Coordinated Corridor Management:

Improving Efficiency on Canada's Urban Multi-Modal Transportation Corridors

Council of Ministers of Transportation of Canada
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Introduction

Many governments in Canada have made significant investments over the last decade to increase transit system capacity and ridership in major urban centres. The fiscal capacity to continue making such costly investments is constrained by competing demands on limited public resources. As well, investments targeted at reducing congestion or increasing ridership can have diminishing returns if other limiting factors in corridors are not addressed – for example, investing in additional transit vehicles may have limited benefits if existing vehicles are already operating below capacity due to corridor congestion or constrained boarding/unloading facilities.

Coordinated corridor management is an innovative approach to improving urban mobility for all users. It is a set of strategies and approaches that seek to maximize the efficiencies of the existing structure of a corridor by improving the movement and capacity for all users.

Rethinking how congested urban corridors and their supporting infrastructure are used may allow communities to get more from existing investments as opposed to making new investments, or it may allow communities to achieve short-term paybacks while awaiting completion of longer-term investments. Compared to investments in new transit vehicles or infrastructure alone, coordinated corridor management may be less costly and lead to better transit. It may also reduce congestion for goods and people, improve safety, reduce emission of greenhouse gases, and increase transit ridership.

Coordinated corridor management fits well with the "complete streets" concept. While complete streets are designed to enable safe and comfortable access for all modes of transportation on one corridor, coordinated corridor management has the added goals of maximizing the multimodal capacity. More than a planning concept, it requires effective implementation which in turn rests on involvement and support from all corridor interests and stakeholders.

Scope of this Report

This report uses a combination of literature research and Canadian case studies to highlight the factors that contribute to effective coordinated corridor management.

Case studies were identified by the members of the study team. The research and case studies were compared and analyzed to produce the study findings.

Key Themes

Canada and the United States face similar corridor management issues that are different from highly urbanized locations elsewhere in the world. North American arterial corridors built for passenger vehicles and commercial vehicles are being re-examined to determine whether multimodal approaches can increase capacity, safety, and customer service.

Although the information and case studies are highly focused on passenger transportation, there are indirect benefits to all modes with increase use of alternate modes of transportation along a corridor.

Eight key themes emerged from the research.

1. Successful corridor strategies are linked to clear land use goals;
2. Transit-oriented development and bus rapid transit along corridors work well;
3. Tools are available to improve the efficiency of existing corridors;
4. Interim solutions that operate on existing corridors can precede spending on major projects;
5. Enhanced pedestrian and cycling facilities improve use and flow;
6. Reconciling the competing needs of different users on a corridor is a challenge;
7. A clear planning process, public consultation, and the linking of planning and operation functions are required; and
8. The movement of goods should be accommodated along with other corridor uses.

Case Studies

Five case studies were prepared:

- Queens Quay Revitalization, Toronto, Ontario
- King George Boulevard, Surrey, British Columbia
- Gatineau Rapibus Corridor, Gatineau, Québec
- Comex Transit Corridors, Saint John, New Brunswick
- Portland Street, Halifax, Nova Scotia

The full case studies are provided as appendices to this report.

Discussion of Themes and Case Studies

The eight themes are presented below. For each theme, components of the case studies that illustrate each theme are included.

1. Successful corridor strategies are linked to clear land use goals

Regional and local growth strategies increasingly recognize the link between transportation and land use. In larger urban areas, plans promote denser uses of existing land near higher-capacity transportation corridors, as opposed to new development on the periphery of the community. Some regional plans, such as Metro Vancouver's 2011 Regional Growth Strategy, integrate transportation considerations into their goal statements, and target key transportation corridors. Transit service, goods movement, and other transportation services are then focused on these corridors and serve the desired land uses in the community.

The types of services provided and the type of infrastructure that is constructed should support land use goals and ensure efficient use of the corridor. This necessitates not just focusing on the corridor itself, but on surrounding land uses to ensure that adjacent development plans and zoning by-laws complement the use of the corridor. In addition, population and employment forecasts need to be tracked and monitored to ensure corridor improvements remain in line with actual and anticipated growth. Goods movement should be considered at the outset of the

planning process, to ensure that future rights-of-way to accommodate goods movement are protected, or where truck routes may be beneficial between major commercial areas.

Examples:

King George Boulevard, Surrey, British Columbia

- Metro Vancouver's 2011 Regional Growth Strategy (RGS) aims to be fully aligned with TransLink's regional long-range transit planning strategy.
- The RGS integrated TransLink's Frequent Transit Network (FTN) and Major Road Network (MRN) into the plan. Land uses and density were concentrated where transportation services were being provided.
- The FTN provides higher quality service to corridors of higher density and mixed-use development. King George Boulevard is designated as part of the FTN, and will have high-quality transit service, encouraging transit-supportive land uses along the corridor.

Queens Quay Boulevard, Toronto, Ontario

- The City of Toronto Official Plan (OP) outlines the desire of the city to improve its waterfront to be more amenable to all modes of transportation, creating a waterfront that is healthy, diverse, public, and beautiful.
- A key component of this plan is to maximize the use of available land within the waterfront, adding employment and residential areas to supplement the existing stock of the downtown area immediately to the north.
- A 25-year plan seeks to redevelop over 800 hectares of waterfront land, build 40,000 new residences, and create 40,000 new jobs. Revitalizing Queens Quay, the east-west corridor that serves the waterfront, is crucial to achieving the stated land use objectives.

2. Transit-oriented development and bus rapid transit along corridors work well

Many large Canadian and American cities and regions continue to explore frequent and rapid transit on corridors. Frequent transit and bus rapid transit (BRT) along urban corridors is allowing planners to better predict how the systems will operate. In some cases, the increased capacity of BRT service allows more expensive rail projects to be deferred to a later date.

Transit-oriented development has also been shown to be successful when linked to fixed station bus rapid transit. Pedestrian and cycling infrastructure is available, linked to the transit infrastructure.

Examples:

King George Boulevard, Surrey, British Columbia

- Transit-oriented development has been encouraged in the northern sections of King George Boulevard to support the Frequent Transit Network.

- SkyTrain stations are integrated into commercial buildings, while residential towers are being clustered within walking distance of the Frequent Transit Network.

Gatineau Rapibus, Gatineau, Québec

- Gatineau's regional plan aims to increase activities on public transit corridors, including the Rapibus corridor. Two of the plan's actions are directly linked with the Rapibus corridor:
    - Encourage higher density land uses and residential development within a 500 meter radius of the Rapibus stations.
    - Encourage employment clusters within a 500 metres radius of the Rapibus stations.

3. Tools are available to improve the efficiency of existing multimodal corridors

Transportation professionals have developed numerous technical tools that can be used to increase corridor efficiency, including:

- *Signal priority:* Many jurisdictions employ traffic signal strategies that provide priority to specific modes, often transit vehicles. Signal priority can include designated signals or adjustments to signal timings to allow priority movements through an intersection.

- *Signal coordination*: Coordinating traffic signals to reduce delays along major corridors has been a long-standing practice in most jurisdictions. More recently, coordinating signals across municipal boundaries has led to even greater efficiency gains. Agencies continue their efforts to coordinate traffic signals along key multi-use corridors, and to explore emerging technologies.

- *Designated lanes*: Lanes that are designated for High Occupancy Vehicles (HOV), transit, or goods movement can improve efficiency and reliability by providing road space to high-priority or high-capacity modes. Many cities now have HOV networks or dedicated bus lanes linking key corridors. These are sometimes in effect during peak periods only.

- *Traffic management centres*: Monitoring centres allow staff to react in real time to congestion and incidents. As corridors become more complex, real time management can contribute to improved efficiency and coordination among different modes.

- *Parking management*: Many urban corridors provide roadside parking. In most cases, this parking was initially provided to serve local businesses at a time when traffic volumes on the street were lower. While on-street parking provides economic benefits and buffering between vehicles and pedestrians, it also takes up road capacity and causes friction as vehicles enter and exit parking spaces. Strategies such as peak hour parking restrictions, reduced parking supplies, or off-street lots can improve corridor efficiency.

- *Travel Demand Management***:** There are a number of strategies to help manage existing travel demand, including promoting large employers to promote/incentivize using carpools, transit and active transportation. Strategies such as these can help manage peak travel demand and ease congestion for all transportation modes on urban corridors.

