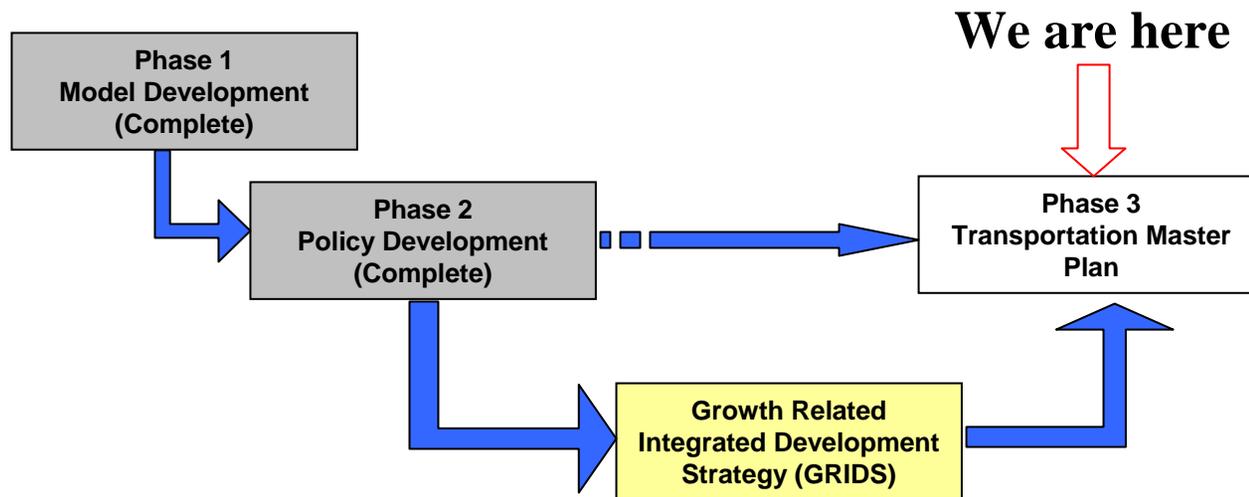




# CITY OF HAMILTON TRANSPORTATION MASTER PLAN PUBLIC INFORMATION CENTRE



Over the course of the past two years, numerous events have been held to obtain public and stakeholder suggestions on the preferred directions for City of Hamilton's Transportation Master Plan. In addition, a number of organizations were asked for their input on specific needs including the Cycling Committee, Transit Users Group, Accessibility Committee, Chamber of Commerce, Transportation Club, and others. The preferred transportation strategy seeks to balance the needs and objectives of the whole community.

Old Way of Thinking	New Way of Thinking
Public Transit is a drain on taxpayers	Public transit provides all people with an alternative travel choice, reduces air emissions, allows those without cars to access jobs and frees up road space for commercial vehicles.
Goods movement by trucks, rail, ship and plane is the responsibility of the private sector	Goods movement is essential to Hamilton's economy since most businesses look at transportation access in deciding where to locate. It is in the interest of the City to work in partnership with the goods movement industry.
Walking and cycling are only viable modes for a select group of people, and only for part of the year	Walking and cycling accounts for 11% of all morning rush hour trips. The fact that 50% of all rush hour trips are less than 5 km suggests there is potential to increase walking and cycling activity with spin-off environmental and health benefits.
Once a road reaches capacity, road expansion is necessary	Road expansion is only one of many solutions to address congestion. Others include optimizing road capacity, providing improved transit options and increasing tolerance for minor congestion

By 2031, Hamilton's population will increase by 130,000 people (25%). During the same period, 92,000 new jobs are expected to be created. If current travel characteristics remain the same, the following is projected to occur:

- 180,000 additional auto driver trips per day.
- 1.2 million additional kilometres driven by Hamilton residents each day, consuming 40 million litres of fuel per year and producing additional air emissions.
- Significant congestion on most escarpment crossings resulting in increased delays to auto drivers, transit riders and commercial vehicles.

*Existing road network level of service (AM Peak Hour)*



Volume to Capacity (v/c) Ratios are indicative of road congestion. Roadways with v/c ratios more than 0.85 (85%) tend to experience delays due to congestion.

*Road network level of service in 2031 assuming current travel behaviour and "committed" transportation improvements only*

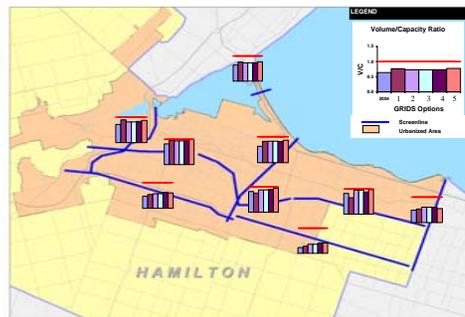
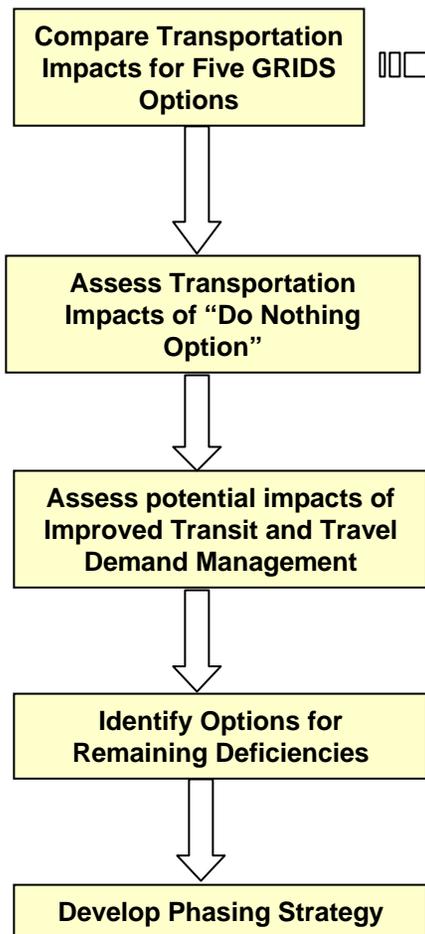


Committed transportation improvements are those that have been identified in previously approved sub-area transportation plans and Environmental Assessments

