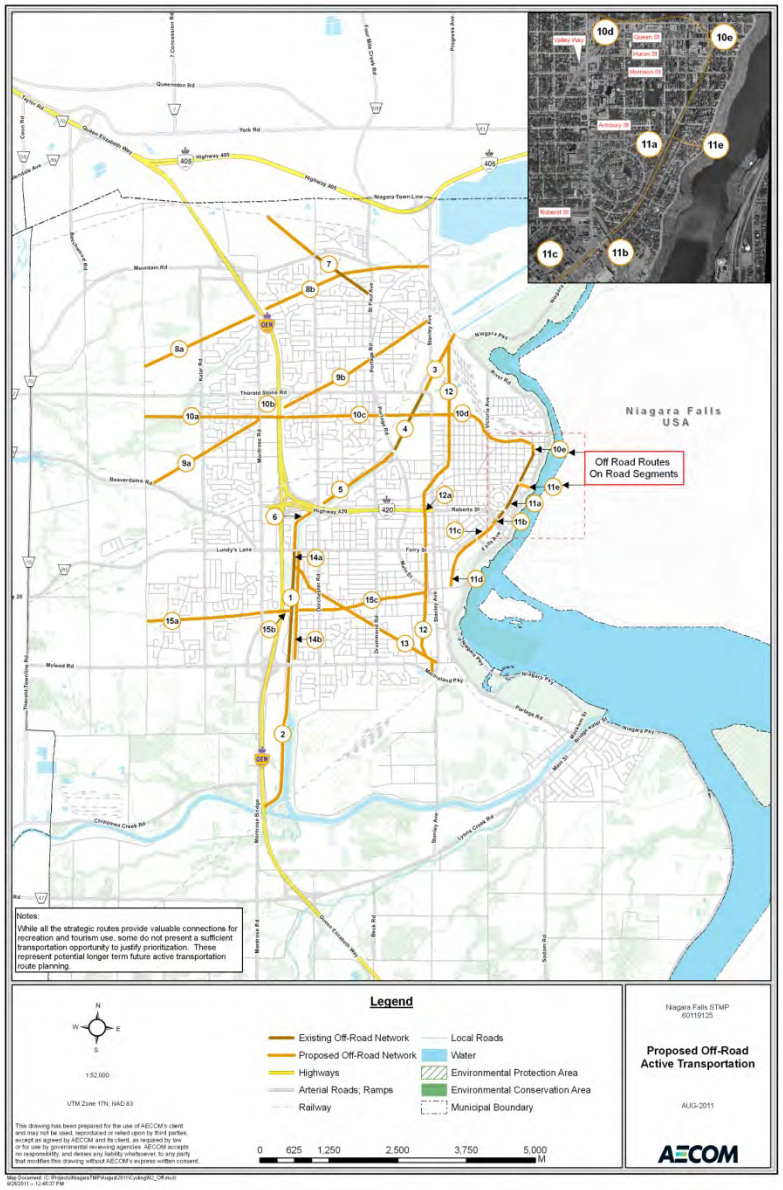
The proposed off-road active transportation network is shown in **Figure ES3**.

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**.

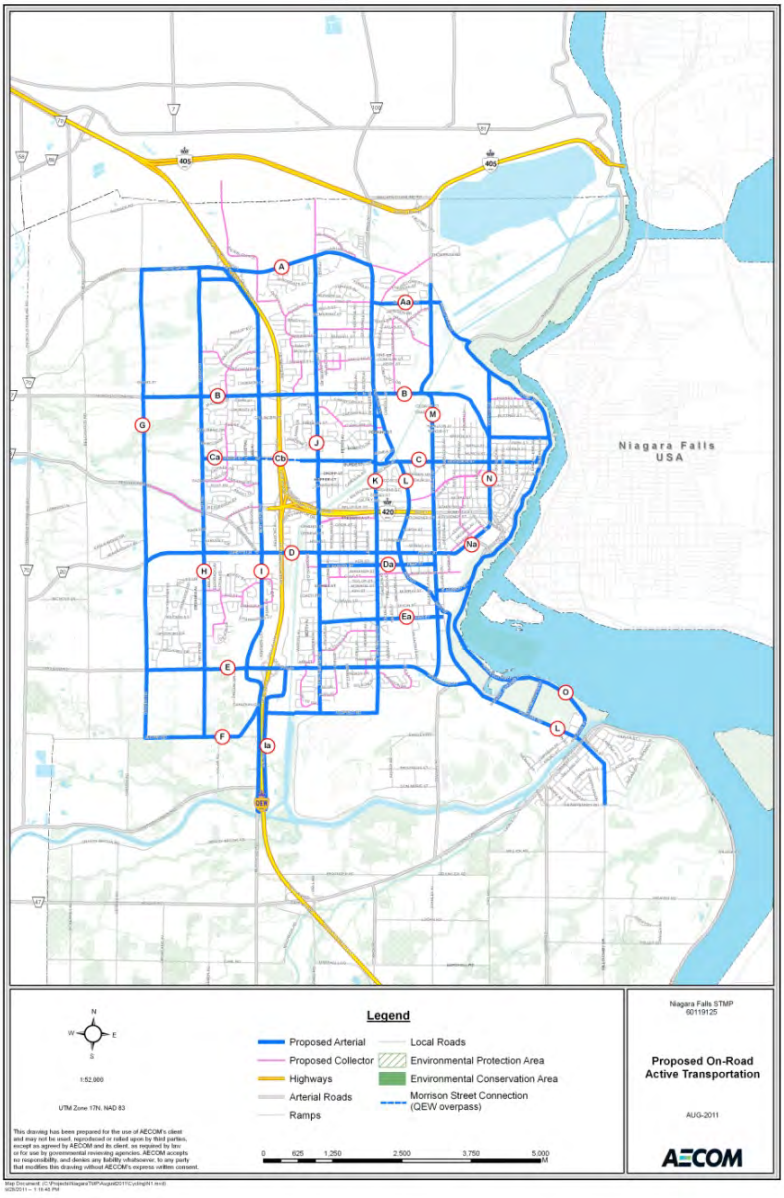
Table ES5: Active Transportation Recommended On-Road Routes and Implementation Schedule

