

Transportation Master Plan

DOCUMENT 10

A Supporting Plan of the Official Plan

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BEYOND Ottawa 20/20
Planning for the Future



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EXECUTIVE SUMMARY

Introduction

The Transportation Master Plan identifies the transportation facilities and services that the City of Ottawa will implement to serve a projected population of 1.14 million people by 2031. It sets direction for the City's day-to-day transportation programs, and provides a basis for budget planning. It supports the Ottawa 20/20 growth management strategy and the City's Official Plan, which guides the City's physical development.

This plan will come to life through mechanisms such as long-range financial plans, mid-range implementation plans, annual budgets, program development, area and corridor transportation studies, design or practice guidelines, and Community Design Plans. The need to update this plan will be reviewed in conjunction with a similar assessment of the City's Official Plan, which is required every five years. Over the intervening time period, readers seeking a current statement of City transportation policies must consult the record of Council decisions in addition to this plan.

Current and Future Conditions

Transportation system overview. Ottawa's transportation system includes walking and cycling facilities, conventional and specialized bus services, Transitway and O-Train rapid transit lines, a road network and parking facilities. City-owned transportation facilities are complemented by freeways owned by the Province of Ontario, and by roads, interprovincial bridges and multi-use pathways owned by the federal government. There are also international and general aviation airports, intercity rail and bus stations, two ferries and a freight yard.

Current travel patterns. During the morning peak hour in 2005, about 62% of Ottawa residents traveled by automobile compared to about 21% by transit, 9% by walking, 2% by cycling and 6% by other modes. Transit ridership has seen continuous growth since 1996, and Ottawa residents take transit, on average, 100 times annually—more than residents in any city of comparable size in North America. While average household auto ownership increased by 10% from 1995 to 2005, the number of daily trips per person declined slightly

Future travel patterns. Population and employment are expected to grow by about 30% and 35% respectively by 2031, with urban communities outside the Greenbelt projected to accommodate 68% of new residents and 42% of new jobs. As a result, the overall demand for morning peak hour person-trips on Ottawa's transportation system will grow by 38%. In view of this growth, this plan strives to minimize the future need for new and widened roads while avoiding levels of congestion that would have unacceptable implications for Ottawa's quality of life. It sets an ambitious transit modal split objective for 2031 of carrying 30% of motorized person-trips in the morning peak hour, a rate significantly greater than the 23% figure observed in 2005. Transit will carry 51% of motorized person-trips to and from Ottawa's Inner Urban Area

(up from 39% in 2005), 33% of trips across the Greenbelt (up from 23%), and 43% of trips to and from Gatineau (up from 16%) during the morning peak hour, in the peak direction.

This plan also sets ambitious objectives for walking and cycling. Respectively, these modes will carry 10% and 3% of all morning peak hour person-trips in 2031, up from 9.3% and 1.7% in 2005 (note these figures are averages for the fall season, and would be higher in summer and lower in winter). This represents a 33% increase in the number of walking trips, and a 139% increase in the number of cycling trips.

Despite these substantial increases in the role of transit, walking and cycling, there will be significantly higher traffic volumes in every major travel corridor during the peak hour.

Strategic Directions

Transportation Vision. This plan identifies a vision that includes 12 elements and 39 supporting principles. The vision expresses how Ottawa's transportation system can support the community's social, environmental and economic sustainability, and how it should be managed to ensure accountability and responsiveness to residents and taxpayers. The plan also identifies eight strategic directions that are essential to achieving this vision, as discussed in the following paragraphs. These directions are themes that cut across the policies and programs for specific modes (e.g. active transportation, transit, motor vehicles) outlined in subsequent sections of the plan.

Creating supportive land use. As detailed in the Official Plan, the City will shape development patterns by encouraging compact developments with a mix of uses, and by requiring supportive community and site design practices. **Managing transportation demand.** The City will develop and implement a transportation demand management (TDM) strategy that uses education, promotion and incentives, often delivered in partnership with employers and other organizations, to make alternatives to driving more attractive, build a positive public attitude towards them, and provide individuals with information and incentives that encourage responsible travel behaviours.

Managing the transportation system. The City will maximize the efficiency and people-moving capacity of existing systems, in order to reduce the need for new infrastructure and services, achieve modal shift objectives, minimize the costs of congestion, and preserve public health. To this end, it will develop and implement new strategies to improve incident management and multimodal traveller information.

Enhancing safety and security. The City will make walking, cycling, transit use and automobile travel safer and more secure through education, engineering and enforcement.