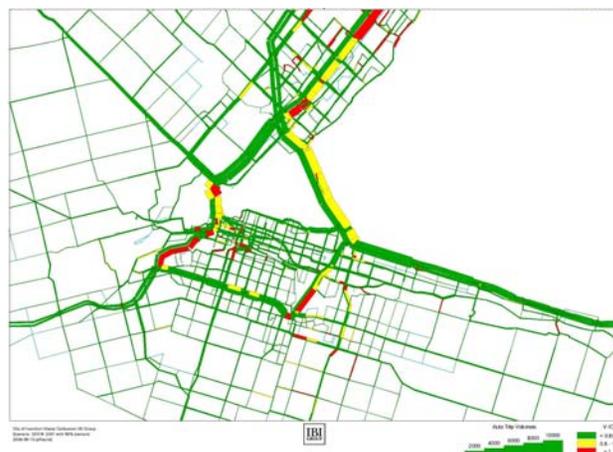
# ALTERNATIVE TRANSPORTATION SOLUTIONS

Several broad strategies were examined in terms of their potential to address the City’s transportation needs while respecting the principles of GRIDS and VISION 2020. Although no single approach is likely to solve all transportation problems, the preferred overall strategy is to rely on **transit and travel demand management**, in combination with **road capacity optimization** to solve transportation problems, before looking to road expansion. It is also recognized that adequate road infrastructure is essential for economic development and that strategies must reflect a balanced transportation network. Specific strategies also vary by individual location as discussed in later boards.

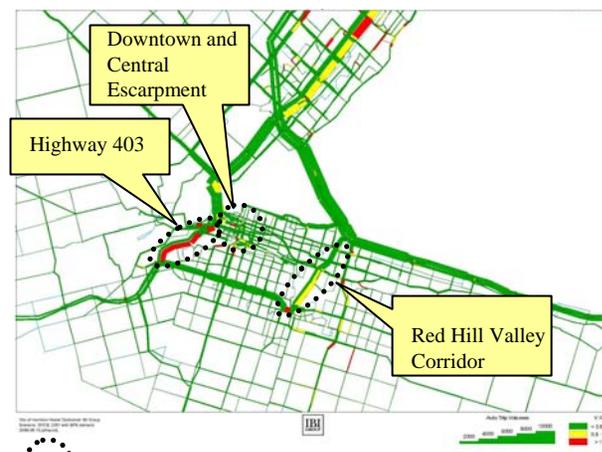
EVALUATION CRITERIA	Status Quo	Committed Projects Only	Modest Transit Expansion	Aggressive Transit Expansion	Travel Demand Management (TDM)Options	Roadway Capacity Optimization	Roadway Capacity Expansion
DESCRIPTION	- No major changes to the road, transit or active transit networks	- Projects already underway or identified in the 10 year capital plan	- Increases in existing bus services - Expansion of bus routes to new areas - Increased GO Transit Service	- Implementation of Bus Rapid Transit in key corridors - Policies to encourage more compact, mixed use development in transit corridors - Expanded transit service area - New GO Rail services	- Aggressive programs to encourage walking, cycling, ride-sharing, and telecommuting	- Localized intersection improvements - Access control along major corridors (i.e. improved signal coordination, turn restrictions)	-Selected road widenings - New arterial or collector roads to serve new developments - Potential Freeway expansion
NATURAL ENVIRONMENT FACTORS	- No impacts due to construction - Increase in congestion related air emissions	- Localized impacts due to road widening	- Will not achieve Vision 2020 targets for transit mode shares and air quality	-Most effective at reducing air quality - Can off-set need for new escarpment crossings and other road widenings	-If successful air emissions will be reduced - Typically does not require new infrastructure	-Defers road widening - Can reduce localized congestion and air quality	-Road widenings could impact water crossings, escarpment and other natural features - May increase vehicle use and related air emissions
SOCIO-CULTURAL FACTORS	- Would result in constrained social activities	- Current committed projects will not significantly improve transportation choices	- Improves transportation choice and access to transit for more of the population	- Helps to promote more sustainable, safe and integrated communities	- Requires behavioral change and may be seen as constraining mobility and freedom	- Few impacts on travel	-promotes auto-oriented lifestyles and related problems such as obesity, health problems - may require property acquisition
ECONOMIC FACTORS	-Delays due to congestion - Likely to “close door” on new development	-Committed projects can be accommodated within planned budget - Committed works do not account for new employment lands	-Modest increases can be achieved with available funds (i.e. gas taxes) - Improves transit to employment lands	- Will require funding from senior governments	- Measures involving disincentives may effect businesses, residents	-Travel time savings and other benefits usually outweigh costs - Some technological solutions have on-going operating costs	-Cost of new escarpment crossings is significant - Will reduce travel time delay and improve access for goods movement
TECHNICAL FACTORS	- Operational problems would increase	- Committed projects are all technically feasible	- No major impediments	-Restricted roadway widths limits ability to implement dedicated transit lanes	-Requires extensive human resources -Uptake of programs has been low to date	- Existing traffic systems will require major upgrade	-Many corridors cannot be widened - Property acquisition is difficult and time consuming
OVERALL ASSESSMENT							



The Preferred GRIDS Option promotes more compact development focused on transit corridors