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



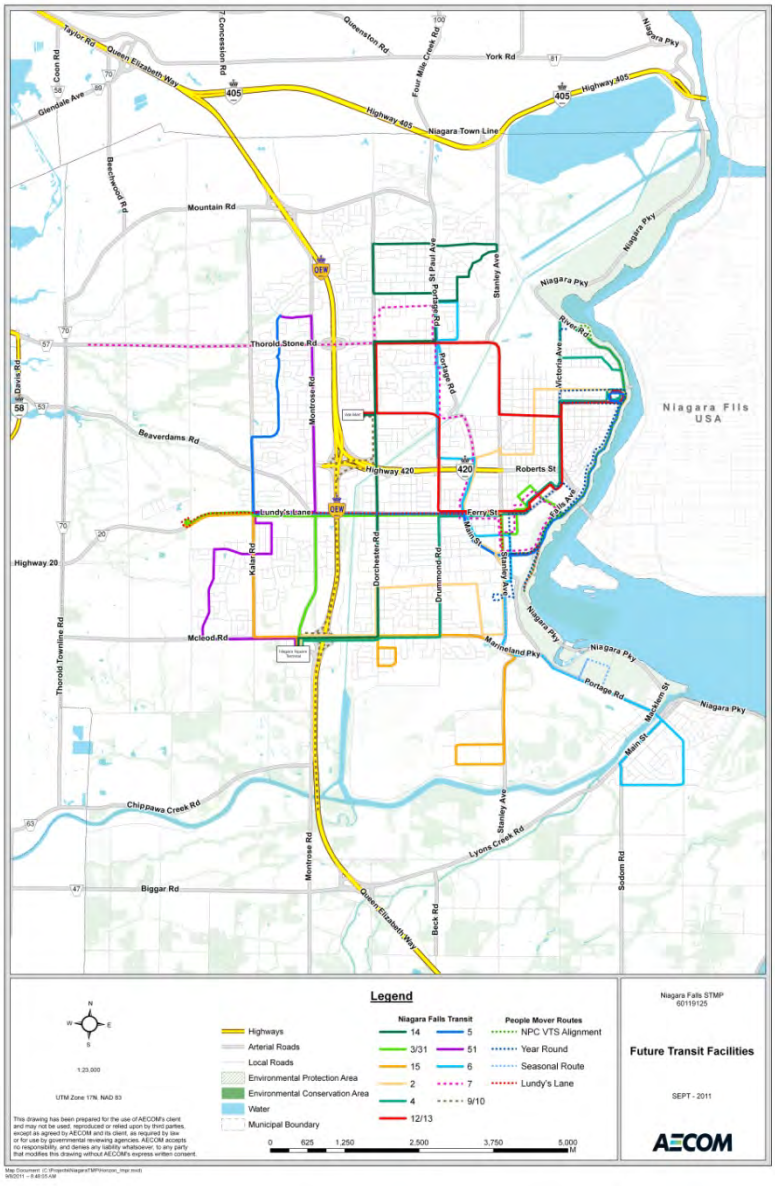
7.2.3 Transit

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

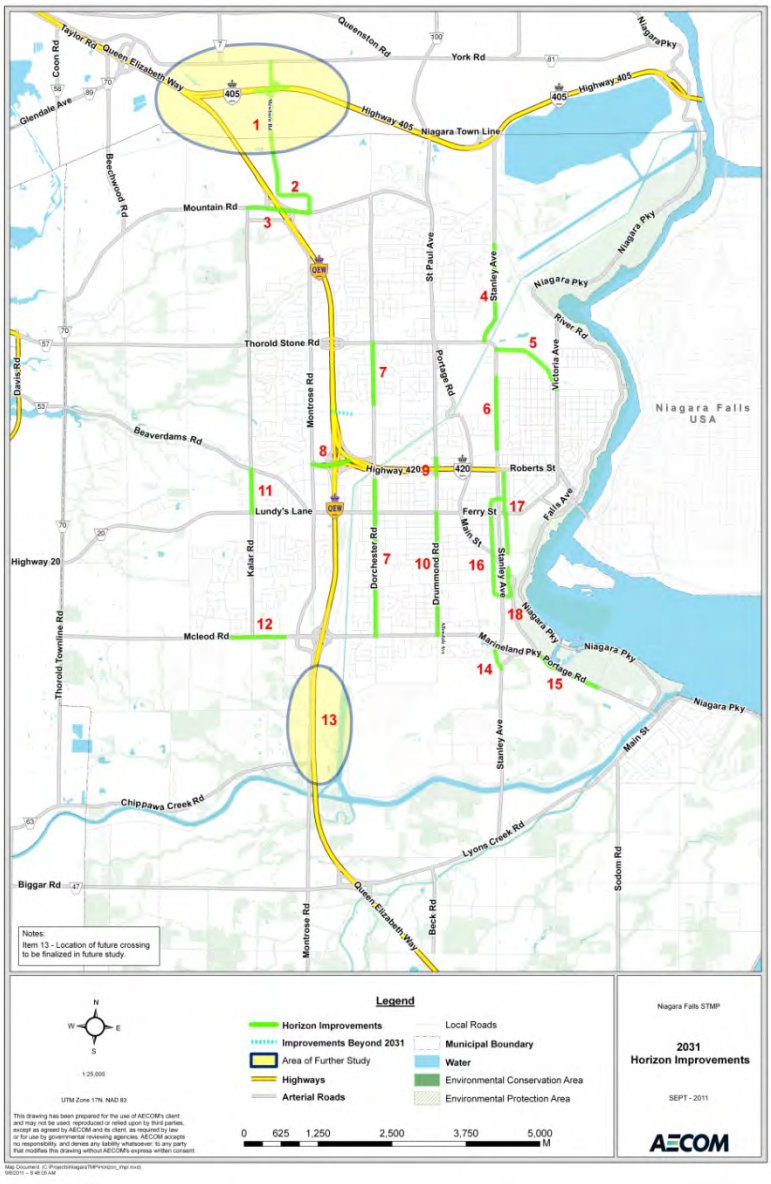
	TDM Initiative	Target Market
18	Initiate community walking events for all ages.	Community-Wide
19	Develop and implement Regional and Municipal TDM monitoring program.	Program Management
20	Develop web-based trip planners for cycling and walking.	Community-Wide
Travel Incentives		
21	Develop employer 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.

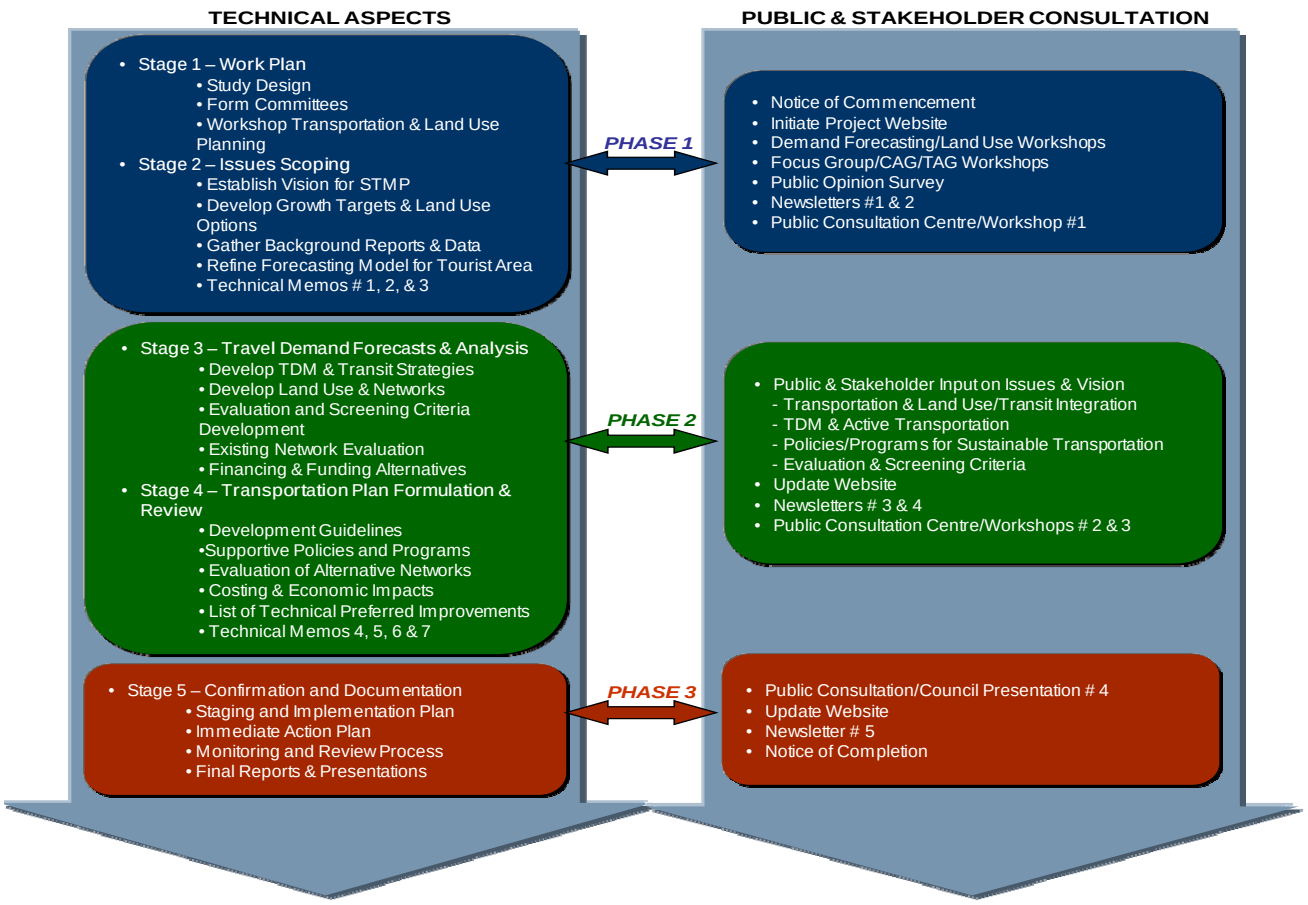
The preparation of the STMP has involved identifying issues, analyzing travel demands, evaluating transportation network deficiencies, identifying a full range of potential solutions, formulating a comprehensive plan and developing implementation strategies. The STMP study has been conducted in a manner 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**).

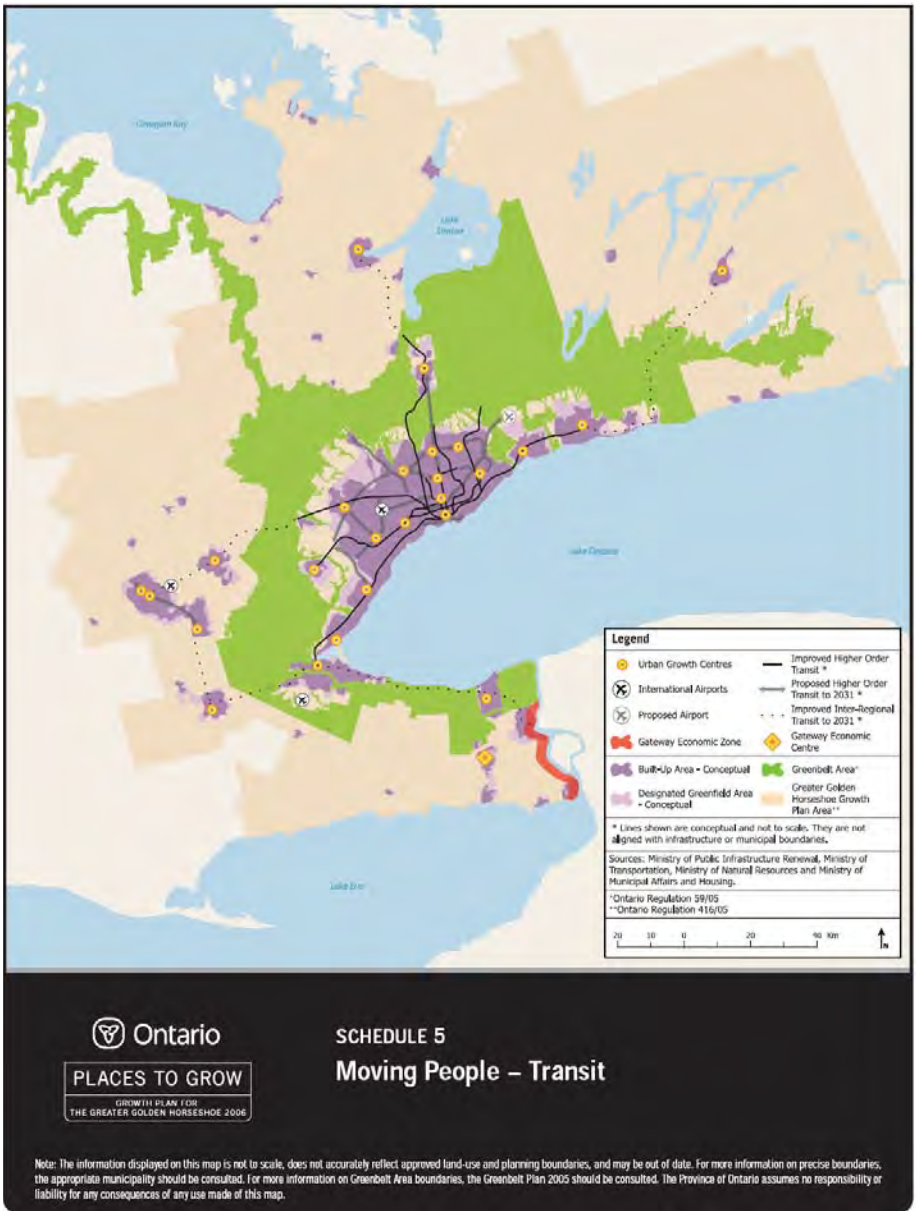
A key policy for moving people and moving goods is to ensure that corridors are identified and protected to meet current and projected needs for various travel modes. The Growth Plan identifies that overall transportation planning