Protecting the environment. The City will work to minimize the environmental effects of transportation infrastructure, services and activities by greening transportation corridors, designing and maintaining infrastructure to minimize impacts on water and land, encouraging cleaner fuel and vehicle technologies, and designing facilities and communities to reduce the impacts of noise.

Managing and maintaining assets. The City will minimize the life-cycle costs of transportation infrastructure and sustain desired levels of service by optimizing its reinvestment and renewal strategies, and by pursuing effective and efficient maintenance through supportive infrastructure design, traffic management and landscaping.

Funding implementation. The City has insufficient funding sources to support the projects and programs that this plan calls for, and it will pursue possible revenue enhancements through channels including development charges, user fees for motor vehicle use, public-private partnerships and financial transfers from senior governments.

Measuring performance. The City will monitor its progress toward key objectives using a framework of transportation performance objectives and indicators to track relevant conditions, actions and impacts.

Active Transportation

Walking, cycling and other forms of human-powered travel are key to Ottawa's vibrancy and sustainability. They have multiple social, environmental and economic benefits, and collectively represent a priority of this plan.

Supporting measures. The City's land use and transportation demand management practices will be essential to the creation of physical, social and cultural environments where walking, cycling and other forms of human-powered travel are attractive alternatives. It will undertake a wide range of supportive initiatives to demonstrate leadership, create walkable and bicycle-friendly communities, educate users, promote active transportation options, improve end of trip facilities and connections to public transit, and explore a possible system of public bicycles.

Walking facilities. The City will emphasize the primary role of pedestrian facilities in building more walkable environments. To this end, the Ottawa Pedestrian Plan (under development) will identify an integrated pedestrian network and implementation strategy. The City will also require walking facilities to provide pedestrian access to transit nodes and between neighbourhoods, and along new and reconstructed roads. Proper design and maintenance are also a priority.

Cycling facilities. The City will implement an integrated cycling network that includes the Spine route system and National Capital Pathways shown on **Map 2** and **Map 3**, and the complementary Community route system identified in the Ottawa Cycling Plan (approved in 2008). It will proactively implement a number of strategic linkages, and will pursue supportive operational and maintenance measures that make cycling a safer and more convenient option.

Multi-use pathways. This plan calls for the provision of urban and rural multi-use pathways (see **Map 1** and **Map 3**) for walking, cycling and other active modes like in-line skating, especially in, adjacent to or across rapid transit corridors, and within and between neighbourhoods. It recognizes the importance of supportive design and construction standards, and of winter maintenance to enable year-round use.

Public Transit

This plan aims to increase the proportion of motorized person-trips carried by transit in the morning peak hour from 23% in 2005 to 30% (a level similar to many European cities) in 2031. Its multi-pronged transit strategy is outlined in the following paragraphs.

Supporting measures. The City will work to make transit more competitive relative to automobile use, and to make it the first choice for as many people as possible. To do so, it will improve the form of development, reduce the supply of abundant free parking at key destinations, improve public awareness and support, level the financial playing field between transit and driving, better integrate transit with other modes, and set priorities for new infrastructure that improve transit's service advantage wherever possible.

Ease of mobility. The City will improve the mobility it offers to individuals through a variety of initiatives related to route network structure and service standards, rapid transit and transit priority networks, fleet expansion and maintenance, and safety and security:

- It will make the transit system more customer-friendly by developing and strengthening a network of trunk lines and feeder routes that offers greater simplicity, reliability, efficiency and on-time performance, and by reducing uncertainty and waiting times at transfer points. It will continue to optimize interprovincial transit travel in partnership with the Société de transport de l'Outaouais, and to serve residents of villages and rural areas through direct services, Park & Ride lots and support for private or other municipal transit services.
- It will create a greatly expanded network of bus rapid transit and electrified light rail corridors (see **Map 4**). It will endeavour to intensify land uses around many rapid transit stations, add new Park & Ride lots where warranted, and offer superior levels of comfort and convenience at those stations that serve high volumes of transferring passengers.
- It will implement a network of transit priority corridors (see **Map 4**) to reduce travel times and improve the reliability of transit service in mixed traffic conditions. In some cases, transit priority measures may be used to defer the need for greater capital investments in grade-separated bus rapid transit facilities.
- It will improve service availability by expanding its bus and rail fleets and reducing the number of spare buses as a proportion of the total fleet.
- It will make transit safer and more secure by expanding its security staff and continuing its partnership, education and outreach efforts in key areas.

Economic efficiency. The City will strive to offer quality transit service at the lowest possible cost. It will endeavour to recover revenues equivalent to at least 50% of operating expenses until an expanded rail transit network is in operation, at which point it will work toward a new cost-recovery target of 55%. It will develop an electronic fare system that can offer flexible transit fare structures including customized fares by user category, time and distance, and will pursue greater contributions from senior governments toward transit operating costs.