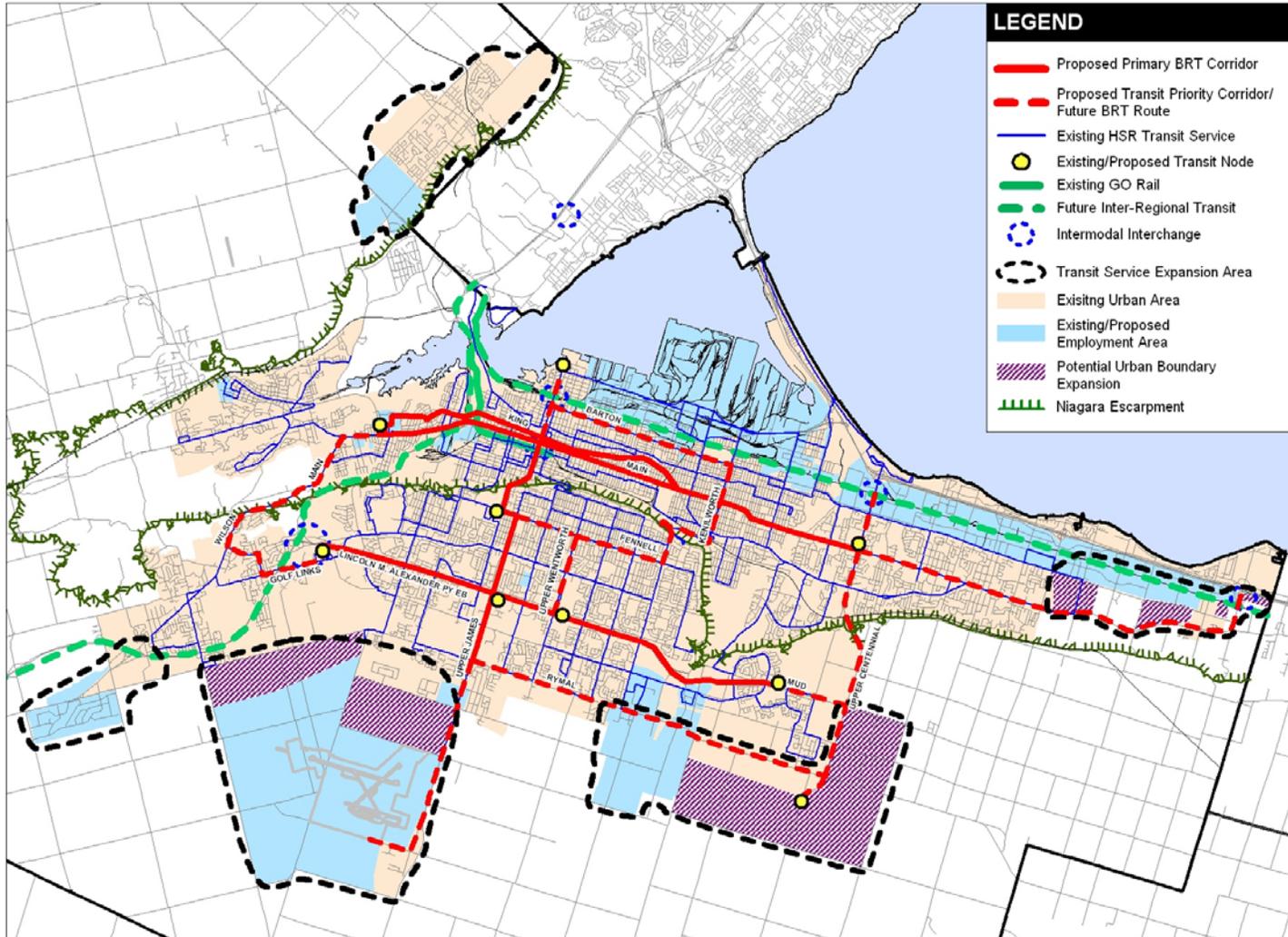
*Projected Transportation Deficiencies in 2031 assuming modest improvements in transit and modest travel demand management (~10% reduction in single occupant vehicle trips compared to trends forecast)*



● Areas with remaining capacity deficiencies (See later boards for solutions)

*Projected Transportation Deficiencies in 2031 assuming significant improvements in transit and aggressive travel demand management (~20% reduction in single occupant vehicle trips compared to trends forecast)*

# PREFERRED STRATEGIC TRANSIT NETWORK



*Bus Rapid Transit (BRT) is defined as “A flexible, high performance rapid transit mode that combines a variety of physical, operating and system elements into a permanently integrated system with a quality image and unique identity.”*

## Objectives:

- To develop a layer of bus routes connecting major transit nodes that are isolated from the effects of congestion; and
- To encourage transit-supportive development around nodes and corridors.

## Key Elements:

- Establish a primary BRT network initially consisting of three primary corridors:
  - A Lower City east-west corridor on King Street/Main Street/ Queenston Road
  - A Central North-South Corridor on James Street and Upper James via Mohawk
  - A Mountain East-West Corridor on the LINC.
- Establish other transit priority routes and express routes between major nodes

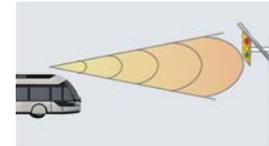
## Supporting Strategies

- Allow for more compact mixed-use development around nodes and corridors, and throughout lower City
- Establish a “special project team/department” to implement BRT
- Develop a comprehensive marketing program
- Pursue provincial/federal funding
- Ensure access for persons with disabilities

Specific alignments and cross-sections for BRT will be refined through subsequent phases of the Environmental Assessment Process and in consultation with HSR, the public and other stakeholders. Approaches will vary depending on available right of way, adjacent land use, traffic conditions and other factors. BRT will be implemented in a staged approach.

## Approaches to Implementing Bus Rapid Transit

*Transit signal priority and “queue jump” lanes*



*Curb-side transit/High-Occupancy Vehicle lanes*



*Fully dedicated transit-only lanes (median transitway)*



## Other Elements of Bus Rapid Transit

- Advanced vehicles, including low emission technologies
- Enhanced stations integrated with surrounding environment
- Off-board fare collection and “smart” cards
- Improved customer information