Examples:

Gatineau Rapibus, Gatineau, Québec

- Rapibus is based on a system of exclusive lanes built parallel to the existing Québec-Gatineau Railway corridor and right-of-way is given to buses in order to maintain service reliability.
- Road devices linked with an electronic control centre make it possible for the bus to be detected when approaching a traffic light. The system gives priority to buses in mixed traffic situations.

Queens Quay Boulevard, Toronto, Ontario

- Traffic lanes will be reconfigured, with dedicated turning lanes and signal timing allowing for better flow of both transit and vehicle traffic.

4. In advance of major projects, agencies can implement interim solutions that improve movement on existing corridors

Agencies have implemented interim measures to accommodate or generate demand in advance of rapid transit projects. These measures can include higher service frequency, dedicated bus stops, priority lanes, and marketing and branding. Other agencies implement interim measures to defer investment in road capacity improvements.

In Metro Vancouver, TransLink operated a centre-median rapid bus service linking Vancouver to Richmond (the 98 B-Line) from 2001 to 2009. It was then removed and replaced by the Canada Line SkyTrain rapid transit.

Examples:

King George Boulevard, Surrey, British Columbia

- TransLink is introducing a B-Line rapid bus service on the corridor in 2013 as a precursor to rapid transit. The B-Line service would initially operate as far as Newton Town Centre, with 7-8 minute frequency during the day.
- TransLink has identified King George Boulevard as a rapid transit corridor, which would have higher service frequencies and operate on an exclusive right-of-way.

Comex Bus Rapid Transit, Saint John New Brunswick

- The introduction of more frequent transit service on key commuter routes in the Saint John area contributed to the road authority's decision to defer the construction of more highway lanes between Saint John and Rothesay.

Gatineau Rapibus, Gatineau, Québec

- Before the implementation of the Rapibus, several bus lanes have been developed to improve service near what would become the future Rapibus corridor.

5. Enhanced pedestrian and cycling facilities improve use and flow

Enhanced pedestrian and cycling facilities on urban corridors have proved to be effective at improving movement. Many provinces have developed guidelines and policies regarding the integration of cycling and pedestrian facilities into road projects.

Adequate pedestrian facilities are critical in corridors that are transit-oriented. Without well-used pedestrian facilities, transit becomes less desirable, leading to greater dependency on the automobile and reduced effectiveness of the multi-modality of the corridor. In addition, cycling facilities must be integrated with a cycling network outside the corridor in order to be effective in creating connectivity to help move cyclists from area to area. Cycling facilities must also keep 'non-experts' in mind to ensure that corridors can be safe for all users, regardless of experience level.

For example, in Metro Vancouver, TransLink has developed a regional cycling strategy that ensures that cyclists have either the necessary facilities on major routes or alternate parallel routes to avoid conflict with other modes. In Toronto, facilities for pedestrians and cyclists are included within the city's existing and newly built road network, as mandated by the city's Bike Plan and its Pedestrian Charter.

Examples:

Gatineau Rapibus Corridor, Gatineau, Québec

- A bike path along the Rapibus corridor links together major centres of employment, education, leisure, and commercial activities and provides a direct connection to regional cycling networks.
- Nine bus stations are also equipped with bike racks.

Queens Quay Revitalization, Toronto, Ontario

- Traffic lanes south of the streetcar tracks become a tree-lined, designated bike path and a broadened pedestrian plaza.

Comex Bus Rapid Transit, Saint John, New Brunswick

- Bus stations connect with existing cycling routes and buses are equipped with bike racks
- Employers in Saint John are encouraged to build bike racks.

Portland Street Corridor, Halifax, Nova Scotia

- All routes on the corridor will be wheelchair and bicycle accessible in 2013.
- Locations along the route link into the regional recreation trail network, which was improved in 2005.

6. Reconciling the competing needs of different users on a corridor is a challenge

Pedestrian facilities, cycling lanes, and transitways can all be safely constructed on the same corridor if sufficient space is available. However, the challenge on existing urban corridors is accommodating competing modes where space is limited. Tradeoffs are required.

Key considerations include:

- Providing appropriate levels of service for all modes to minimize risk taking and user criticism.
- Providing good visibility for all users.
- Keeping intersections as simple as possible, and crossing distances short.
- Giving consideration to the capabilities and vulnerabilities of different age groups.

The development of the "complete streets" concept is an important part of addressing the challenge of multiple users because it seeks to re-develop corridor rights-of-way to balance the needs of motorists, cyclists, pedestrians, transit, and goods movement.

The Province of Ontario, through its Transit-Supportive Guidelines, is seeking to help achieve those goals across Ontario by providing direction to municipalities on successful strategies to implement complete streets, and, in the process, reconcile the competing needs of different users on a corridor. These process, design, evaluation and planning strategies guide municipalities through the different aspects of implementing a comprehensive complete streets planning process to ensure that local user characteristics and long-term priorities for streets and surrounding areas are reflected in the way streets are planned and designed.

The complete streets concept uses a six-stage process to meet competing user needs:

1. Define the land use context;
2. Define the transportation context;
3. Identify deficiencies;
4. Describe future objectives;
5. Define street type and initial cross-section;
6. Describe trade-offs and select cross-section.

Examples:

King George Boulevard, Surrey, British Columbia

- Providing for both bus rapid transit/light rail transit and cycling facilities will be a challenge, as the B-Line service will initially use curb lanes, so there may be some conflict with bike lanes.
- The proposed BRT/LRT would resolve this conflict by using median lanes in some sections of the corridor.

Queens Quay Revitalization, Toronto, Ontario

- During the plan's development, Waterfront Toronto commissioned a study which analyzed summertime intersection volume by mode versus the amount of space allocated to each mode (see graphic on page 18), which was then used to inform decisions with regard to the amount of space allocated to meet the demands of each mode.

Gatineau Rapibus Corridor, Gatineau, Québec

- Safety measures were introduced to minimize interference between different users of the corridor:
    - An overpass was constructed at the Cité station to allow pedestrians to cross Rapibus lanes safely.
    - The bicycle path has been designed so that it does not go through bus loading areas.

7. A clear planning process, public consultation, and the linking of planning and operation functions are required

Public agencies have documented some steps that can contribute to the success of a coordinated corridor. These steps include:

- Setting a short-term and long-term vision for the corridor
- Developing the supporting regulations, bylaws and policies
- Ensuring public participation and stakeholder involvement
- Using interdisciplinary approach that includes a broad range of skills and viewpoints
- Ensuring integration and communication between planning and operations staff to achieve coordinated action.

Examples:

King George Boulevard, Surrey, British Columbia

- Metro Vancouver's Regional Growth Strategy and Surrey's Official Community Plan provide a long term vision for the corridor.

- Surrey's Transportation Strategic Plan provides supporting policies that will help the vision to be implemented.
- These planning processes have involved public participation and stakeholder involvement.

Queens Quay Revitalization, Toronto, Ontario

- The Queens Quay revitalization is supported by a hierarchy of broad-based plans that incorporated public and stakeholder input.
- The project is being coordinated by the Waterfront Toronto Corporation, established by the governments of Canada, Ontario, and Toronto.

Gatineau Rapibus Corridor, Gatineau, Québec

- The implementation of the Rapibus system falls into the regional transit agency's mission and its long-term vision which includes a modal shift towards public transit.
- The mission is to provide the residents of Gatineau with a reliable transportation system that meets the population's current needs at a cost that is suitable for users, taxpayers, and municipalities.

8. The movement of goods should be accommodated along with other corridor uses

In most urban areas, the majority of goods movement along corridors is for loading or unloading shipments, or to help facilitate servicing areas for uses such as postal service, parcel delivery, and garbage collection. However, the movement of larger tractor-trailers can also be expected on urban corridors, as goods are moved through urban areas and to and from port facilities.

Efficient goods movement is vital to the proper functioning of the economy of urban areas and should be considered as a key element of coordinated corridor management. The efficiency of goods movement along a multimodal corridor is dependent, in part, on the ease with which freight vehicles enter and exit the system unduly affecting the flow of all road users. It is critical that corridor infrastructure be built to effectively accommodate larger vehicles and to help maximize traffic flow to minimize delays as much as possible.