Accessibility for customers with disabilities. The City will continue to make conventional transit services more accessible while it also provides door-to-door Para Transpo service. It will

design new rapid transit facilities to be accessible, and will acquire only low-floor transit vehicles until its fleet is 100% low-floor by 2015. Until then, low-floor buses will be assigned to routes where they benefit the greatest number of passengers.

Environmental efficiency. The City will strive to reduce transit's greenhouse gas footprint by improving vehicle fuel efficiency. Future light rail vehicles will be electric, hybrid buses will be phased in over three years, and opportunities to adopt other bus technologies including fuel cells will be monitored.

Roads and Motor Vehicle Use

Roads are the backbone of Ottawa's transportation system. They serve all modes of travel within the City, and the competing needs and interests of those modes represent a great challenge in the development of an effective and efficient road network. The following paragraphs summarize key issues pertaining to the provision and operation of roads.

City of Ottawa roads. This plan establishes a comprehensive network of several different types of roads, from freeways to local roads (see **Map 5** through **Map 8**). Requirements for new and widened roads result from projections of future automobile and truck volumes, which are expected to increase in all major corridors despite ambitious modal shift targets. The main performance target for roads is operation at 90% of capacity during the morning peak hour, except in the Urban Core where operation at 100% of capacity will be acceptable. These service targets will always be balanced against the vital requirement for public safety, and may be relaxed in corridors or areas where service levels for transit vehicles, pedestrians or cyclists have a higher priority.

Federal and provincial roads. Additional crossing(s) of the Ottawa River will be required by 2031 to serve the increased peak hour travel demand between Ottawa and Gatineau, and to divert heavy trucks from King Edward Avenue and the Macdonald-Cartier Bridge. The City will protect all approaches to possible crossing locations pending the completion of the environmental assessment study of crossing location(s) being undertaken by the federal government in conjunction with both provincial governments and affected municipalities.

Road right-of-way protection. The City may secure right-of-way for public roads from landowners as a condition of development approval for a subdivision, severance or site plan. The City will protect road rights-of-way through the development approval process, as outlined in the Official Plan, although there may be situations in which the City chooses to reduce its right-of-way requirement.

Road design. The City has developed and will apply design guidelines to ensure that all road corridors support adjacent land uses, enhance safety, offer supportive environments for walking, cycling and transit use, provide adequate lighting and maximize greening opportunities. It will review development applications to ensure that road networks offer access and connectivity for pedestrians, cyclists and transit vehicles.

Road safety. The City will develop a comprehensive Road Safety Plan to enhance monitoring and management practices and programs that improve the safety of all road users through engineering, education and enforcement.

Road corridor optimization. The City will conduct a program to optimize the operation of freeway and arterial corridors in an integrated manner. It will strive to eliminate bottlenecks that create delay and compromise safety for road users, while also addressing considerations related to property access, vehicular emissions and conditions for walking, cycling, transit and carpooling.

Area traffic management. Area traffic management preserves quality of life in neighbourhoods by mitigating undesirable effects of motor vehicle use, including excessive volumes and speeds, aggressive driver behaviour and hostile conditions for walking and cycling. The City's Area Traffic Management Guidelines identify an equitable and consistent process for addressing the needs of neighbourhood residents, businesses and road users through road network modifications, traffic control devices, traffic calming measures, streetscaping, enforcement, transportation demand management and public education.

Ridesharing. This plan projects an average automobile occupancy during the morning peak hour of 1.20 persons per vehicle, about the same as the 2005 observed value of 1.23. By holding this value steady, the City would halt a four-decade downward trend in automobile occupancies and strengthen its ability to provide a desired quality of service on its roadway network. The City will develop an integrated ridesharing strategy to assess opportunities for TDM measures, carpool parking lots and carpool lanes to increase ridesharing in key travel markets, nodes and corridors. It will also promote its online ridematching service, enhance public awareness and understanding of ridesharing opportunities, and study the feasibility of a regional vanpooling service.

Taxis. This plan acknowledges the role of taxis in the transportation system, and encourages improvements to the accessibility of the taxi fleet as well as the provision of taxi stands at a variety of locations.

Goods movement. Many of Ottawa's major roads are designated as truck routes. While the provision of a comprehensive truck route network enables efficient freight movement through and within Ottawa, trucking activities can be disruptive to communities. The City will continue efforts to protect residential areas from undesirable truck route impacts, including the preservation of alternative routes that can accommodate the loads and manoeuvres of large trucks.