## East-west Lower City Corridor

EVALUATION CRITERIA	King Street and Main Street	Main Street Contra-flow lane	King Street with Two-way Traffic
DESCRIPTION	Routing would follow existing Beeline route on King and main	North lane on Main Street would be converted to a westbound lane for buses only	King Street would be converted to two-way traffic to allow for single corridor BRT route
NATURAL ENVIRONMENT FACTORS	<ul style="list-style-type: none"> <li>- Implemented using existing roadways</li> <li>- Improved transit service reduces air emissions</li> </ul>	<ul style="list-style-type: none"> <li>- Can be implemented using existing roadways</li> <li>- Improved transit service reduces air emissions</li> </ul>	<ul style="list-style-type: none"> <li>- Requires changes to ramps at Highway 403</li> <li>- Improved transit service reduces air emissions</li> </ul>
SOCIO-CULTURAL FACTORS	<ul style="list-style-type: none"> <li>- Balances access for King and Main</li> <li>- Requires people to walk between eastbound and westbound services</li> </ul>	<ul style="list-style-type: none"> <li>- Promotes more compact land use on Main Street</li> <li>- Potential safety concerns</li> </ul>	<ul style="list-style-type: none"> <li>- Encourages slower traffic, more pedestrian friendly streets</li> <li>- Promotes more compact land use on King Street</li> </ul>
ECONOMIC FACTORS	<ul style="list-style-type: none"> <li>- Least capital costs</li> <li>- Least impacts to businesses on Main Street</li> </ul>	<ul style="list-style-type: none"> <li>- Requires new traffic signals</li> <li>- Impacts parking and access for business on Main Street</li> </ul>	<ul style="list-style-type: none"> <li>- Highest capital cost</li> </ul>
TECHNICAL FACTORS	<ul style="list-style-type: none"> <li>- Routing is already in operation therefore no major barriers</li> </ul>	<ul style="list-style-type: none"> <li>- Width of traffic lanes on Main Street are sub-standard</li> <li>- Signal progression challenges</li> </ul>	<ul style="list-style-type: none"> <li>- Congestion on King Street will slow bus travel times</li> </ul>
OVERALL ASSESSMENT	●	●	●

## Mountain East-West Corridor (Heritage Green – Meadowlands)

EVALUATION CRITERIA	LINC	Stone Church Road	Rymal Road
DESCRIPTION	Routing would operate as high speed service with intermediate connections to Lime Ridge and Upper James	Routing would follow Stone Church Rd and Golf Links Road	Routing would follow Rymal Rd, Garth Street, Stone Church Rd and Golf Links Rd
NATURAL ENVIRONMENT FACTORS	<ul style="list-style-type: none"> <li>- Can be implemented using existing roadways</li> <li>- Improved transit service reduces air emissions</li> </ul>	<ul style="list-style-type: none"> <li>- Depends on connection from Stone Church to Meadowlands</li> <li>- Improved transit service reduces air emissions</li> </ul>	<ul style="list-style-type: none"> <li>- Depends on connection from Stone Church to Meadowlands</li> <li>- Improved transit service reduces air emissions</li> </ul>
SOCIO-CULTURAL FACTORS	<ul style="list-style-type: none"> <li>- Provides travel times competitive with cars</li> <li>- Higher density development adjacent to LINC is unlikely</li> </ul>	<ul style="list-style-type: none"> <li>- May be noise and visual impacts on existing residences</li> <li>- Less opportunity to change land use</li> </ul>	<ul style="list-style-type: none"> <li>- May be noise and visual impacts on existing residences</li> <li>- Supports transit-oriented development of Elfrida</li> </ul>
ECONOMIC FACTORS	<ul style="list-style-type: none"> <li>- Will require improved terminal facilities and connections</li> <li>- Does not require road widening</li> </ul>	<ul style="list-style-type: none"> <li>- provides direct connection to North Glanbrook Industrial Park</li> <li>- May require additional road widening</li> </ul>	<ul style="list-style-type: none"> <li>- provides direct connection to North Glanbrook Industrial Park</li> <li>- May require additional road widening</li> </ul>
TECHNICAL FACTORS	<ul style="list-style-type: none"> <li>- Connections to/from LINC must be seamless</li> <li>- Has potential to provide dedicated transit lanes in long term</li> </ul>	<ul style="list-style-type: none"> <li>- Dedicated lanes are not warranted, therefore BRT would duplicate local transit services</li> </ul>	<ul style="list-style-type: none"> <li>- Dedicated lanes are not warranted, therefore BRT would duplicate local transit services</li> </ul>
OVERALL ASSESSMENT	●	●	●

## Central Mountain North-South Corridor

EVALUATION CRITERIA	James Street and Upper James via Mohawk College	Victoria/Wellington/Upper James
DESCRIPTION	Routing would consist of James St, James Mountain Rd, West 5 <sup>th</sup> , Fennell and Upper James to north of Rymal Road	Routing would consist of Wellington St/Victoria St, Claremont Access, West 5 <sup>th</sup> , Fennell and Upper James to north of Rymal Road
NATURAL ENVIRONMENT FACTORS	<ul style="list-style-type: none"> <li>- Implemented using existing roadways</li> <li>- Improved transit service reduces air emissions</li> </ul>	<ul style="list-style-type: none"> <li>- Implemented using existing roadways</li> <li>- Improved transit service reduces air emissions</li> </ul>
SOCIO-CULTURAL FACTORS	<ul style="list-style-type: none"> <li>- Most direct connection between Upper and Lower City</li> </ul>	<ul style="list-style-type: none"> <li>- Wellington and Victoria have less potential to develop into transit corridor</li> <li>- Potential impacts on neighbourhoods</li> </ul>
ECONOMIC FACTORS	<ul style="list-style-type: none"> <li>- Promotes development of Downtown and James St corridor</li> <li>- Costs depend on degree of segregation of buses</li> </ul>	<ul style="list-style-type: none"> <li>- Requires new traffic signals</li> <li>- Costs depend on degree of segregation of buses</li> </ul>
TECHNICAL FACTORS	<ul style="list-style-type: none"> <li>- Buses may experience congestion on James St unless dedicated lanes are provided</li> <li>- Further assessment is required to determine cross-section for Upper James</li> </ul>	<ul style="list-style-type: none"> <li>- Wellington and Victoria do not connect with existing/proposed transit terminals</li> <li>- Further assessment is required to determine cross-section for Upper James</li> </ul>
OVERALL ASSESSMENT	●	●

*Dedicated median transit will be considered for the Upper James BRT Corridor*



## Objectives:

- To provide a seamless transit system; and
- To facilitate travel to/from surrounding regions