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

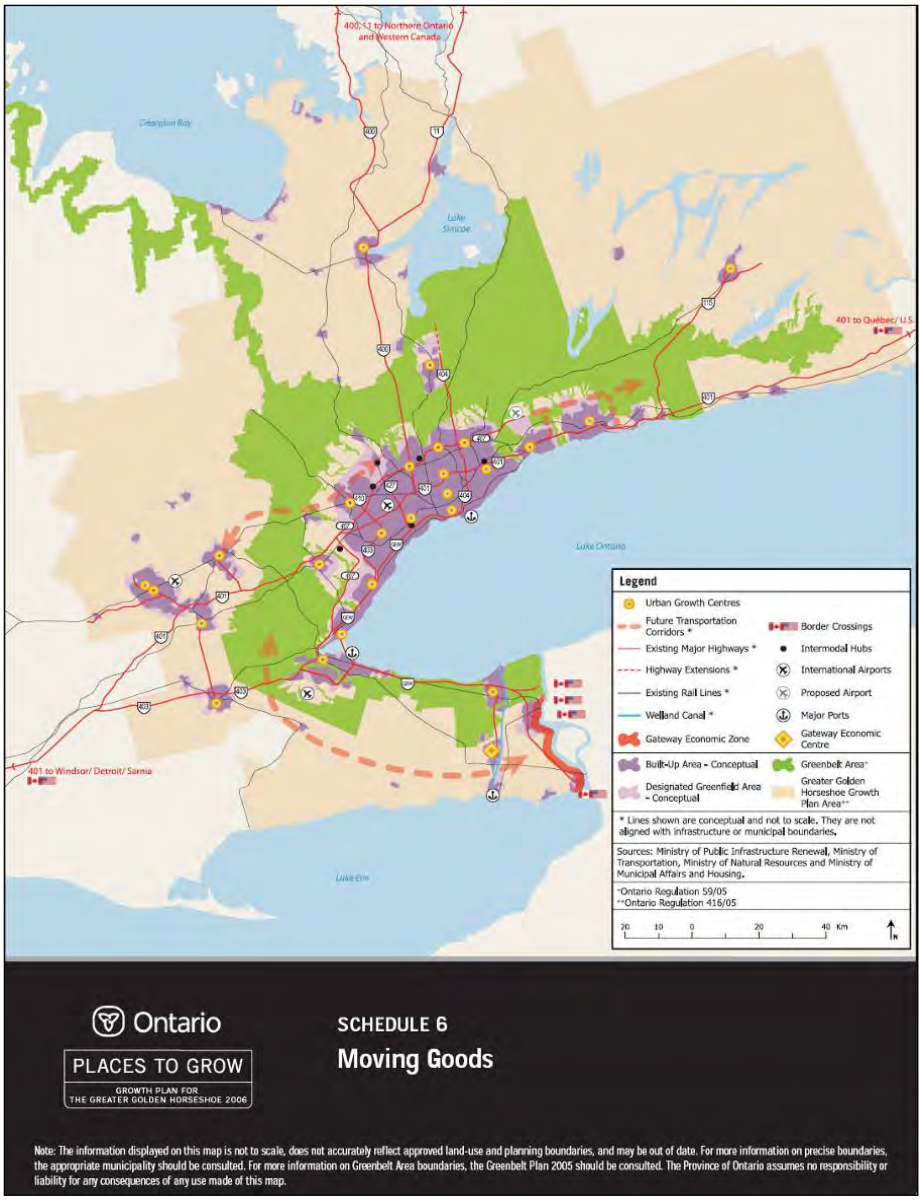
Source: Ministry of Public Infrastructure Renewal, Growth Plan for the Greater Golden Horseshoe, 2006

Figure 4: Moving People – Transit



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

Figure 5: Moving Goods

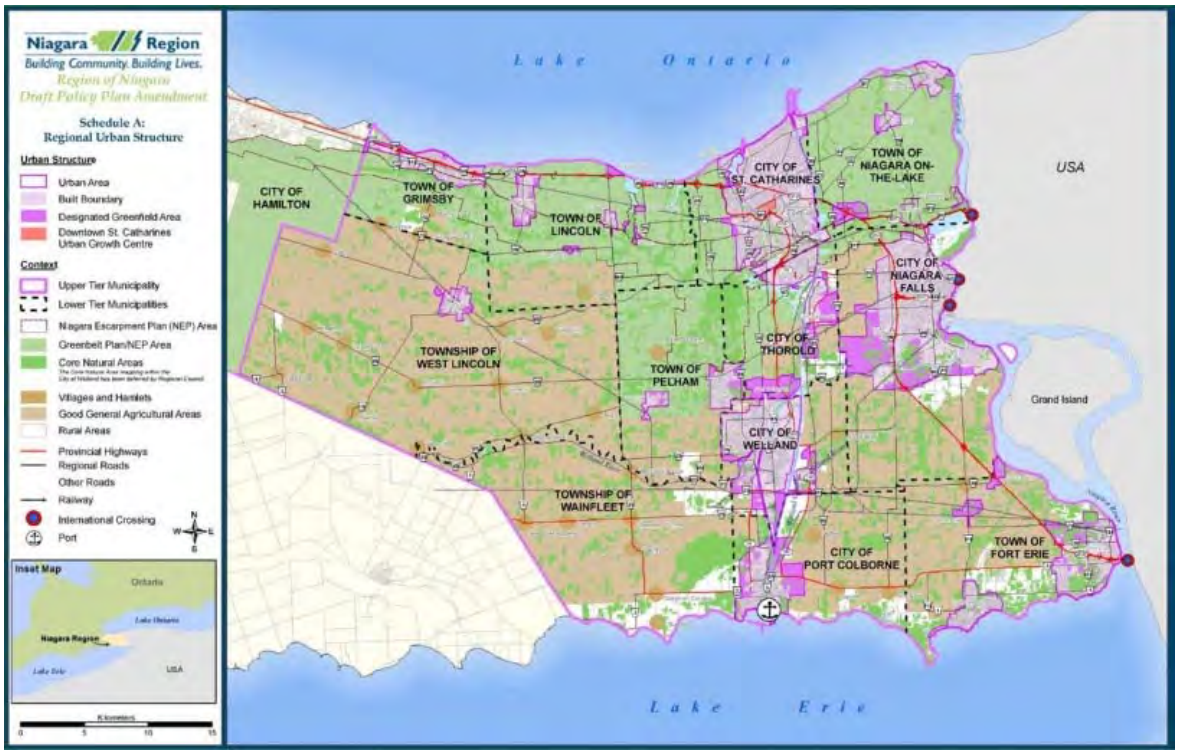


Source: Ministry of Public Infrastructure Renewal, Growth Plan for the Greater Golden Horseshoe, 2006

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:

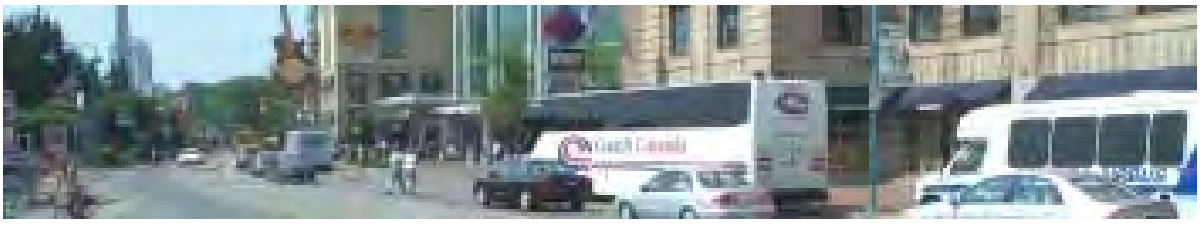
- Highway 20/Roberts Street – physical improvements and streetscaping, intersection (design to consider grade separation) improvements at Stanley Avenue with ramp improvements to Victoria Avenue
- McLeod Road – requires operational improvements at key intersections
- Lyons Creek Road is to be upgraded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

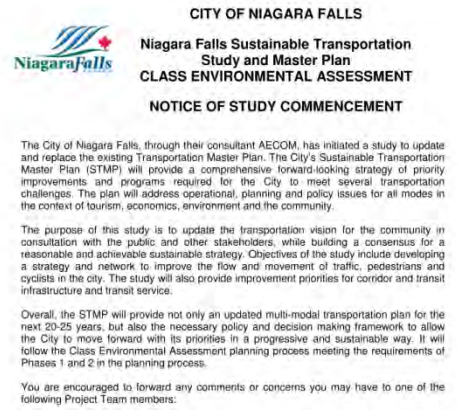
Therefore, it was resolved that the Region's projections would be the basis of the traffic forecasting. A sensitivity analysis would be undertaken to determine if there was any significant impact of utilizing the larger estimates and the impacts, if any, would be critically reviewed on a case by case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

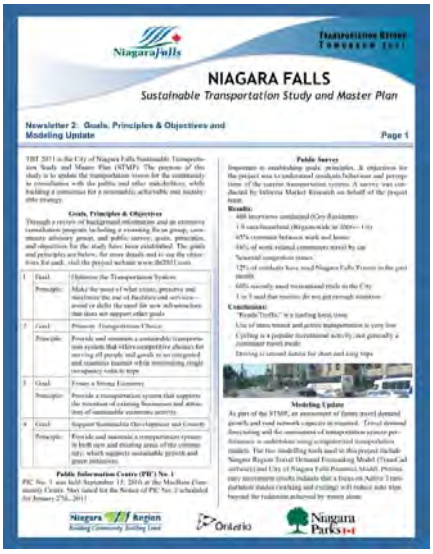
The following working papers are to be posted:

- 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.

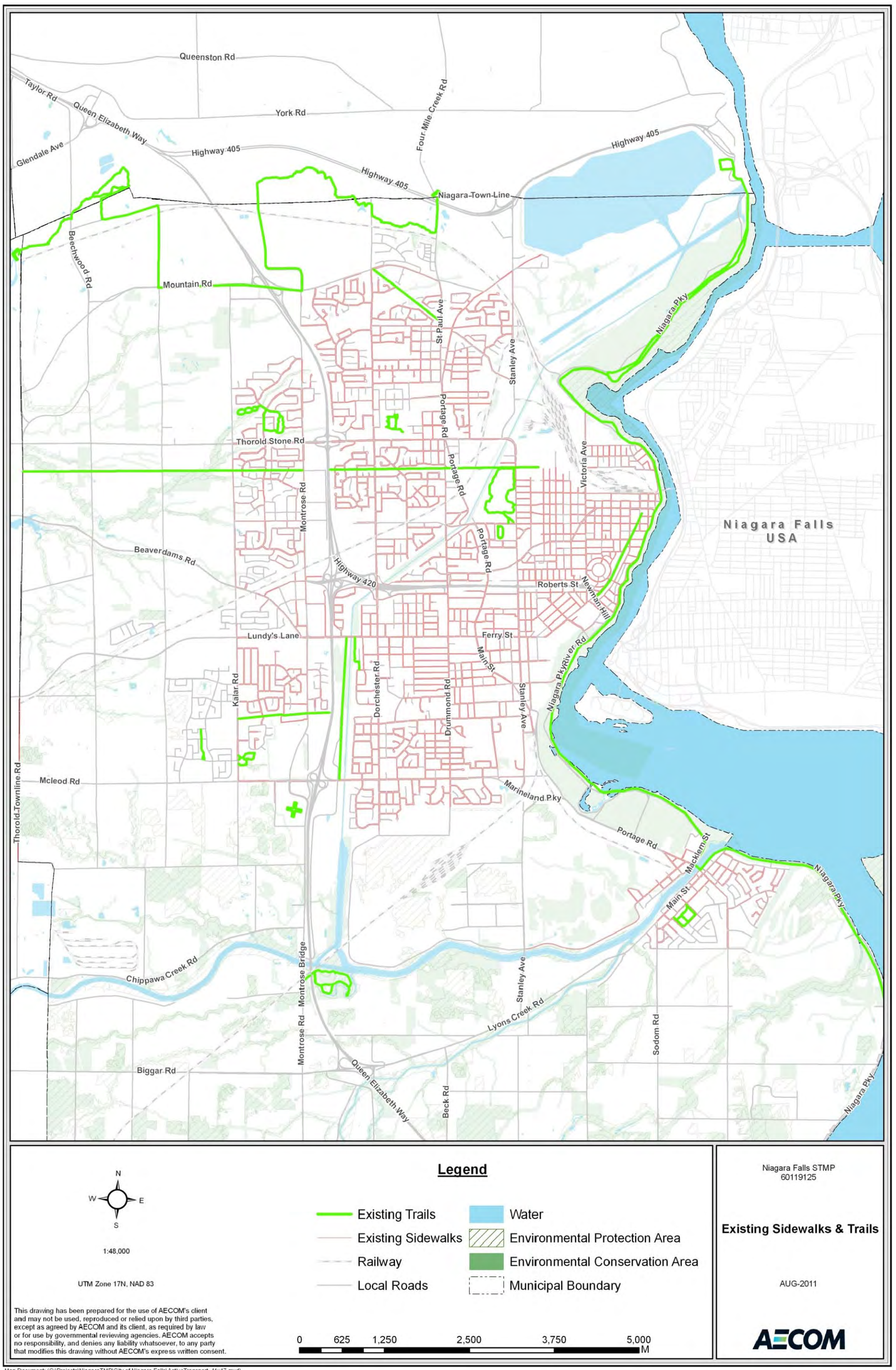
Walking facilities in the form of sidewalks are present and form a dense network throughout most of the built-up areas of the City. Existing cycling facilities, on the other hand, are generally few and often isolated, and could be improved to provide a network that can serve residents' needs at a local 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