Parking. Steps that the City takes to manage parking in both the public and private realms will contribute to its success in achieving key transportation objectives such as transit ridership targets, land use goals such as compact development and intensification, and economic objectives such as thriving business, institutional, residential and tourism uses in the downtown core. To this end, the City will develop a parking management strategy that defines a program of regular parking assessments in key areas, and identifies strategic parking policies, programs and guidelines. It will conduct a pilot project to showcase proactive parking management strategies in CentrepoinTE Town Centre, and will also ensure that various key land use by-laws and policies are consistent with its parking management principles.

Intercity Travel

Ottawa's connections to outside destinations contribute to the community's economic vitality. While the plan addresses road and transit links, it also acknowledges the importance of supporting air, rail and intercity bus services. The particular importance of ensuring high-quality transit and road connections to major intercity passenger terminals is highlighted. The plan also addresses general aviation, including the City-owned Carp Airport.

Implementation

Capital works plan. This plan includes a phasing strategy for infrastructure projects as a basis for future budget preparation. Infrastructure needs are grouped into phases.

Costs. The cost of building and operating the transportation system identified in this Plan is about \$8.31 billion through 2031, including \$7.22 billion for capital costs (\$5.11 billion for transit and \$2.11 billion for roads) and \$1.2 billion for operations and maintenance (\$938 million for transit and \$180 million for roads).

Environmental assessment. Provincially and federally legislated requirements for Environment Assessment studies will also guide the implementation of this plan. While some recommended infrastructure elements have partially completed the related requirements, most elements will be subject to further study, consultation and documentation.

Chapter 1 – Introduction

The City of Ottawa, shown in **Figure 1.1**, is one of Canada’s largest municipalities and delivers services to more than 870, 800 people (2006). By 2031, the City’s population is expected to approach 1.14 million people. This level of growth will open new opportunities for the city and its residents, but will also bring significant change and new challenges.

The Transportation Master Plan will guide the City of Ottawa over the next two decades as it strives to manage growing transportation demand in ways that reinforce its residents’ values and aspirations. It identifies the transportation facilities and services that the City intends to put in place by 2031 to meet the travel needs of residents and businesses, and to support the development pattern identified in the Official Plan. Its policies will guide the operation of the City’s day-to-day transportation programs, and provide a basis for developing capital and operating budgets. It does not focus on design or operating details, but refers frequently to existing or future guideline or strategy documents that will give detailed support to policy objectives. All of these actions by the City will complement the actions required of the private sector by the Official Plan.

Figure 1.1 – The City of Ottawa



1.1 Ottawa’s Growth Management Strategy

This Plan is an update to Ottawa’s 2003 Transportation Master Plan, and has been prepared concurrently with an update to Ottawa’s 2003 Official Plan. The original versions of both Plans were developed through the Ottawa 20/20 initiative, a two-year process that helped the City prepare a growth management strategy for the period to 2021. The principal goal of Ottawa 20/20 was to balance social, environmental and economic issues in a way that enables the City to serve

today's residents while being responsible to future generations. As part of the Ottawa 20/20 process, the City completed five growth management plans in 2003—the Official Plan, Human Services Plan, Arts and Heritage Plan, Economic Strategy and Environmental Strategy. A City Strategic Plan was also prepared in 2006 and updated in 2007. Together, these plans identify the City's long-term strategic directions and form a comprehensive blueprint for the future of Ottawa.

Ottawa's Official Plan guides the physical development of the city through land use, community design and infrastructure policies, and is directly supported by the Transportation Master Plan as well as the Infrastructure Master Plan (for water, wastewater and stormwater services) and the Greenspace Master Plan (for the protection, acquisition and management of greenspace).

Together, these three plans set out strategies, policies, programs and infrastructure elements consistent with the directions contained in the Official Plan, and are clearly referenced within it.

The Ottawa 20/20 initiative defined seven guiding principles and accompanying objectives to guide the preparation of all plans related to the City's growth management strategy. **Figure 1.2** identifies some ways in which the Transportation Master Plan directly supports these principles.

1.2 Interpreting and Updating this Plan

The policies contained in the Transportation Master Plan represent Council's stated intentions, and will guide day-to-day transportation decisions. This plan is a starting point that will come to life through mechanisms such as:

- long-range financial plans, mid-range (e.g. 10-year) implementation plans and annual budgets that identify priorities and resources for a range of transportation programs
- strategies and action plans for individual transportation programs that detail undertakings, timeframes and resource needs
- Environmental Assessment processes to obtain provincial or federal consent for projects like rapid transit systems, major roads and bridges
- Community Design Plans for areas designated in the Official Plan
- guideline documents such as those setting design specifications or operational procedures.