## Key Elements:

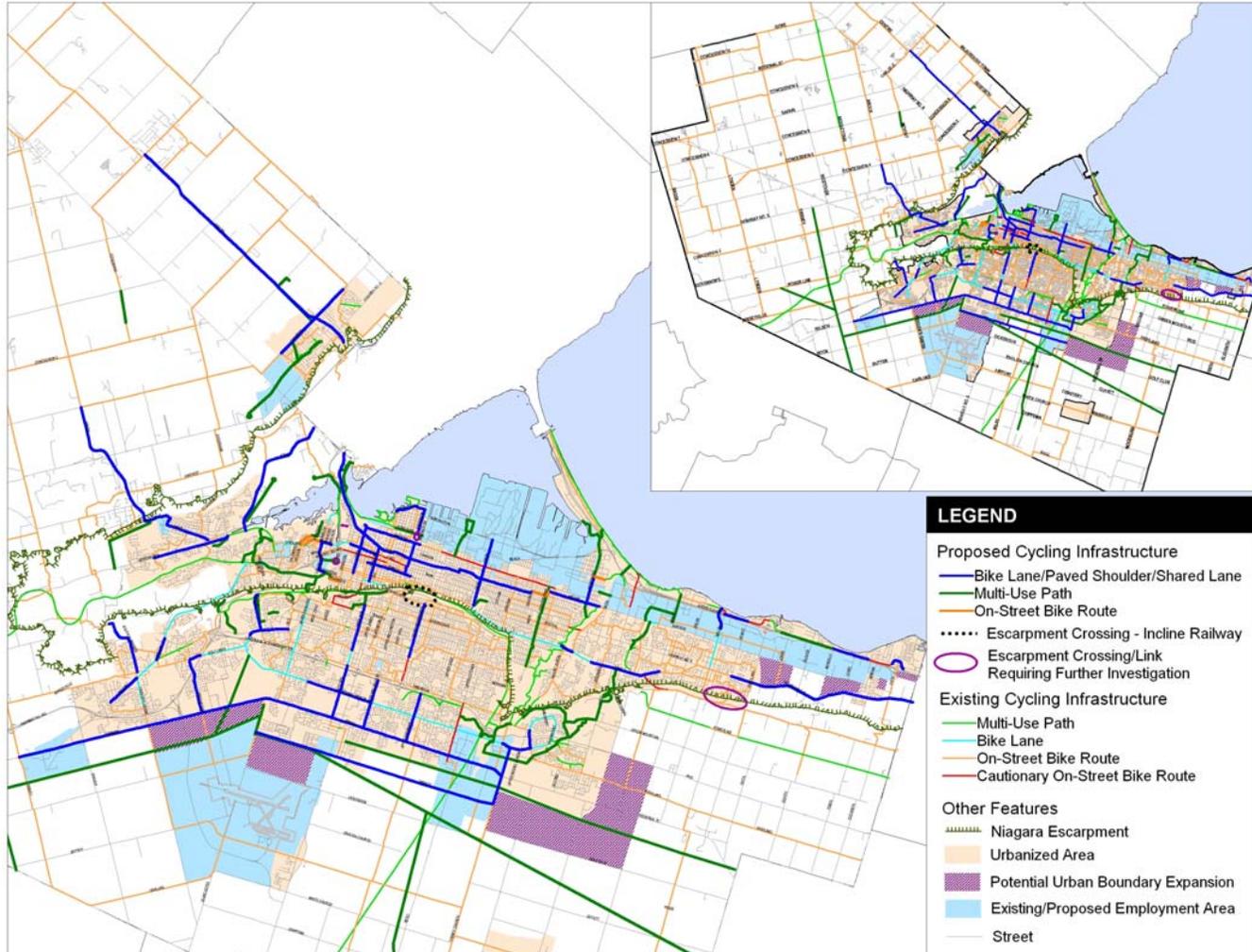
- Extend HSR transit service area to add or enhance service to outlying areas (e.g Waterdown, employment areas)
- Work with Province to Increase GO Transit service
  - Increase service to Hunter Street including inbound morning peak service
  - Extend GO Service to Niagara, initially as GO Bus and subsequently as GO Rail
  - Implement Highway 403 Intercity Bus service to Brantford/Cambridge
- Establish permanent park and ride at Meadowlands, Mount Hope, Elfrida, Winona and other locations
- Establish intermodal interchanges to facilitate carpooling and integration between HSR, GO and VIA Rail.
- Establish a new VIA Rail station in Downtown or East End

## Supporting Strategies

- Expand accessible transit options
- Expand TransCab concept
- Establish intermodal interchanges
- Utilize Smart Commute Program to promote strategies
- Provide bike racks on buses (see Cycling Board)
- Purchase environmentally friendly buses



# PREFERRED STRATEGIC CYCLING NETWORK



## Objectives:

- Facilitate efficient and safe travel for commuters and other cyclists through expansion and improvement of the network of on-street cycling facilities and Escarpment connections; and
- Promote recreational cycling and active transportation through the development of off-street facilities.

## Key Elements:

- Construct 66 km of new on-street bike lanes
- Construct 143 km of new multi-use paths (coordinated with Trails Master Plan)
- Construct 60 km of new shoulder bike lanes
- Construct new escarpment crossing at Wentworth Street
- Pursue incline railway (See Pedestrian Strategy)
- Implement trail improvements identified in Trails Master Plan

## Supporting Strategies

- Implement cycling education and awareness programs
- Conduct update to “Shifting Gears”, the City’s Cycling Plan
- Implement Trails Master Plan
- Amend zoning by-law to require bike parking
- Provide bike racks on buses