Planning considerations include identifying safe and efficient routes for commercial vehicles that travel between major commercial nodes, and time of day strategies that allow commercial vehicles to most effectively use these routes. Operational and design considerations include routing commercial vehicles through intersection that provide longer turning radii, increased directional signage, additional traffic signal heads, and accommodating for commercial vehicles in signal timings. Municipalities need to ensure that businesses and other freight stakeholders are consulted in the formation of corridor management plans to help determine their logistical needs and capacities.

Examples:

Gatineau Rapibus Corridor, Gatineau, Québec

- The corridor's route follows the existing Québec-Gatineau Railway corridor, utilizing the railway's right-of-way while allowing for rail freight to continue unabated.
- The creation of bicycle lanes along the corridor also improves its modal share capacity.

Queens Quay Revitalization, Toronto, Ontario

- The Environmental Assessment (EA) for the project included considerations for facilitating goods movement along the corridor, specifically looking at the commercial shipping/loading entrances and the needs of residential servicing areas (i.e. garbage, postal trucks).
- The EA assessed the capacity for goods movement according to the different revitalization options. The option selected was the most amenable to goods movement and loading/unloading.

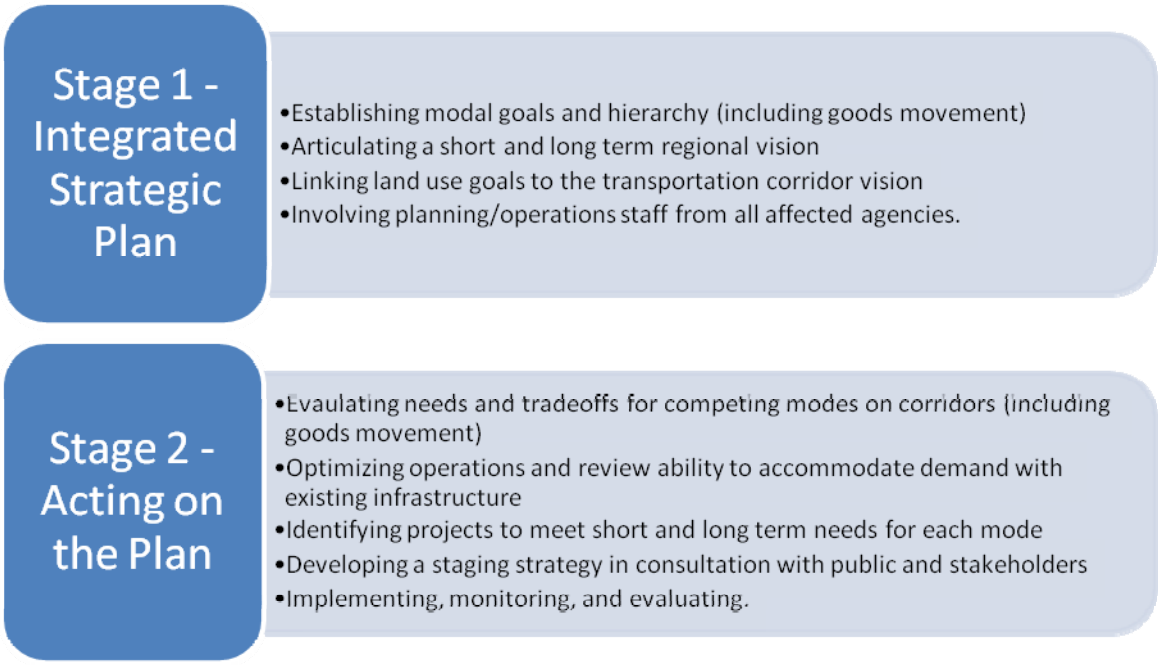
Discussion and Conclusions

Successful coordinated corridor management relies on multi-agency, staged coordination on short-term and long-term planning.

Successful coordinated corridor management is dependent, like most other transportation initiatives, on solid planning direction and multi-agency cooperation to implement that plan.

An integrated strategic plan identifies key corridors and defines the short-and long-term vision for moving goods and people. The planning process ideally involves all of the affected levels of government and service delivery agencies, including both their planning and operations staff. An integrated plan allows all parties to agree on next steps.

Plans should reconcile the competing needs of all modes and include a staging strategy on how improvements should be phased in to best integrate changes with evolving land uses along the corridor.



Partner agencies should develop a staging strategy that spans the life of a strategic plan. Land use and population/employment changes over the life of the plan should be forecast and monitored, and linked to the most cost-effective transportation services to support the land use. Staged implementation can meet short-to medium-term demand without interfering with long-term needs.

Integrating various transportation modes into a corridor strategy should be a priority. Major corridors will be expected to safely serve transit, cycling, pedestrians and vehicles. In many cases, existing cross sections, constrained rights of way, and limited budgets will require designers to be creative in how these modes are accommodated. Options may include multi-use paths, dedicated bus lanes that are also available to cyclists, or the use of parallel streets. By coordinating the strategies for the different modes, transportation improvements aimed at one mode (such as pedestrian or cycling improvements) can also help to support the effectiveness of other modes (such as transit).

Monitoring and adjusting the staging plan over time will also be beneficial. Tracking whether the real population and employment numbers match the forecasts will allow transportation agencies to adjust the timing of transportation improvements, or change the type of improvement. For example, the implementation date of a rapid bus service could be deferred if a community does not meet its land use targets.

Allocating and designating corridor space to different road users: pedestrians, cyclists, transit vehicles and private motor vehicles can untangle the mix of competing modes that travel at widely different speeds, which can create unsafe conditions and interactions between various types of road users.

In order to maximize the use of a transportation corridor, municipalities need to look to increasing the people capacity, and not just vehicular capacity of a corridor. This can be effectively achieved by transporting more people by transit. Improving physical access to transit service – from better spacing of transit stops, better transit shelters, improved transit loading areas, to enhancing pedestrian and cycling connections to transit routes – is a fundamental strategy to getting more people on buses and light rail transit.

Predictable and dependable transit service delivers ridership. Transit priority measures aim to improve transit travel times and enable more consistent and reliable transit service by providing priority to transit vehicles within the street rights-of-way. Priority measures can be achieved through provision of a range of design interventions, such as exclusive lanes, queue jump lanes, restricting turning lanes and on-street parking, signal prioritization that will result in improved transit operations and travel times.

Successful implementation of corridor management also depends on choosing the right corridor to invest in. Investments in transit service must be supportive by intensive land use in order to sustain the enhanced services.

Summary

As provinces across Canada experience growth in their regions and cities, governments are often faced with public demands to act on the resulting traffic congestion and lack of transportation choices. There is a tendency for governments to focus on costly transportation infrastructure investments to address the problem. These projects often take billions of dollars and decades to plan, build, and bring into operation.

Coordinated corridor management can be a cost-efficient and effective alternative to building expensive new highways, subway lines or grade-separated light rail transit. It can act as an interim solution as urban growth takes shape and provide the ridership necessary to support future higher-order transit. It can also increase active transportation use by focusing on all modes of travel to improve a corridor's ability to move people, not just vehicles.

Regardless of municipal size, coordinated corridor management can be successfully applied using standard principles of good planning and collaborative implementation. By focusing on staging services and investment over time to meet the short-term and long-term needs of a changing corridor, municipalities can achieve the goal of fully utilizing corridors as cost-effectively as possible for all users.

Case Study #1 – Queens Quay Revitalization - Toronto, ON

Summary:

The Queens Quay revitalization project on Toronto's waterfront uses a coordinated corridor management approach to improve transit, cycling, and pedestrian modal share, while increasing connectivity with existing transit and road infrastructure. The project is funded by municipal, provincial, and federal governments and works within the existing provincial and municipal planning framework.

Figure 1 - Queens Quay, revitalized

Background:

Toronto is Canada's biggest and fastest-growing city, but its development is hampered by the lack of an integrated and comprehensive network of public transportation. The cost of congestion in the Greater Toronto Area was $6.0 billion in 2006 and could rise to $15 billion by 2031.[1] The average commute time in the area is 82 minutes, and inadequate transportation networks have been identified as a serious impediment to the city's global competitiveness.