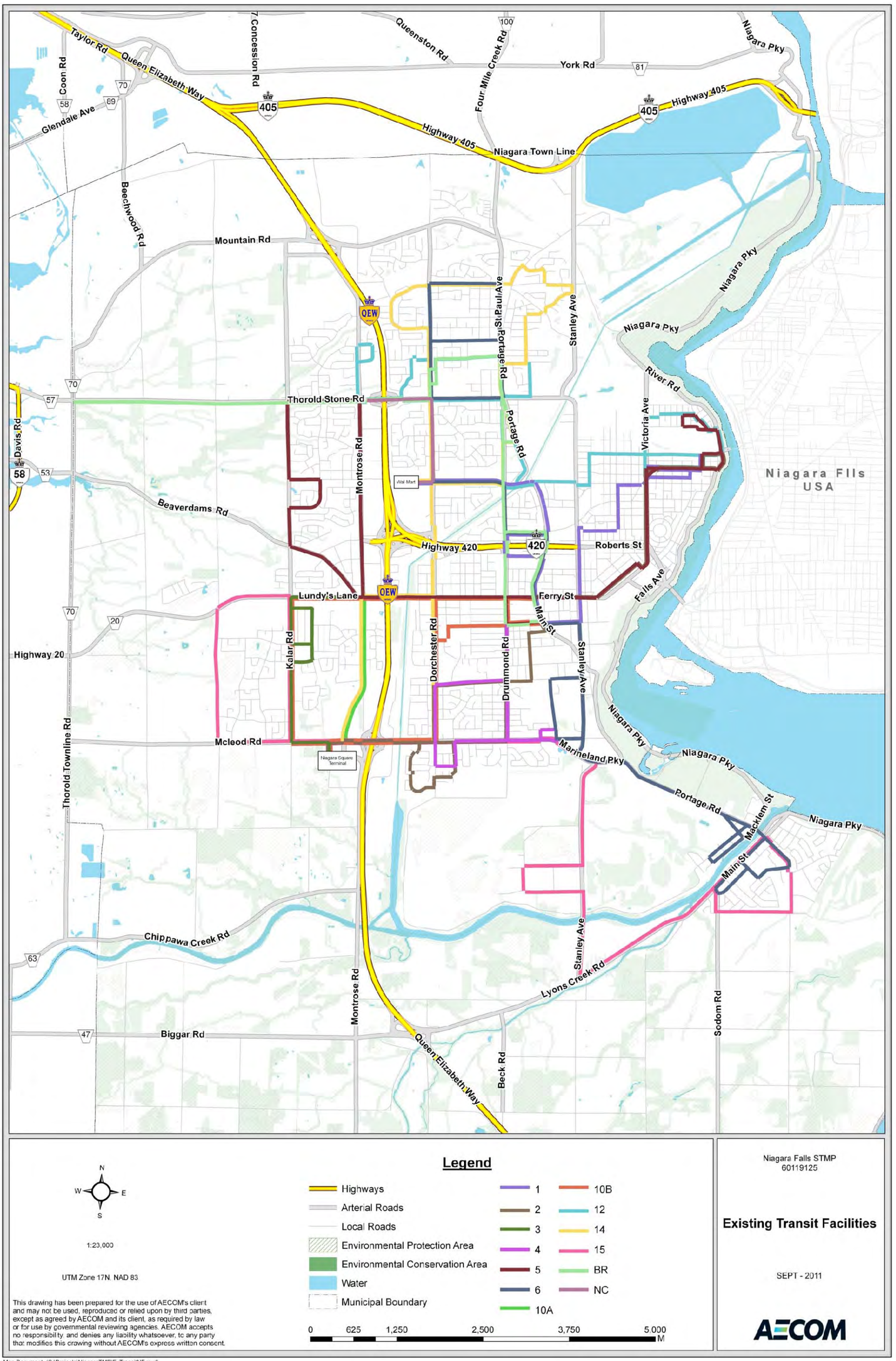
There are many tour buses which provide regular service to the City during the peak tourist season. Shuttle bus services are also offered specifically to provide transit to the casinos in the City and hotels.

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.

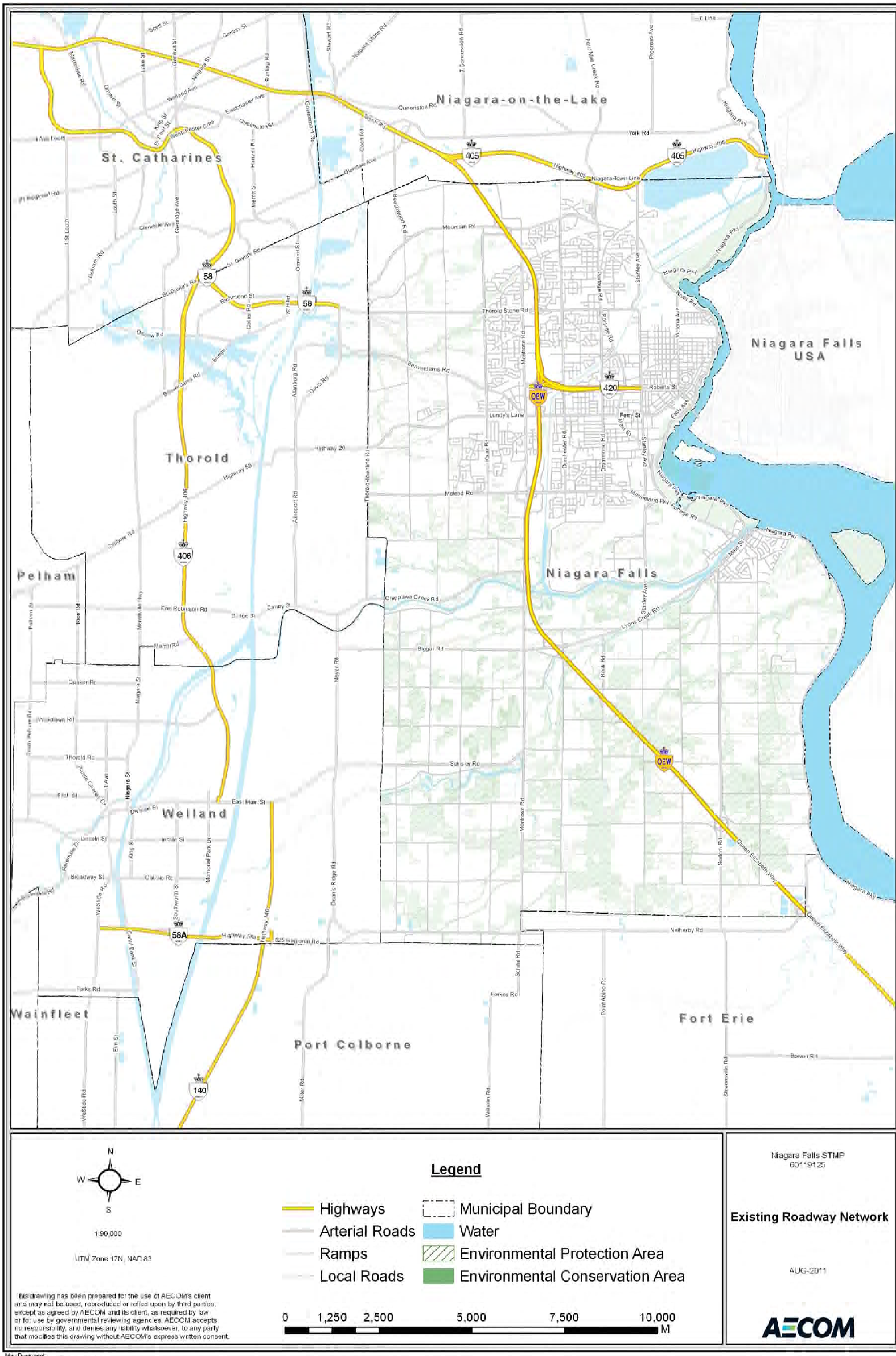
Niagara Parkway

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



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.