*Example dedicated on-street bike lane*



*Example shared on-street bike lane*



*Example multi-use path*



*Example paved shoulder*

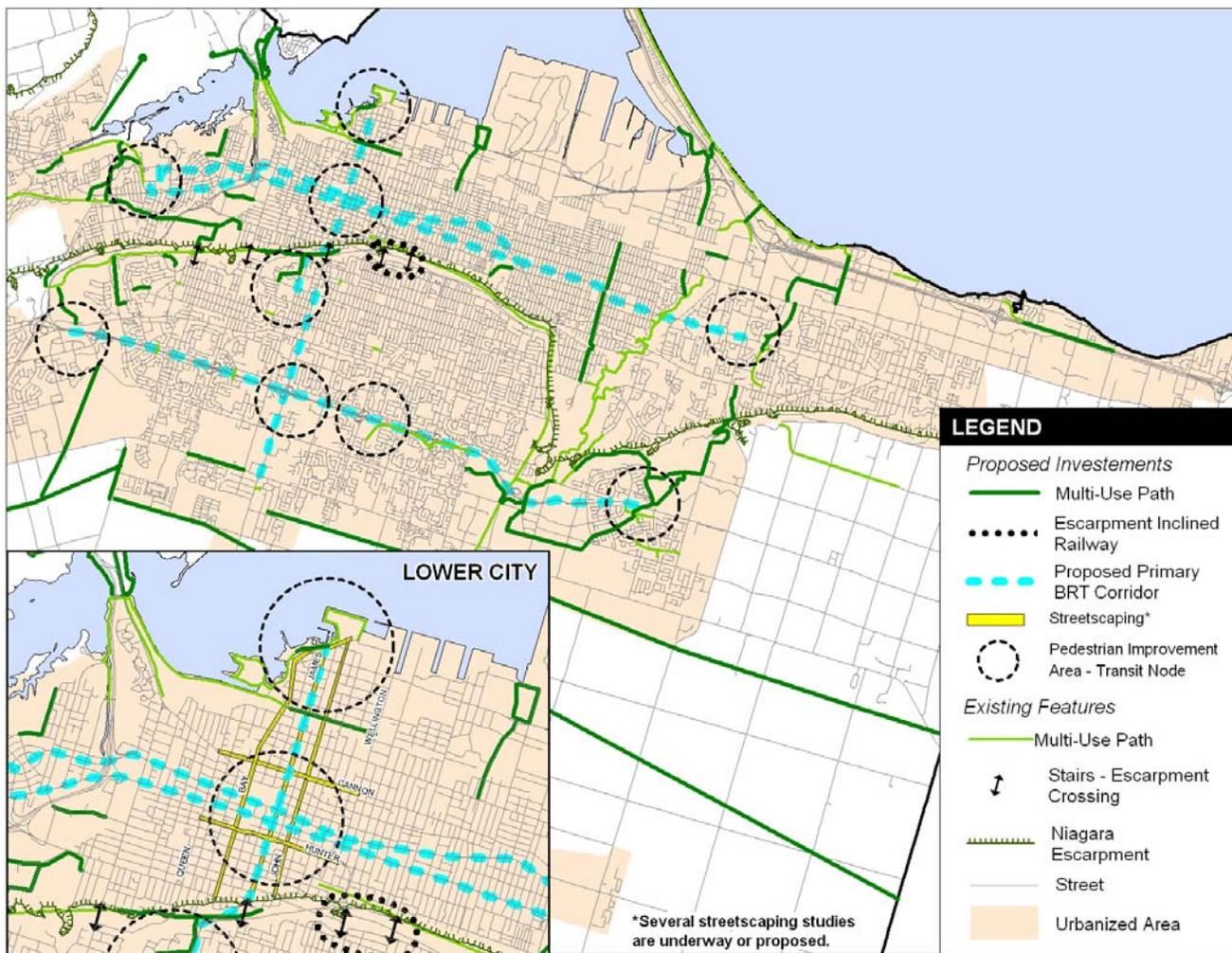


*Example bike rack on bus*



*Emerging pavement marking approaches*

# PREFERRED STRATEGIC PEDESTRIAN SYSTEM



## Objectives:

- Facilitate efficient, safe, and enjoyable travel for commuters and other pedestrians through expansion and improvement of the network of on-street pedestrian facilities; and
- Promote recreational walking and active transportation through the development of off-street facilities.

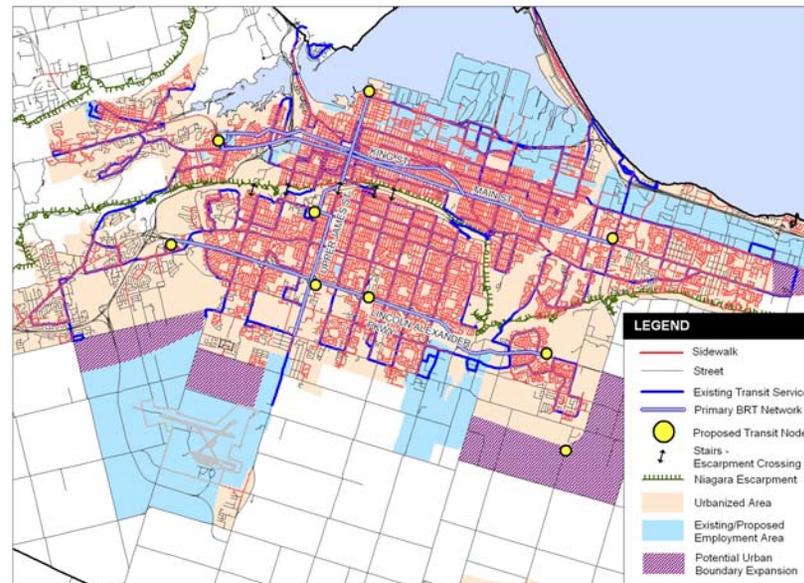
## Key Elements:

- Expand trail system, including 66 km of pathways on hydro corridors
- Focus pedestrian improvements on transit nodes
- Construct new escarpment crossings (i.e stairs)
- Implement downtown streetscaping plan
- Pursue incline railway near Wentworth Street

## Supporting Strategies

- Promote pedestrian safety and awareness
- Ensure sidewalks and paths are maintained
- Provide pedestrian amenities near transit stops
- Continue to make all sidewalks accessible for persons with disabilities
- Implement traffic calming in neighbourhoods
- Promote pedestrian oriented design in new developments

*Existing Pedestrian Infrastructure in relation to Existing/Future Transit Routes*