To tackle these challenges, in 2006 Ontario established Metrolinx, a regional transportation body, which released *The Big Move: Transforming Transportation in the Greater Toronto and Hamilton Area* in 2008. This regional transportation plan seeks to offer "reliable, convenient and

[1]Metrolinx (2008).*The Big Move: Transforming Transportation in the Greater Toronto and Hamilton Area*. Retrieved from http://www.metrolinx.com/thebigmove/Docs/big_move/TheBigMove_020109.pdf.

fast transit, safer bikeways and pedestrian walkways, less congested roads and a more efficient way to move goods and services." The plan built upon existing provincial planning tools, including the *Provincial Policy Statement* (2005), the *Places to Grow Act* (2005), and the *Growth Plan for the Greater Golden Horseshoe* (2006).

The Big Move is ambitious, long-term, and capital-intensive ($50 billion over 25 years). The realization of its goals requires working with local transit systems and improving connections to projects that seek to get more from existing transit and road infrastructure, without making large-scale capital investment. The revitalization of Queens Quay is an example of that approach.

Waterfront Development

Toronto's waterfront on Lake Ontario is one of the fastest-growing areas of the city, as former brownfield lands have been converted into residential, recreational, and office uses.

The population of the central waterfront area of the city increased from 18,530 in 2001 to 43,295 in 2011, a growth of 134 per cent.[2] A 25-year plan seeks to redevelop over 800 hectares of waterfront land, build approximately 40,000 new residences, and create 40,000 new jobs.[3] The waterfront is also one of Toronto's busiest tourist destinations, with the Harbourfront Centre attracting over 12 million visits a year.[4] The area will house 7,000 competitors in a new athlete's village for the 2015 Pan-American Games. [5] These development plans require more efficient movement for all transportation modes along the waterfront.

Waterfront development is coordinated by the Waterfront Toronto Corporation, established in 2001 by the governments of Canada, Ontario, and Toronto, all of them significant waterfront landowners. The governments provided $500 million each in seed money to the corporation. Waterfront Toronto was also given control over the land owned by the different governments and now works with public and private partners to sell the land for development, using the revenue to fund public infrastructure. Queens Quay revitalization is a key project in the Corporation's development plans.

Planning Parameters

A key aspect of the Queens Quay revitalization is to connect multiple modes of transportation on or near the waterfront, including to streetcar and subway routes, Billy Bishop Airport, VIA Rail, GO train and bus services at Union Station, and ferries to Toronto Island. These objectives support provincial planning policies which emphasize creating connectivity among multimodal transportation systems and achieving better modal share on existing transportation infrastructure.

The City of Toronto Official Plan (OP) seeks to develop the waterfront, make it more amenable to all modes of transportation, improve public access to Lake Ontario, and make better use of existing transportation resources. The revitalization project serves the priorities and objectives listed in the city's *Pedestrian Charter* and the *City of Toronto Bike Plan*. It also reflects a

[2] City of Toronto Neighbourhood Profiles, 2011. "Waterfront Communities – The Island (77)."
[3] Waterfront Toronto. "About Us." http://www.waterfrontoronto.ca/about_us.
[4] Harbourfront Centre. "Who We Are." http://www.harbourfrontcentre.com/whoweare/aboutus.cfm.
[5] Waterfront Toronto. "About Us." http://www.waterfrontoronto.ca/about_us.

number of policies within the *Provincial Policy Statement*, calling for municipalities to examine better uses of existing infrastructure prior to funding new construction.

Queens Quay Now

Queens Quay Boulevard runs 3.5 kilometres along the shore of Lake Ontario from Bathurst Street in the west to Parliament Street in the east. It serves as a minor arterial road, with transit service and pedestrian sidewalks on the north and south sides of the street.

Two streetcar lines and one bus route operate on Queens Quay. The 509 Harbourfront streetcar line travels south on Bay Street from Union Station and then runs west along Queens Quay. The 510 Spadina streetcar travels south on Spadina Avenue from the Bloor-Danforth subway line to Union Station via Queens Quay and Bay Street. The two streetcars together make up the second busiest surface route in Toronto, carrying an average of 55,400 weekday customers in 2011.[6] These streetcar lines create a southern "loop" which connects the two north-south and east-west subway lines, forming a vital connection within the city's transit network for the over 1.5 million people who take public transit in Toronto on an average weekday.

But streetcar operations on Queens Quay are inefficient, due to a lack of transit prioritization. Streetcars run at an average of 12 to 15 km per hour, lower than the 17 km per hour required to achieve the necessary transit modal split that would accommodate development along the street and keep vehicle traffic moving. Streetcar platforms are also inadequate, making the stops difficult to access and creating conflict with vehicles which must stop and wait for streetcar passengers to board and disembark.

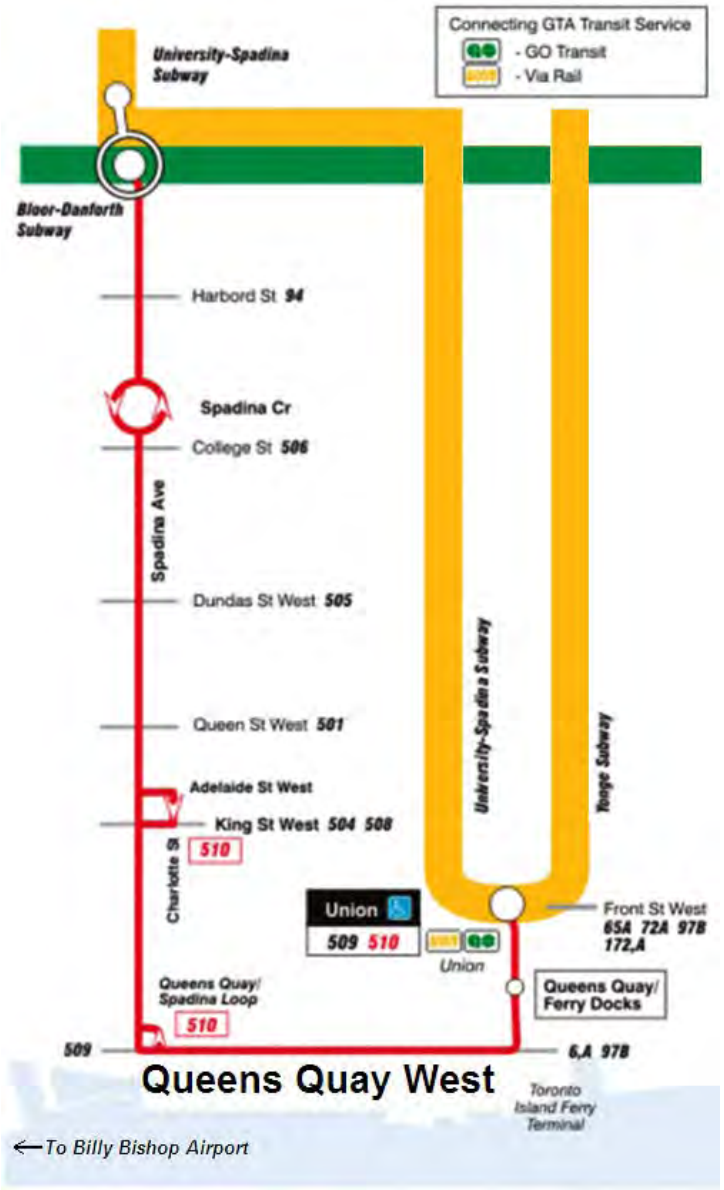


Fig. 2 – Queens Quay Transit Connectivity

[6]Toronto Transit Commission, 2011. "TTC Operating Statistics." http://www.ttc.ca/About_the_TTC/Operating_Statistics/2011.jsp

During the summer, the ratio of users to the space allocated for each transportation mode is disproportionate to the volume of use (see Figure 3).

Queens Quay operates much like a two lane road, despite its four lane cross-section. Curbside uses, particularly on-street parking, make the road difficult and slow to drive on. There are limited pedestrian options, and no on-street bike lanes. The road also severs the Martin Goodman Trail, which runs 56 kilometres along the shoreline and acts as a main thoroughfare for the city's cyclists, joggers, in line skaters, and pedestrians. These deficiencies lead to a corridor which, despite its prominent location and volume of users, fails to provide safe and convenient access to all transportation modes.