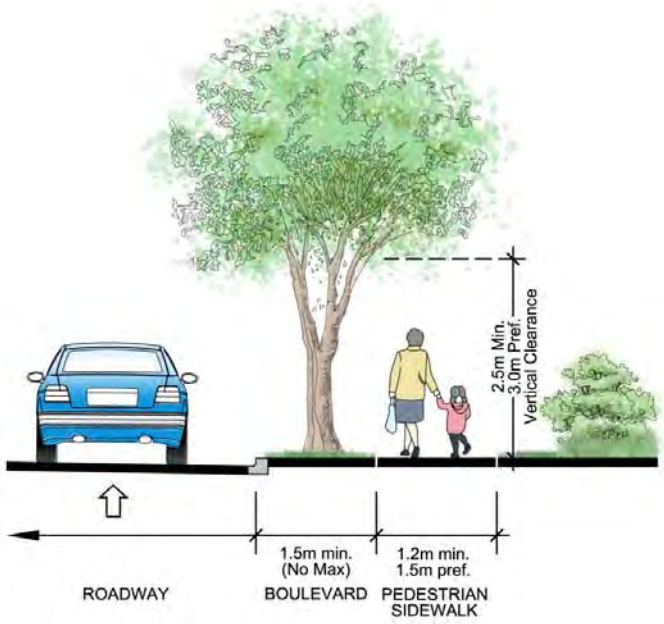
Figure 10 displays the existing on and off-road active transportation network in the City, excluding sidewalks. An assessment of the on- and off-road routes was conducted to determine “missing links”. This figure highlights key areas where the on- and off-road systems are currently incomplete. The assessment 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

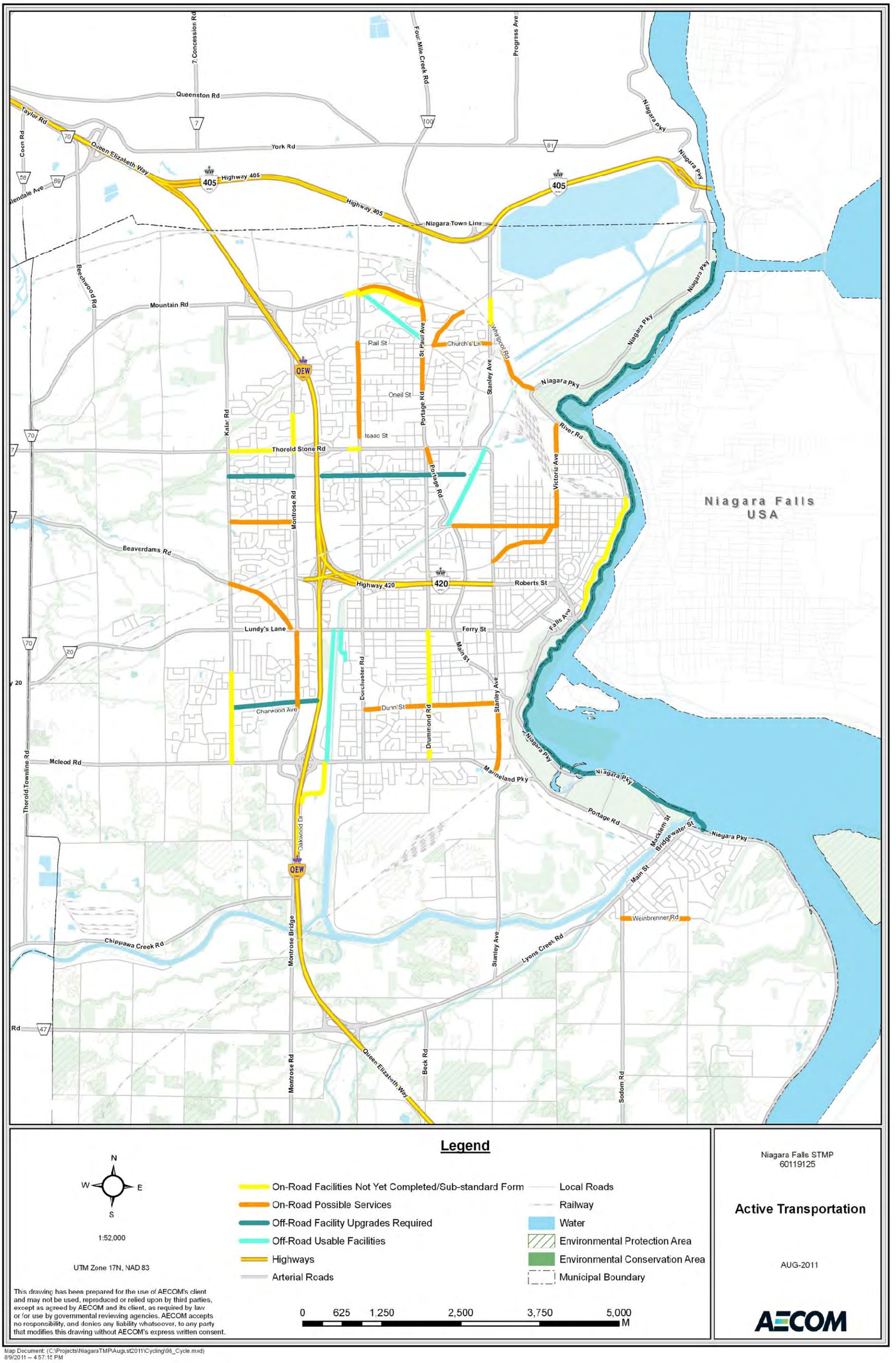


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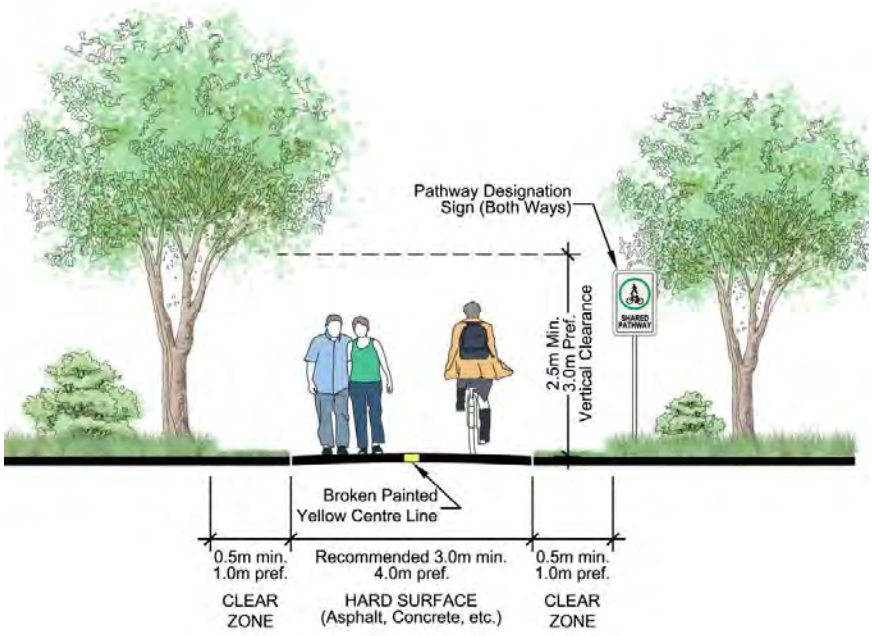
Figure 12: Example of an Off-Road Standard Multi-Use Pathway



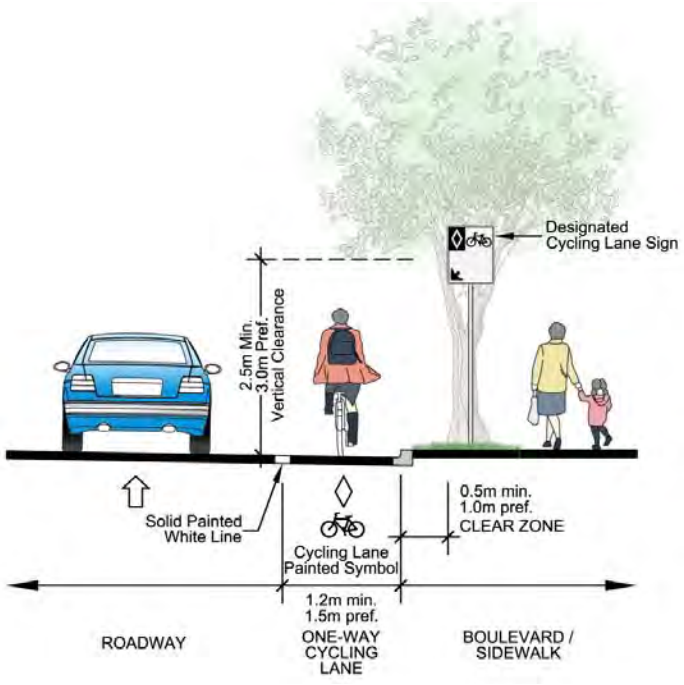
6.1.1.3 On-Road Facility Types

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

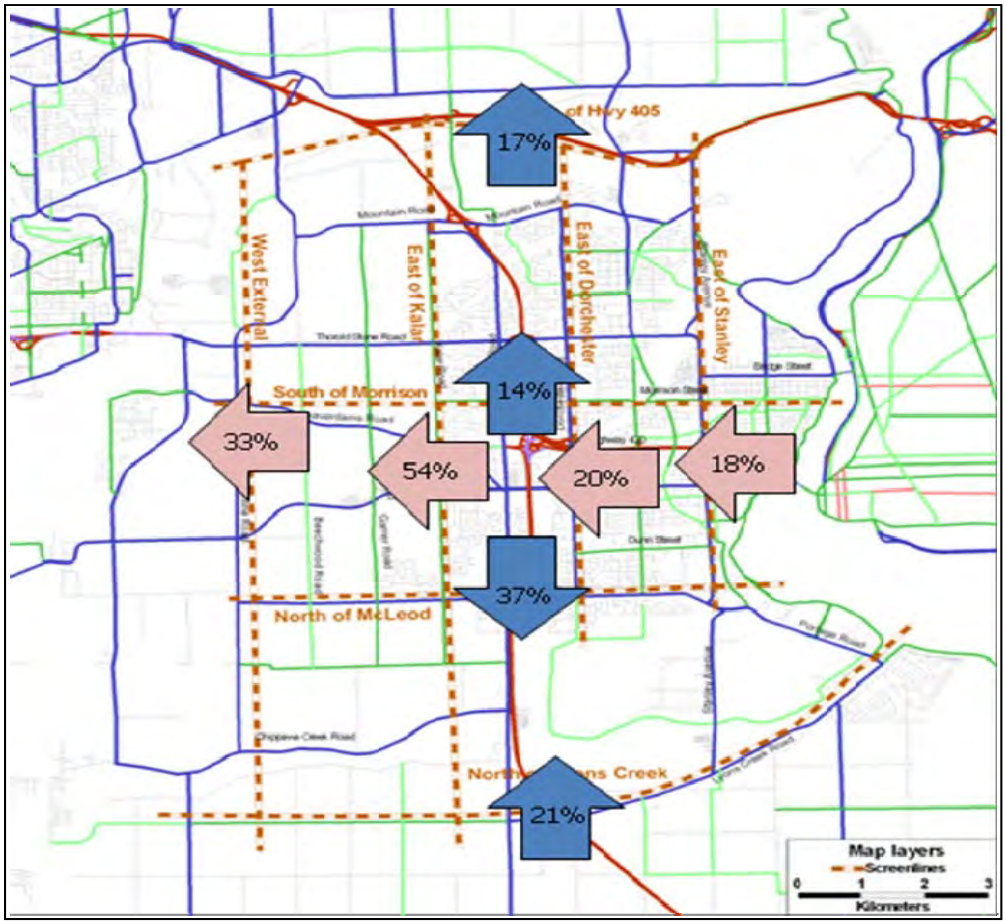
From/To	Niagara Falls	External	Total
Niagara Falls	11,528	1,325	12,853
External	1,650		1,650
Total	**13,178**		**14,503**