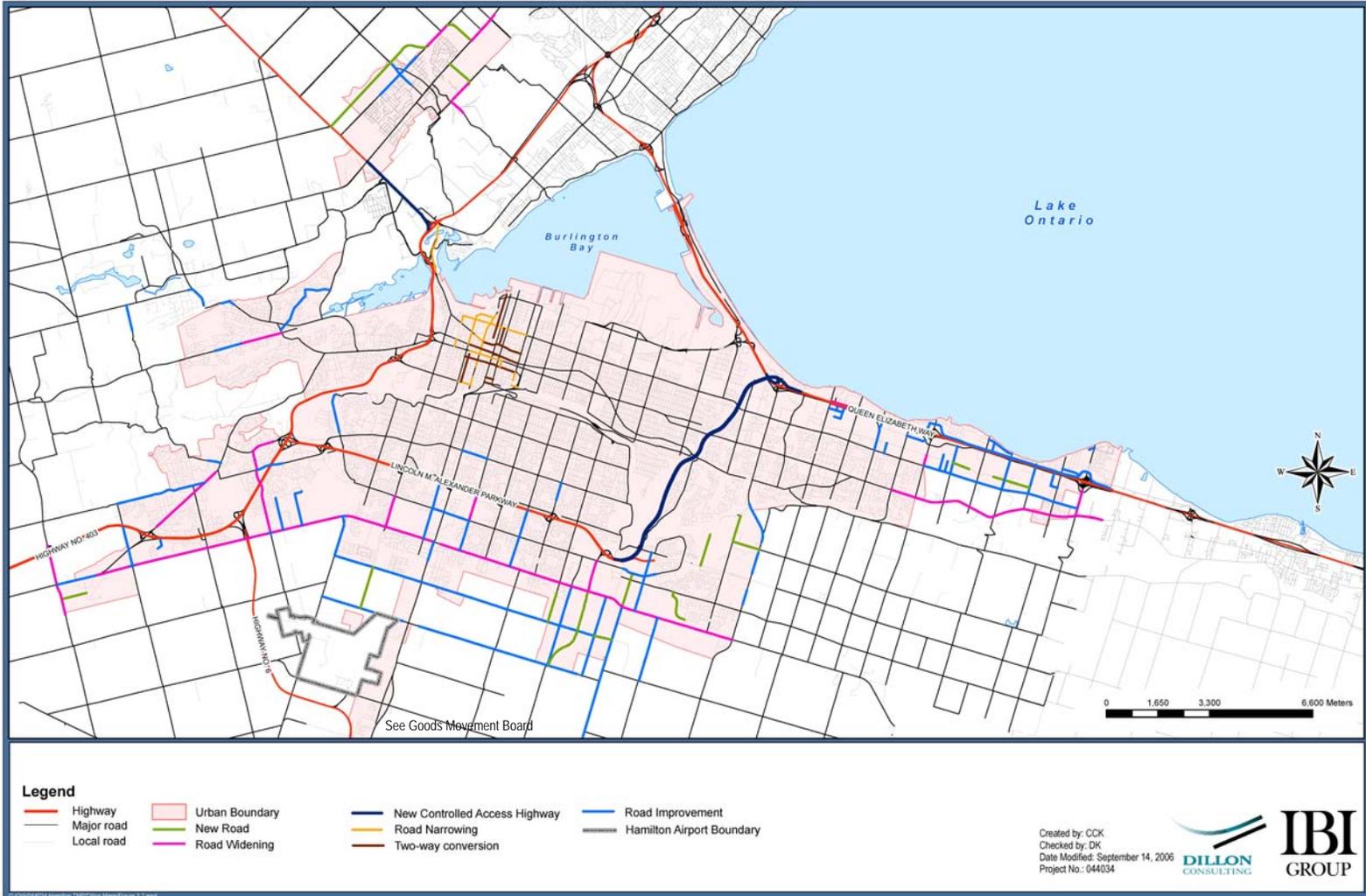
*Former incline railway near Wentworth Street*



*Example of modern incline railway*

# PREFERRED STRATEGIC ROAD NETWORK

Board 15



- Legend**
- Highway
  - Urban Boundary
  - New Controlled Access Highway
  - Road Improvement
  - Major road
  - New Road
  - Road Narrowing
  - Hamilton Airport Boundary
  - Local road
  - Road Widening
  - Two-way conversion

## Objectives:

- Maximize the efficiency of the existing road network in order to minimize the need for new escarpment crossings and other potentially high impact projects; and
- Focus road improvements on goods movement corridors and enhancing access to employment lands .

## Key Elements:

- Implement committed/planned road widenings to accommodate planned growth (Waterdown, Binbrook, Stoney Creek)
- Upgrade/Expand road links serving employment areas and growth areas (North Glanbrook, Airport Area, Stoney Creek)
- Rebalance capacity in downtown to improve pedestrian environment

## Supporting Strategies

- Work with Province to develop solution to address Highway 403 congestion
- Identify other local road improvements through secondary plans
- Expand use of Intelligent Transportation Systems to optimize road capacity

This Transportation Master Plan identified three major outstanding areas with road capacity deficiencies that are expected to remain after the preferred strategic road network improvements are implemented. Solutions to address these problem areas are discussed below. Any road improvements involving new roads or major changes in road capacity (>\$1.5 million) are subject to further assessment under the Environmental Assessment Process (Phases 3-5).

## Solutions to be investigated for remaining road capacity deficiencies in longer term:

### Downtown and Central Escarpment Crossings:

- Accept some congestion as part of a successful downtown
- Aggressive Transportation Demand Management (i.e. parking pricing)
- Additional transit improvements
- Postpone proposed conversion of east-west streets to two-way

### Red Hill Valley Corridor:

- Additional Transportation Demand Management and/or auto disincentives (i.e. road pricing)
- Possible additional lanes on Red Hill Expressway by 2031 depending on pace of development and success of TDM/transit initiatives

### Highway 403 Corridor:

- High occupancy vehicle lanes
- New GTA-Niagara corridor (currently under assessment)
- New rail corridors for goods movement (long term)
- Potential transit corridor using hydro corridor between Meadowlands and McMaster

*Example of HOV lanes implemented on Highway 403 and Highway 404 in the GTA*



## Objectives:

- Initiate transportation improvements that support Hamilton’s current and future role as a “Multi-modal Goods Movement Centre”; and
- Plan land use and transportation improvements to ensure residents and industry can co-exist .