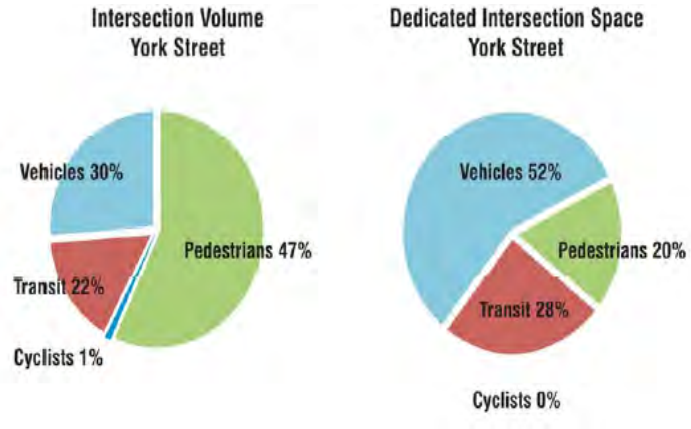


Figure 3 – Queens Quay Volume versus Space

Figure 4 - Typical Summertime Street Traffic on Queens Quay

Project:

The Queens Quay Revitalization Project will improve the streetscape and function of 1.7 km of Queens Quay, between Lower Spadina Avenue and Bay Street (see Figure 5).

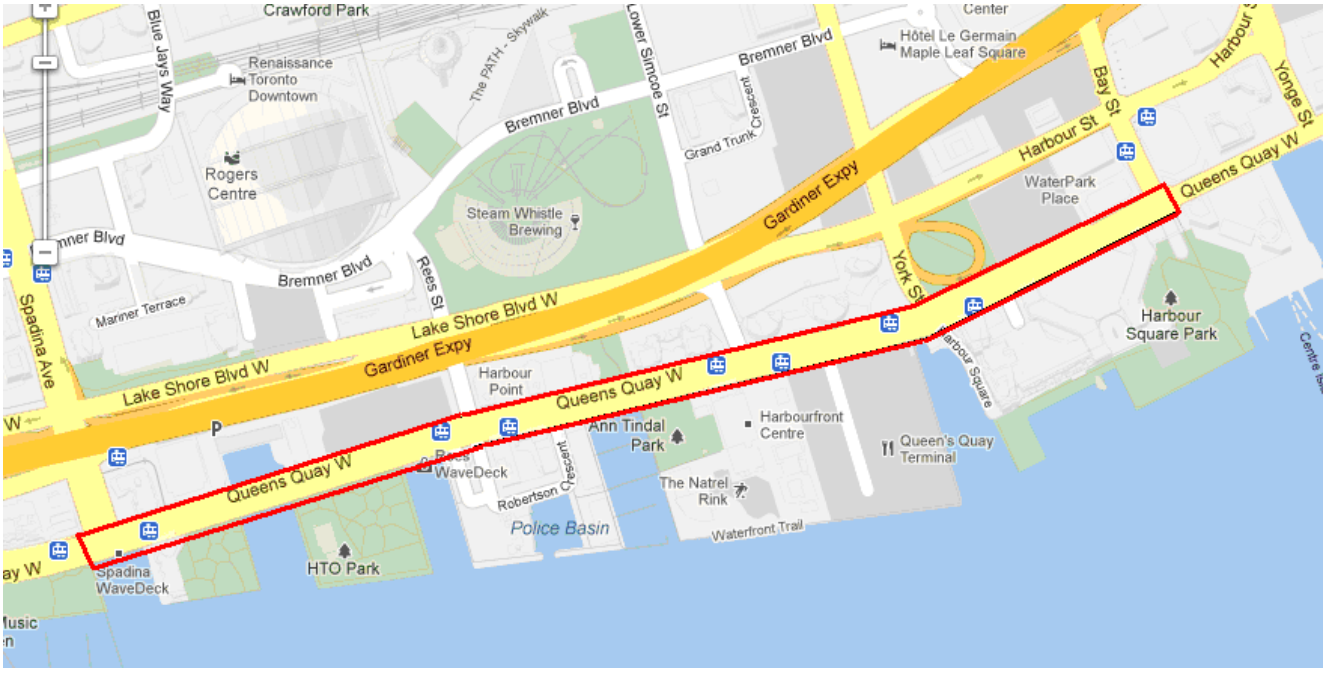


Figure 5 – Location of Queens Quay Revitalization Project

The project benefitted from extensive public input. Public consultations were held through the Municipal Class Environmental Assessment process. Three public meetings and one drop-in centre were held, with 250-500 participants at each. Stakeholder meetings were also conducted at key milestones, including fifty landowner meetings to address specific site issues. First Nations groups were consulted. At-large dissemination included multiple advertisements in both daily and local newspapers, a community mail drop, a project web site, and regular updates via Waterfront Toronto's e-mail database to approximately 9,000 individuals. The public was also involved in the choice of the design.

This project is a good example of maximizing existing investments. The revitalization design maintains the streetcar right-of-way in its existing location but turns the traffic lanes south of the tracks into a tree-lined designated bike path and a broadened pedestrian plaza. The flow and movement of non-motor vehicle modes is coordinated on one side of the street and existing breaks in the Martin Goodman Trail are eliminated.

When complete, the revitalized section of Queens Quay will feature two lanes of east-west traffic and a broadened sidewalk on the north side of the street. The streetcar platforms will be improved, allowing for easier public access. Traffic lanes will be reconfigured, with dedicated turning lanes and signal timing allowing for better flow of both transit and vehicle traffic. The project will allow transit to flow more efficiently and will improve the connectivity of Toronto's larger public transit network, allowing travellers to take the subway and Queens Quay streetcars to the waterfront.

Waterfront Toronto is also coordinating infrastructure and utility upgrades to ensure that the project is cost-effective and that new construction will not be needed after the project's completion. The project is estimated to cost $110 million and is shared among the three levels of government. Construction started in November 2012 and is slated to take three years.

Figure 6 –New Queens Quay and the Martin Goodman Trail

Case Study #2 - King George Boulevard – Surrey, BC

Summary:

This case study examines current and future improvements to King George Boulevard in the City of Surrey. Current improvements range from location-specific beautification and transit priority, to corridor widening, to planned rapid bus service. These projects are staged to maximize the use of existing assets, respond to current transit and cycling demands and to establish a market for future rapid transit service. Planning is also underway for future rapid transit service on the corridor.

Background:

The City of Surrey is the second largest city in Metro Vancouver, with a 2011 census population of 468,000. Surrey added more than 73,000 residents between 2006 and 2011, an 18.6% increase that is roughly double the rate for the region as a whole. Surrey's growth rate is forecast to continue to exceed the regional average over the next 30 years and its population may approach that of the City of Vancouver. Surrey's location in Metro Vancouver is shown in Figure 1.

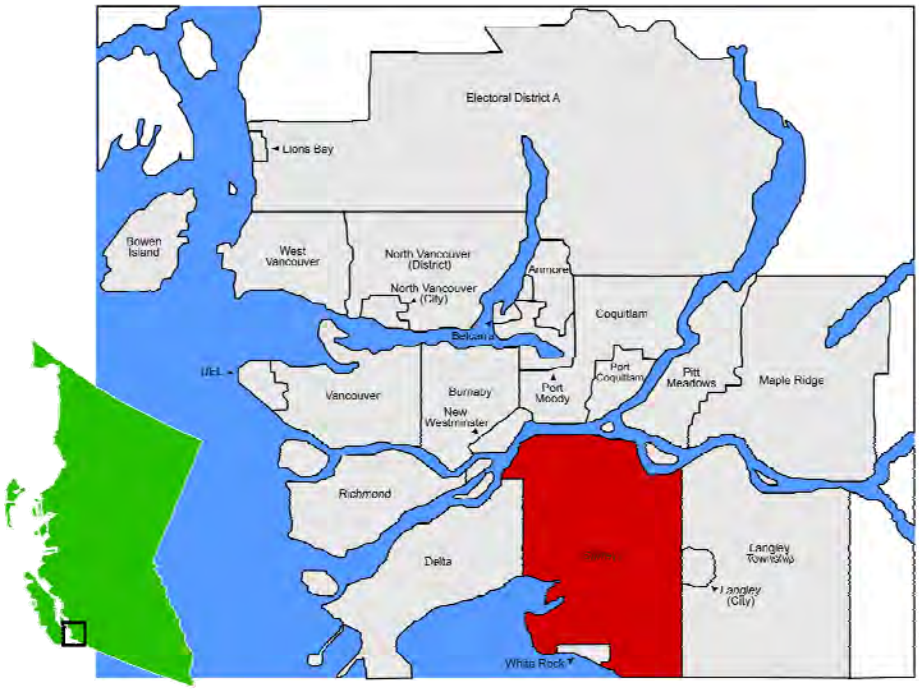


Figure 1- Location of Surrey in Metro Vancouver

King George Boulevard is a 25 kilometre major arterial corridor, running north-south from the Pattullo Bridge in north-central Surrey to South Surrey/White Rock, terminating just north of the

BC/Washington border. Its location is shown in Figure 1. According to TransLink data, there are approximately 50,000 residents and 34,000 jobs within a 400 m walking distance of the corridor between Surrey Central Station and White Rock Centre. The corridor connects three of the urban centres, identified in Surrey's Official Community Plan and in Metro Vancouver's Regional Growth Strategy, which are intended as focal points for concentrated growth and transit service. These urban centres are Surrey Metro Centre, Newton Town Centre, and Semiahmoo Town Centre/ White Rock.