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%

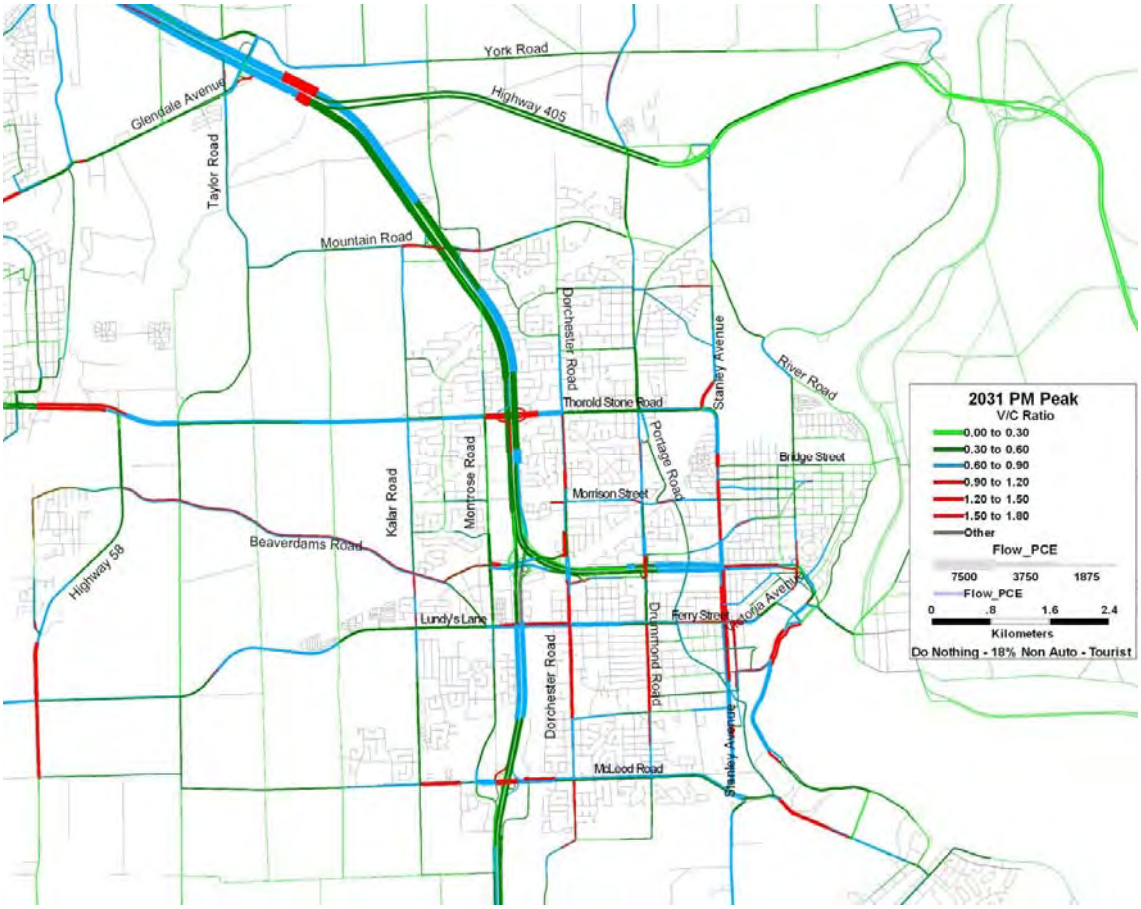
Although there is an aggressive non-auto mode share target for 2031, the total magnitude of the auto-trip reductions is still relatively modest (~1,400 vehicles). However, this is equivalent to almost two arterial lanes of capacity and represents an estimated $7.5 M annual benefit to residents in terms 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.

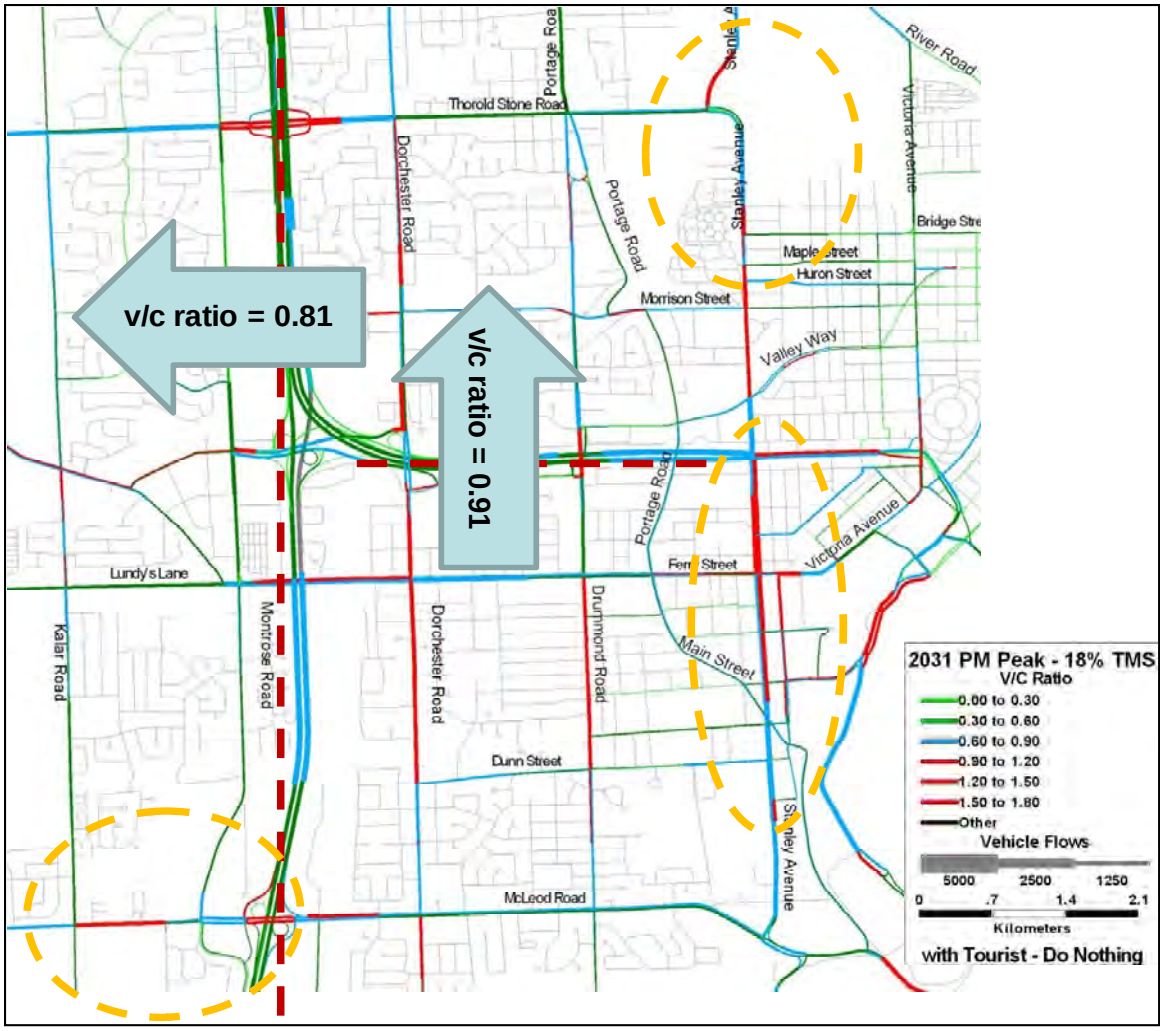
In addition to localized road widening projects, potential improvements to address the capacity issues may also include:

- 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

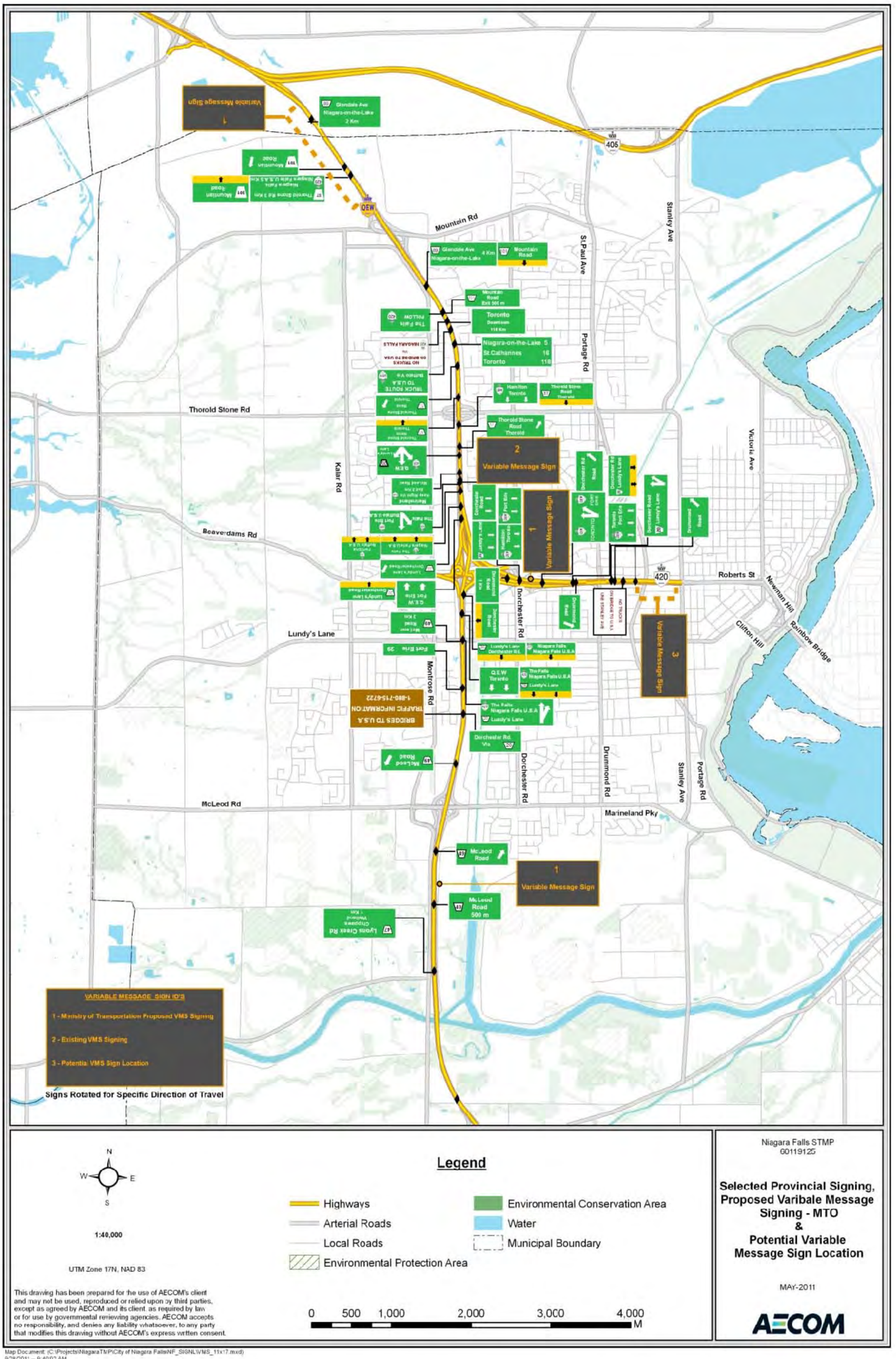
- Corridor 1: QEW from Mountain Road to the Highway 420 Interchange:

[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.