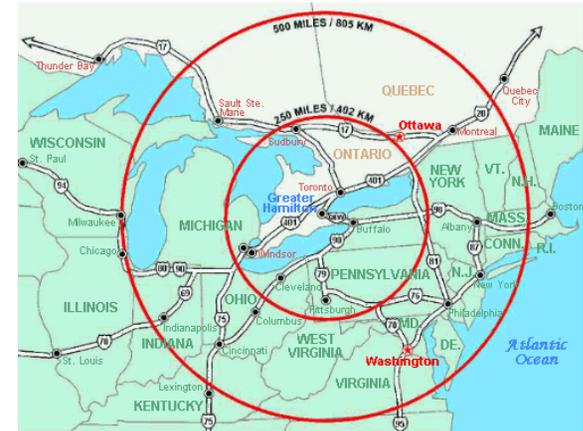
## Key Elements:

- Protect for route from Airport Employment Lands/New Highway 6 to Red Hill Valley (requires detailed Schedule “C” Environmental Assessment)
- Identify future connections to potential GTA-Niagara Corridor (currently under assessment by MTO)
- Establish logistics clusters as identified in the Hamilton Goods Movement Study

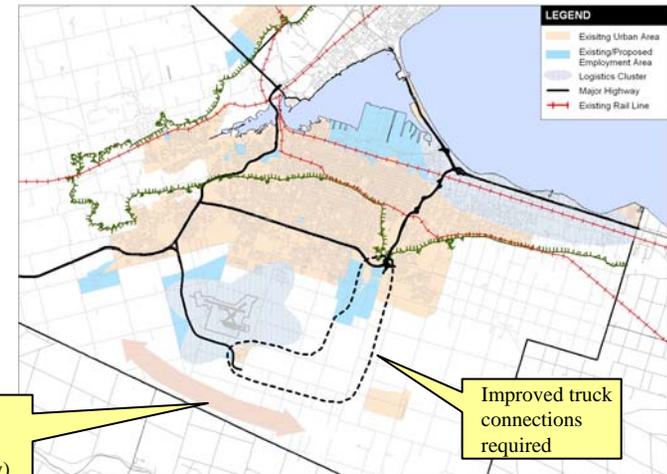
## Supporting Strategies:

- Review truck route network
- Facilitate initiatives for improved intermodal connectivity (short-sea shipping, rail intermodal)
- Continue to consult with goods movement industry

*Hamilton is strategically located with respect to major markets and trade corridors*



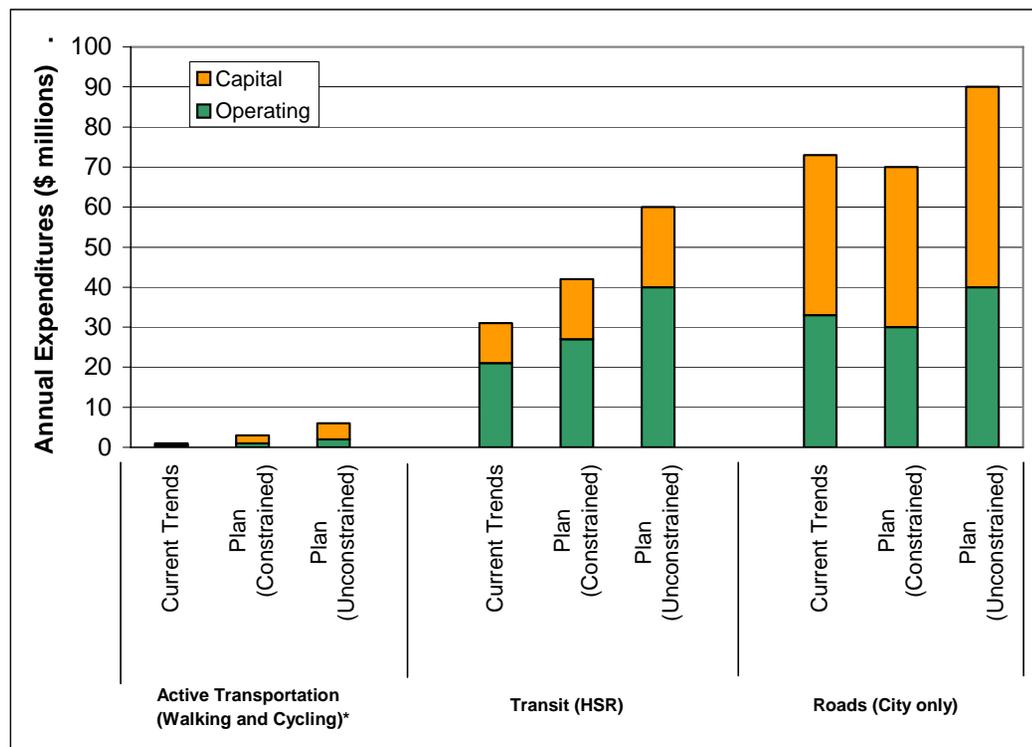
*Initiatives to facilitate goods movement and economic development*



**Current trends** are reflective of spending over past 5 years

**Plan (Constrained)** is the minimum expenditures required to implement the plan

**Plan (Unconstrained)** is the targeted funding required to address existing road rehabilitation needs and to fully implement desired transit improvements.



**Figures should be considered approximate since expenditures can vary considerably from one year to the next. Figures exclude one-time funding from provincial and federal governments.**

\* Some costs for active transportation (e.g. sidewalk construction) are included as part of roads budget.

The Transportation Master Plan, when approved, will provide a basic framework to guide infrastructure decisions and spending over the next 30 years. It is intended to be a “living document” updated regularly.

Successful implementation the plan will depend on several factors:

- Rebalancing expenditures to ensure a balanced transportation network
- Focus on realistic short term actions:
  - Implementation of Bus Rapid Transit in primary corridors
  - Implementation of improvements to facilitate goods movement and economic development
  - Implementation of strategic cycling and pedestrian improvements
- Ensuring on-going/future secondary plans reflect long term transportation plan
- Implement a performance measurement framework that is tied to the plan’s strategic framework and monitors outputs, outcomes and external influences
- Involve residents of Hamilton in the implementation of the plan and continually communicate successes and challenges

*All residents of Hamilton have a role to play in guiding the implementation of the Transportation Master Plan*