Figure 2 – Study Corridor and Transit Services

Land Use along the Corridor

Key destinations along the corridor include the developing retail and office cluster, as well as a recreation centre and public library, Simon Fraser University's Surrey campus, and the new City Hall (opening in 2013) in Surrey Metro Centre. Further south, other key destinations include Surrey Memorial Hospital and Kwantlen Polytechnic University.

King George Boulevard is still developing as a denser mixed-use corridor. Currently, land uses vary along the corridor. In the Surrey Metro Centre, there is a mix of multiple family housing, offices, retail, and government uses interspersed with older highway commercial development such as car lots, motels, and gas stations. The section between Surrey Metro Centre and Newton Town Centre is mostly single family residential. This is generally oriented away from King George Boulevard, with back yards facing the road. Newton Town Centre is mostly shopping centres and highway commercial. The section between Newton Town Centre and Highway 10 is again mostly single family residential. Between Highway 10 and Highway 99, King George passes through agricultural land. The section between Highway 99 and 152nd Street is mostly single family residential and highway commercial. 152nd Street is mostly a mix of single and multiple family residential south to 22 Avenue. South of 22 Avenue, there is a mix of multiple family residential and commercial development.

King George Boulevard is served by four advanced light rail transit stations along TransLink's Expo SkyTrain Line. These stations (Scott Road, Gateway, Surrey Central, and King George) are all concentrated in the northernmost parts of the corridor. An average of 48,000 passengers travel between Surrey Central and Gateway on a typical weekday. Two bus routes along the corridor carry an additional 11,700 people per day.

King George Boulevard has been designated as part of Metro Vancouver's Frequent Transit Network (FTN). The FTN is a network of corridors where transit service is guaranteed to operate at least every 15 minutes throughout day and evening, seven days per week.

King George Boulevard has sidewalks in most urban areas and shoulders in rural areas. The sidewalks along the corridor are generally quite narrow. King George Boulevard is designated as a bike route from 98 Avenue to 152nd Street. Most of the route uses painted shoulder lanes, but there are marked bike lanes in some locations. Additional marked bike lanes are being added as the road is being upgraded. The Surrey Cycling Plan (2012) and TransLink's Regional Cycling Strategy both outline improvements to cycling infrastructure to make cycling a viable transportation option for a greater share of the population.

King George Boulevard is part of TransLink's Major Roads Network. It has four to six traffic lanes for most of its length. Automobile traffic volumes range between 34,000 and 48,000 vehicles daily from 108 Avenue to 64 Avenue. Traffic volumes are higher north of 108 Avenue(up to 70,000 between Scott Road and the Pattullo Bridge) and lower south of 64 Avenue(generally 20,000 to 30,000). King George Boulevard is also designated as a truck route for goods movement.

Project:

In 2008, Surrey developed a Transportation Strategic Plan as part of its Official Community Plan. The Plan outlined six core principles:

1. Effective and efficient network management
2. More travel choice
3. Safer, healthier communities
4. Successful local economies
5. Protection of the built and natural environment
6. Transportation integration

All of these principles come into play in coordinated corridor management. Transportation integration is a key goal. This involves promoting integration between transportation and land use in order to reduce the need to travel and support more sustainable modes. The Plan also talks about coordinating pedestrian, cycling, and transit facility budgets to maximize the efficiency of available funding and to give added value to projects.

More travel choice, which involves reducing reliance on automobiles by supporting other transportation options, is also important for corridor management. Under the principle of more travel choice, one of the Plan's objectives was to "protect and improve corridors and infrastructure in support of strategic transportation expansion and upgrades."

In 2010, the City issued its Report on Transportation, which provided an update on the actions taken to advance the 2008 plan. Actions related to King George Boulevard included:

- Widening of King George Boulevard south of Highway 10 to a four lane arterial cross section.
- Transit and cycling improvements to the section between Fraser Highway and Surrey Memorial Hospital, including marked bicycle lanes, enhanced bicycle pavement markings at intersections, and a northbound transit queue jumper lane at 96th Avenue.
- Phase 1 of the joint study between the City and TransLink to finalize the relocation of the Newton Transit Exchange to a new site beside King George Boulevard.

Since 2010, the City, in partnership with its regional and provincial partners, has continued to advance the goals of its Transportation Plan along King George Boulevard. In particular, several actions have been taken to enhance the use of the corridor and to prepare for its future use as a higher-volume transit route. These projects are staged to maximize the use of existing assets, respond to current transit and cycling demands and to establish a market for future rapid transit service. These projects are:

- An expanded park and ride in South Surrey
- Providing rapid bus service along the corridor (from Guildford and Newton) beginning in 2013.
- Planning for future rapid transit service along the corridor.

1) South Surrey Park and Ride

The Park and Ride facility at Highway 99 and King George Highway is being expanded from approximately 500 spaces to 800 spaces to serve the growing communities of South Surrey and White Rock. As rapid bus service expands along the corridor, the Park and Ride will serve as a key southern transit terminus for commuters travelling to Vancouver. The Park and Ride will be open in 2013.

2) TransLink Rapid Bus

Beginning in 2013, 40,000 service hours will be allocated to a phased implementation of "B-Line" rapid bus service from Guildford Town Centre, along 104 Avenue to Surrey Metro Centre, and south along King George Boulevard to 72 Avenue in Newton Town Centre. Newton Transit Exchange will be upgraded to accommodate this new service. In the longer term, the service will be extended southwards to White Rock. The service will have more limited stops than the existing service and will likely run with a 7-8 minute frequency between the morning rush hour and evening, with lesser frequencies during other periods.

3) Planning for Rapid Transit

TransLink and the Province of B.C. are now leading a Surrey Rapid Transit Study in partnership with Metro Vancouver, the City of Surrey and the City of Langley.

The goals of the study are to identify strategies for:

- Meeting, shifting, and helping shape travel demand. Currently, 84% of trips made between urban centres in Surrey and surrounding communities are by car.
- Shaping land use to achieve regional and municipal plans. Surrey Metro Centre is growing significantly, and this growth needs to be sustainable and encourage better transportation choices.
- Aiding in the achievement of ambitious provincial and regional goals for cleaner air and healthier communities.

The study focused on three corridors: 104 Avenue, Fraser Highway, and King George Boulevard. For the King George Boulevard Corridor (from King George Station to White Rock Centre), the study examined the following options:

- Bus Rapid Transit (BRT) from Surrey Metro Centre to White Rock Centre, with 60-foot buses running in reserved median lanes (with median-located stations) along King George Boulevard to Highway 10, and then using general purpose traffic lanes and curbside stations from Highway 10 to White Rock Centre.
- Light Rail Transit (LRT) with trains running in reserved median lanes (with median-located stations) from Surrey Metro Centre to Newton. Passengers would transfer to buses at Newton to continue to White Rock Centre (curbside BRT using GP lanes

- Rail Rapid Transit (SkyTrain) running on an elevated guideway from King George Station to Newton; passengers would transfer to buses at Newton to continue to White Rock Centre (curbside BRT using GP lanes).

The four configurations are illustrated in Figure 2.

These options have been released to the public. Based on the public feedback on the options, and subject to the availability of funding from all levels of government, progress will continue on developing a final rapid transit project for King George Boulevard.