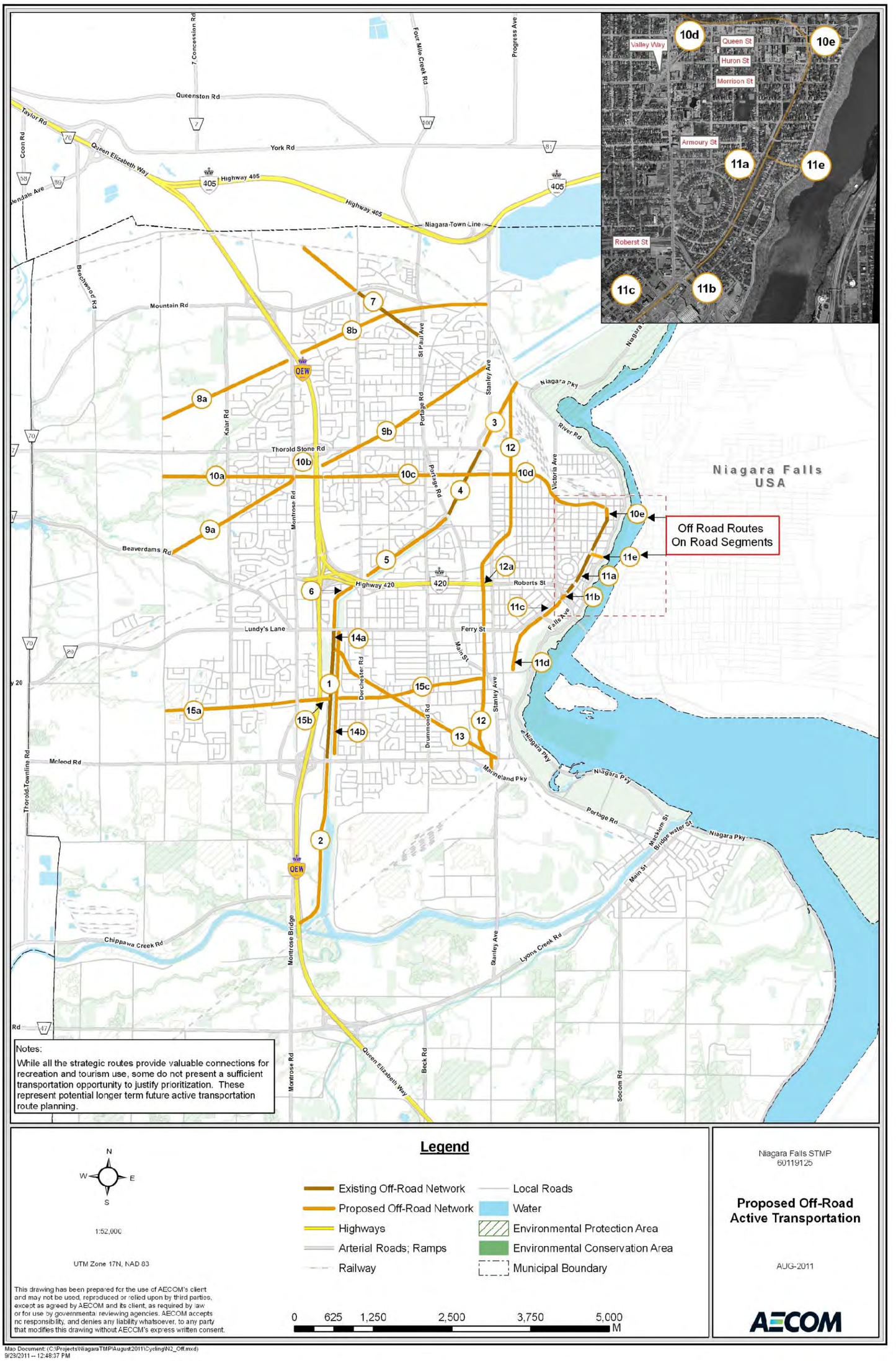
7.2.2.2 On-Road Implementation Priorities

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.

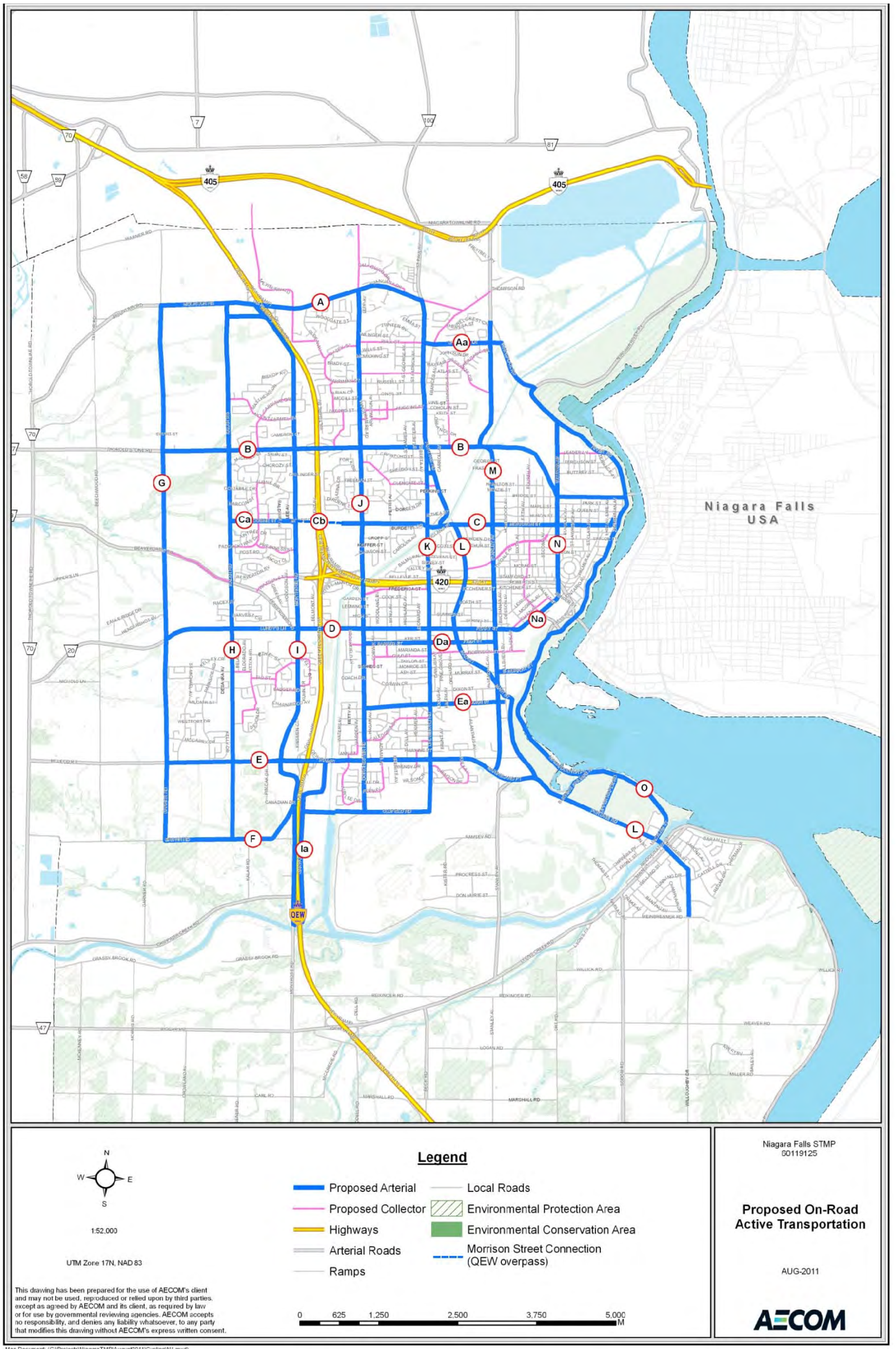
The estimated costs for off-road facilities include factors for pavements, signage, un-signalized roadway crossings and amenities such as shade tree planting, bike locks, trail-heads, benches and waste receptacles. Lighting and signalized mid-block crossings (both recommended) have been separated from 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