Figure 3 – Rapid Transit Options

Option 1 - BRT on King George to White Rock

Option 2 – BRT on King George to Newton

Option 3 – LRT to Newton, BRT to White Rock

Option 4 – RRT to Newton

Conclusion:

Surrey continues to grow and change from a low density suburban area into a higher-density, transit-focused regional centre. King George Boulevard will remain a key north-south transportation corridor, linking many of Surrey's neighbourhood centres.

The implementation of transportation improvements along the corridor reflects the evolution of its role. Improvements have been made to formerly rural sections so that more urban features such as bicycle lanes and sidewalks are readily available. Transit facilities such as exchanges and park and rides are being expanded to make it easier for customers to access the corridor's transit routes. Services are being improved in an incremental manner to meet demand and encourage future ridership, while maximizing the use of existing infrastructure. This includes rapid bus service southwards to Newton in 2013 with a future extension to White Rock. In the longer term, work will continue on the planning and consultation to determine the rapid transit solution that works best for the corridor.

Case Study #3 – Gatineau Rapibus Corridor – Gatineau, QC

Summary:

This case study focuses on the Rapibus project implemented in the City of Gatineau. This project was planned over several years by the Société de transport de l'Outaouais(STO) in order to improve mobility throughout the City of Gatineauand, at the same time, alleviate traffic problems occurring in several areas of the city. In the late1990s and early 2000s, the STO and the City of Gatineau had already developed several bus lanes to improve service near what would become the future Rapibus corridor. The Rapibus project was then initiated in 2007after obtaining necessary funds from the Government of Québec. The STO then finalized the project design, with construction beginning in spring 2010. The completion date is summer 2013[7].

Background:

Among the five largest cities in Québec, Gatineau experienced significant population growth from 1991 to 2006, with an increase of more than 20%. Furthermore, some forecasts anticipate that by 2031[8], the city will have reached a population of about 310,000 people, an increase of 40,000 over the 2008 population.

This population growth is driving an increase in transportation demand in Gatineau. Although significant road improvements have been made, many parts of the network remains congested, such as the east part of the city near Highway 50andthe bridges crossing the Gatineau and Ottawa rivers. Trips to the centre of Gatineau, where the majority of jobs are located, are impacted by congestion. There is added demand on the region's roads from the considerable number of Outaouais residents who make daily trips to Ottawa for work.

Project:

The Rapibus is a high-frequency bus rapid transit operating on an exclusive two-lane busway. It uses the technology of intelligent transportation systems and quiet high-capacity vehicles, and operates on an integrated network of facilities, services, and amenities that improves the reliability and the flexibility of the system.

The objective of the Rapibus is to improve transit service and encourage mobility for the population of Gatineau. It aims to provide more efficient and direct access to major employment, education and business centres along a 12 km corridor. The route follows the existing Québec-Gatineau Railway corridor to serve downtown Hulland Ottawa.

[7] http://www.rapibus.sto.ca/index.php?id=176&tx_ttnews[tt_news]=10&tx_ttnews[backPid]=174&cHash=83bfa31b3b

[8] http://www.gatineau.ca/page.asp?p=histoire_cartes_statistiques/coup_oeil

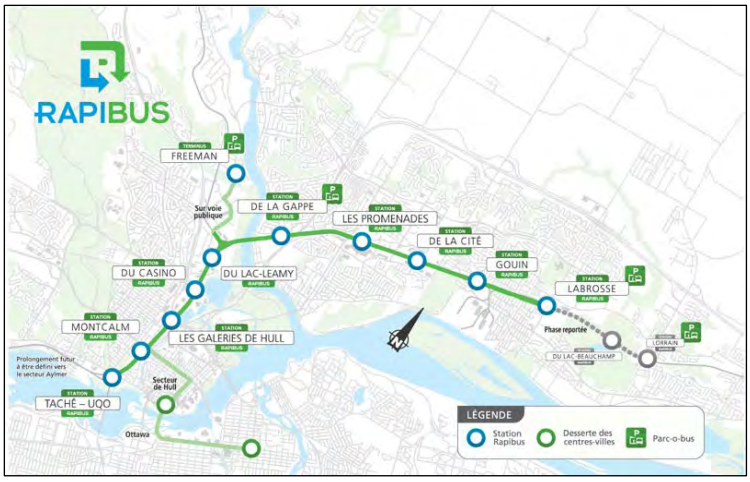


Figure 1 - Rapibus Corridor

Corridor Characteristics

- A corridor 12 kilometres long for the exclusive use of buses.
- 10stationslinking various commercial, cultural, sporting, and economic centres.
- High-capacity buses that offer improved comfort.
- A 10.7 km long bicycle path along the corridor with amenities for cyclists at nine stations, including 161 bike racks, of which 91 are covered.
- Two new parking areas, offering an additional 700 parking spaces.
- Improved access for riders with reduced mobility.
- Use of an intelligent transportation system (ITS), improving service reliability.
- Integration of technologies for increased road and user safety.
- Protection at pedestrian and bike crossings through signage and pavement markings.
- A new bus and bicycle crossing of the Gatineau River through the use of the Pont Noir Railway Bridge.

The Rapibus is a key public transit project intended to promote significant population growth and economic development in the region. Gatineau's regional plan aims to increase activities on public transit corridors including the Rapibus corridor. Two of the plan's actions are directly linked with the Rapibus corridor:

- Encourage higher density land uses and residential development within a 500 metre radius of the Rapibus stations.
- Encourage employment clusters within a 500 metres radius of the Rapibus stations.

These actions should contribute to a healthier environment, the increased use of public transit, economic growth and improved quality of life in the region.

The Rapibus project includes several tools to improve service efficiency along the corridor. Rapibus is based on a system of exclusive lanes built parallel to the existing Québec-Gatineau

Railway corridor. In addition, the system uses high-capacity buses with greater ability to maximize trips.

Figure 2 - Corridor Development

Figure 3 - High Occupancy Vehicle

The Rapibus corridor crosses several intersections, and right-of-way is given to buses in order to maintain service reliability. Road devices linked with an electronic control centre make it possible for the bus to be detected when approaching a traffic light. The system gives priority to buses in mixed traffic situations.

Finally, the addition of two new park and ride facilities adjacent to two stations provides700 additional parking spaces with direct access to the Rapibus system.

The provision of a bike path along the Rapibus corridor links up major centres of employment, education, leisure, and commercial activities and provides a direct connection to the existing regional cycling network. This includes the development of several bike lanes on existing roadways. Nine stations are also equipped with bike racks.

The Rapibus project requires effective and appropriate safety measure to minimize interference between different corridor users (pedestrians, cyclists, drivers, trains):

- An overpass was constructed at the Cité station to allow pedestrians to cross the Rapibus lanes safely.
- The bicycle path has been designed so that it does not go through bus loading areas.

- Several improvements were made to intersections such as stopping area for drivers, crosshatched areas on the Rapibus corridor, and traffic lights with visors located above the intersection. These measures, combined with the priority for buses in the corridor, provide an efficiency and safe system.
- The Pont Noir railway bridge is the only place on the Rapibus corridor where the lane becomes unidirectional and is controlled by an automatic traffic light system. This system ensures the safe and efficient passage of buses while maintaining the use of the rail way for freight transportation on the bridge.

The implementation of the Rapibus system falls into the STO mission and its long-term vision which includes a modal shift towards public transit. The STO mission is to provide the residents of Gatineau with a reliable transportation system that meets the population's current needs at a cost that is suitable for users, taxpayers, and municipalities.

The Rapibus is a concrete action of the *STO 2005-2015*[9]*Long-Term Strategic Plan* which is based on five strategic areas of development:

- Customer service.
- Environment and sustainable development.
- Network performance.
- A harmonious planning of public transportation.
- A shared commitment to the mission.

Conclusion:

In conclusion, the Rapibus is a project that helps facilitate mobility in the Gatineau region. In addition, it contributes to reduced greenhouse gas emissions, lessens dependence on oil, and mitigates problems associated with traffic congestion. At the same time, it safely provides better access to work, leisure, and public services.

[9] Plan stratégique à long terme 2005-2015de la STO : http://www.sto.ca/fileadmin/user_upload/communications/PDF/Plan_strategique/Plan_strategique_2005_2015.pdf

Case Study #4 – Comex Transit Corridors – Saint John, NB

Summary:

The Comex bus rapid transit serves commuters in the outlying communities of Saint John, New Brunswick, helping to alleviate congestion and parking concerns by giving commuters a transit option to and from Saint John. The success of the program has helped the province defer a costly highway expansion, and allowed the city to save money and land that was previously allocated to the construction of a new parking garage.

Background:

Saint John is the largest city in New Brunswick and the second biggest census metropolitan area, with a population of over 122,400. Transportation in the area is defined by the fact that 40 per cent of the population lives outside of the city itself, with growth rates in those areas outpacing that in the city. This has led to challenges related to urban sprawl, an increasing number of vehicles and congestion, environmental concerns, as well as enhanced wear on the existing transportation infrastructure.

To help combat these issues, the Saint John Transit Commission, working with a variety of partners, developed the Commuter Express (Comex) Transit System. Comex is a bus rapid transit (BRT) service which provides commuters living in outlying areas an alternative, sustainable mode of transportation to and from Uptown Saint John. Comex has three routes serving residents of Grand Bay-Westfield, Kennebecasis Valley (The Towns of Rothesay and

Figure 1– Saint John and Outlying Communities

Quispamsis) and Hampton from Monday to Friday. In 2012, the commission added a dedicated run from Quispamsis to the city of Saint John separate from the Kennebecasis Valley run.

The primary consideration behind the development of the service was a study that determined that in order to meet future parking needs in downtown Saint John, the city needed to build 1,850 parking stalls at a cost of $46 million. Working with partners, the city took alternative action to increase sustainable transportation use by 10 to 20 per cent to reduce the need for parking spaces by 400. This would save approximately $10 million in capital costs while also allowing land scheduled for parking development to be used for other purposes.

Key to the development plan was a partnership approach between the City of Saint John and the outlying town councils, as well as the Saint John Transit Commission and the Saint John Parking Commission. Specifically, it was decided between the municipal administrations that the 50 per cent operating costs of Comex not covered by fares would be shared amongst the administrations. They also worked with private business, which installed bicycle racks and promoted car-sharing to encourage their employees to use the service.

Active transportation was considered during the development of Comex, as bicycle racks were installed on each of the buses. Comex stations were also designed to be connected with existing bicycle paths, allowing users to bike from home, bring their bike on the bus, and then ride to their workplace. According to the Transit Commission, the demand for bike racks is outpacing their current capacity.

The Saint John Transit Commission also worked closely with the Saint John Parking Commission to increase monthly parking rates in Uptown Saint John. These price increases were designed to make parking rates comparable to the cost of a monthly Comex pass, making the choice of sustainable transportation more economically attractive. The revenue gained from the parking increases was used to purchase downtown land for future development, as well as to develop more attractive parking facilities.

In order to further ensure the success of the program, the partners in its development undertook significant public consultation and conducted an extensive communication strategy. The service was also made bilingual to reflect New Brunswick's population, and the service was branded to ensure public recognition of the buses and the stations/stops.

In recognition of the relationship between traffic volumes and parking demand, the Saint John Transit Commission and the Parking Commission teamed up to provide an integrated transportation network for the area. The Saint John Parking Commission introduced "Share Your Ride" to facilitate ride-sharing for area residents. In the outlying areas, free parking in the Comex parking lots is available for those who want to park their cars and ride the bus or as a meeting point for ridesharing partners.

Project:

In 2007, nine new buses were purchased for the park and ride routes, using about $4 million in federal transit funding. The BRT Service began in September 2007 and has been very successful operating on three routes.

- **Hampton -** Two buses providing four trips twice per day

- **Kennebecasis Valley -** Two buses with six trips twice per day, and One bus with three trips twice a day between Quispamsis and Saint John

- **Grand Bay Westfield -** One bus with three trips twice per day

Ridership is now over 800 passenger trips per day. Each bus can remove up to 50 cars from the road, eliminating the need for forty parking spaces in Saint John. In total, Comex has helped reduce the daily number of cars on the roads by about 300-400. This congestion alleviation has helped defer a planned expansion of Highway 1 between Rothesay and Saint John, saving the province and municipalities approximately $30 million.

In 2009, the Commission implemented further investments on bus shelters and park-and-ride facilities. After only five months of operation, ridership was beyond capacity on the second morning trip on the Hampton route. A new articulated bus began operation on this route in October 2009 and the transit service has now increased from one bus providing three trips per day to two buses providing four trips twice per day. A second articulated bus was added to the Kennebecasis Valley route in November 2010. The articulated buses have proved to meet the current demand of passenger traffic.

One of the most successful aspects of the service has been the system-wide implementation of *NextBus*, a GPS communication system that uses satellite technology to track buses on their routes and allows riders to know exactly when the next bus is going to arrive. This information can be accessed on the Internet, through cell phones or by text messages. Displays have also been set up at certain Comex stations to notify passengers of wait times. In addition to helping passengers, it has also helped the Saint John Transit Commission manage their operations, as they now have a set of real-time management tools to help them run the system more efficiently. It also lessens the burden of Commission staff that used to be overloaded with calls asking for bus times or updates.

Conclusion:

A noticeable difference in the uptown area of Saint John is the ease of finding parking compared to the period prior to the start up of Comex service. At present the buses operating closest to normal work times are operating at full capacity. There is great potential to remove cars from the highway with new rapid bus routes between Saint John and communities in the Kennebecasis Valley.

Case Study #5 – Portland Street Corridor – Halifax, NS

Summary:

Halifax developed a high-frequency transit corridor by combining three existing transit routes, allowing for service levels to increase while also allowing for faster and more frequent service.

Background:

Transit running on the Portland Street Corridor used to operate at varying frequencies, resulting in caravanning of buses, inconsistent headways and poor connectivity along the corridor.

Project:

Halifax Metro Transit implemented a high-frequency corridor along Portland Street in August 2012 using three existing bus routes. These routes combine to provide a frequency of ten minutes or better on weekdays and 20 minutes on Saturdays and Sundays. The corridor provides service along the seven-kilometre stretch of road network between the Portland Hills Terminal, Penhorn Terminal, Alderney Terminal, and Dartmouth Bridge Terminal, connecting suburban areas to the regional centre.

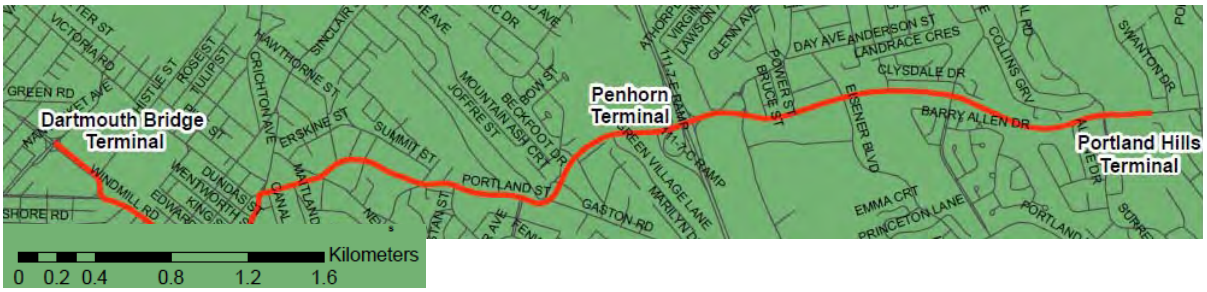


Figure 1 – Portland Street Corridor, Halifax, NS

Conversion to a high-frequency corridor has allowed Metro Transit to create consistent headways, reduce caravanning of buses and improve connections. As part of this project, several strategic bus stop locations have been removed along Portland Street, allowing faster travel along the corridor. The increased service and reliability along the Portland Street Corridor offers a more convenient and efficient way to access other major transportation hubs. Passengers have better service overall and land uses along the corridor and have enhanced.

The routes of the Portland Street Corridor carry approximately 6,500 people each weekday. There has not yet been sufficient data collected to analyze ridership changes resulting from this service adjustment. All routes on the corridor will be wheelchair and bicycle accessible effective in 2013. Locations along the route link into the regional recreational trail network.

Conclusion:

The Portland Corridor system is currently meeting the needs of transit users in the region and can evolve in the future into bus rapid transit if transit demand grows.

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