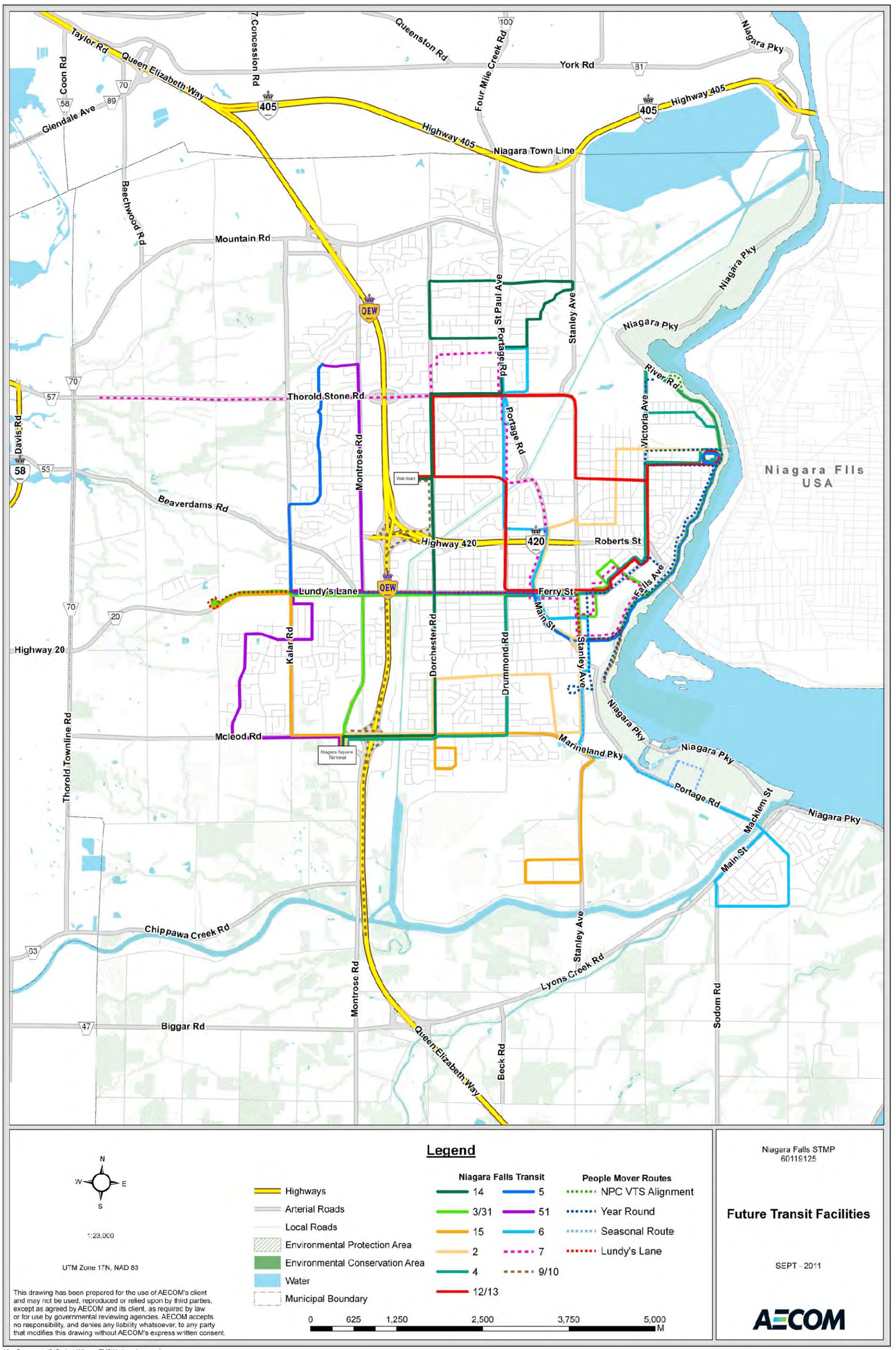


Table 20: TDM Recommendations

	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

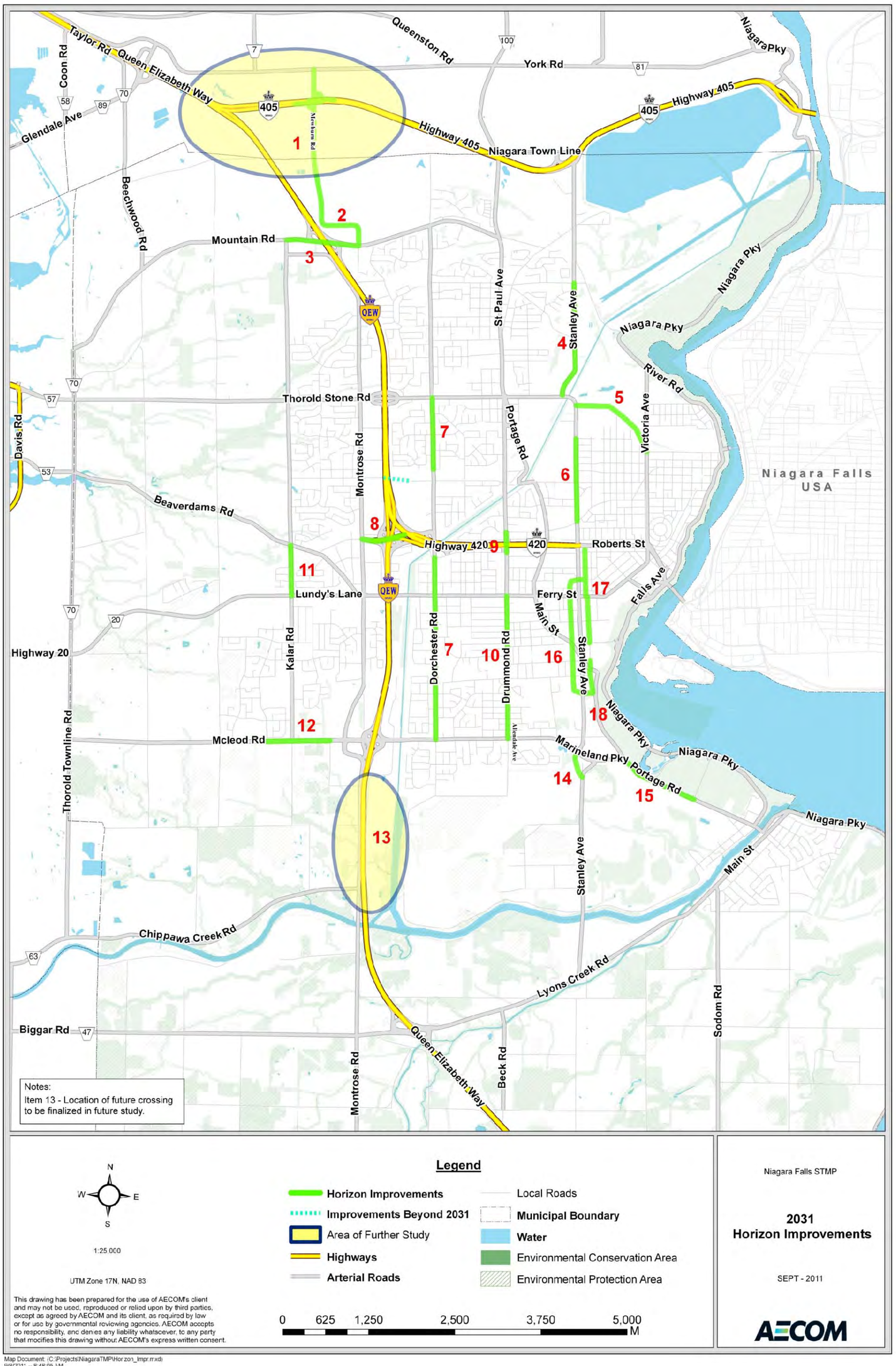


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Table 22: Roadway Improvement Recommendations

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

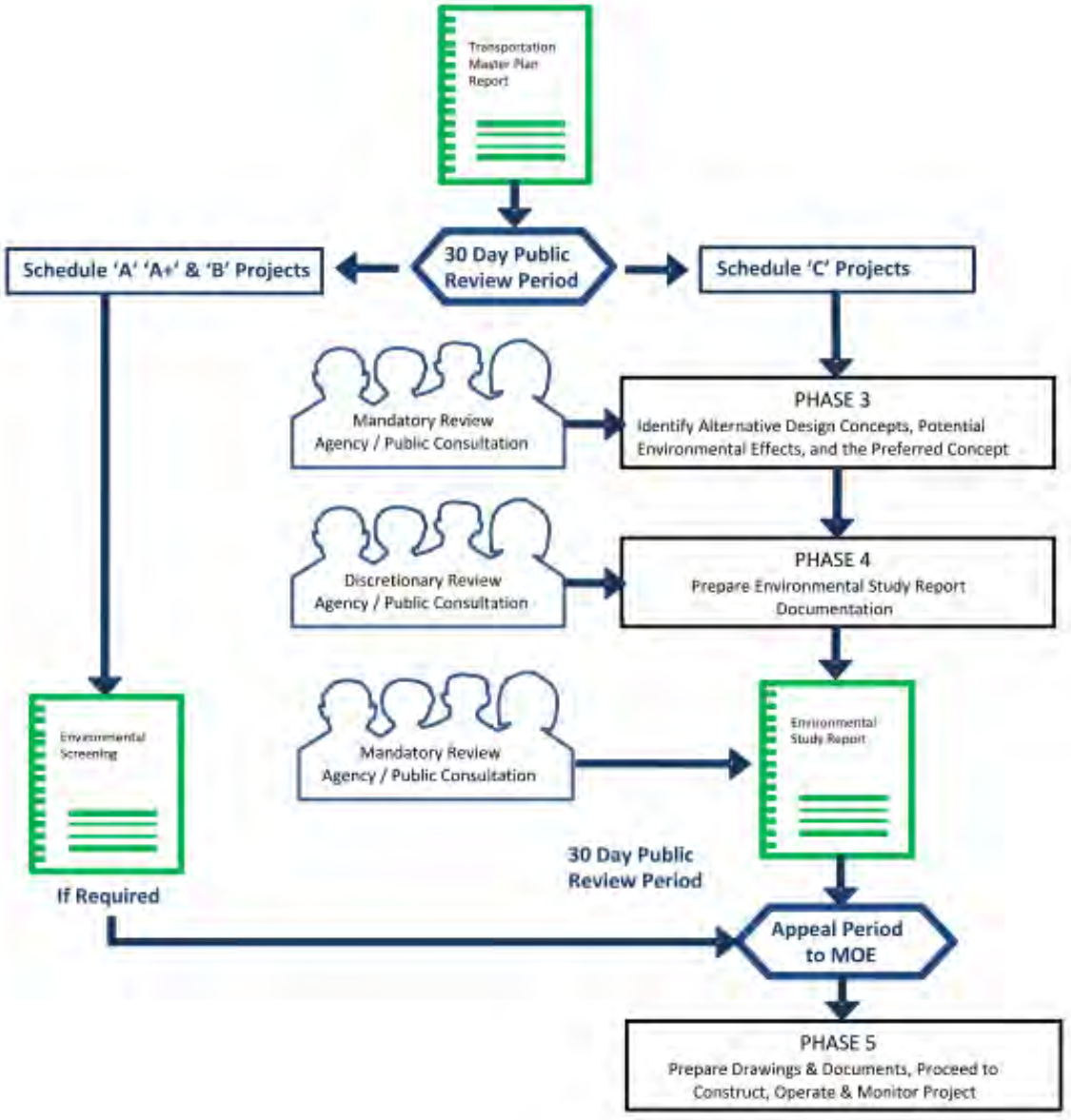
8.5.2 Municipal Class EA Process

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.