As time passes, unexpected changes to the assumptions behind this Plan's policies and actions—such as the pace, location or magnitude of residential, commercial and institutional development—may require adjustments to the Plan and its elements, including the nature and timing of transportation facilities and services. Other possible issues of concern include the City's ability to invest in infrastructure, changes to the City of Gatineau's land use or transportation systems, changes to provincial or federal transportation facilities within Ottawa, or changes in national or international circumstances such as an energy crisis.

The City will review the need to update this Plan when it considers the need to update its Official Plan, an event required every five years by provincial legislation. In the intervening period, Council decisions on transportation issues will have the inevitable effect of amending, deleting, replacing or complementing some of the policies in this Plan. For this reason, readers must

consider this plan in conjunction with the record of subsequent Council decisions, in order to fully grasp current City transportation policy at any given point in time.

Figure 1.2 – Ottawa’s Growth Management Principles and the Transportation Master Plan

Growth Management Principles	Transportation Master Plan Directions
A Caring and Inclusive City	
Providing public services in a way that responds to cultural needs and diversity while assisting social integration	<ul style="list-style-type: none"> • Ensuring access to transportation options for all residents, regardless of age or ability • Providing high-quality services and facilities for walking, cycling and transit • Improving road safety
A Creative City Rich in Heritage, Unique in Identity	
Encouraging civic pride and the arts, and maintaining those community elements that make Ottawa unique	<ul style="list-style-type: none"> • Supporting a vibrant downtown by preserving multi-modal access, with a focus on walking, cycling and transit • Acknowledging the different transportation needs of urban and rural areas
A Green and Environmentally Sensitive City	
Protecting natural resources through wise land use and development	<ul style="list-style-type: none"> • Maximizing the use of walking, cycling and transit through supply and demand management • Reducing the environmental impacts of transportation on air, water and land • “Greening” major road corridors
A City of Distinct, Liveable Communities	
Fostering identifiable communities that have a variety of housing choices, employment, parks, services and facilities that are accessible	<ul style="list-style-type: none"> • Maximizing access to community services and facilities by walking, cycling and transit • Linking community cores and employment areas with rapid transit • Offering a range of transportation options for persons with disabilities • Managing traffic volumes and speeds in residential neighbourhoods • Creating public rights-of-way that are sensitive to adjacent land uses
An Innovative City Where Prosperity Is Shared Among All	
Encouraging knowledge and talent to create local business and a strong economy	<ul style="list-style-type: none"> • Enabling the efficient movement of goods and services • Helping businesses and institutions remain accessible to clients and patrons, including those from outside Ottawa • Helping employers improve commuter options and eliminate mobility barriers that limit access to jobs
A Responsible and Responsive City	
Encouraging an open and participatory process, being accountable, conducting on-going strategic monitoring and adjusting to make efficient use of its infrastructure and resources.	<ul style="list-style-type: none"> • Setting goals and monitoring their achievement • Reducing public and private costs by promoting efficient modes of transportation • Pursuing sustainable funding strategies such as “user pay” approaches and public-private partnerships • Improving cost-effectiveness by partnering with public, private and community organizations • Providing information that helps individuals make responsible transportation choices
A Healthy and Active City	
Creating opportunities for healthy living through community design and recreational facilities and parks	<ul style="list-style-type: none"> • Promoting active transportation as a component of healthy lifestyles • Providing comprehensive walking and cycling networks • Minimizing air pollution from transportation

Chapter 2 – Current and Future Conditions

2.1 An Overview of Ottawa's Transportation System

The City of Ottawa is home to about 870,700 people. The city covers an area of 2,760 square kilometres of which 10% is urban and 90% is agricultural land, villages, marginal and forested lands, and wetlands. The population of the City of Gatineau and its surrounding rural area, across the Ottawa River in the Province of Quebec, is about 279,200 people; together, Ottawa-Gatineau is the largest metropolitan area in Canada after Toronto, Montreal and Vancouver.

Ottawa's transportation system lies within three government jurisdictions, each of which has specific interests with respect to the planning, design, construction and maintenance of its own facilities. Most of the road, transit and pathway networks are owned and maintained by the City, but major intercity highways (namely Highways 416, 417 and 7) are the responsibility of the provincial government, and five interprovincial road bridges as well as the National Capital Commission's roads and multi-use pathways are under federal jurisdiction. The city is also serviced by one international and three general aviation airports, two passenger railway stations, an intercity bus terminal, two ferries and a freight yard.

The City is responsible for a truly multimodal transportation system with facilities and services for walking and cycling, public transit, roads and parking:

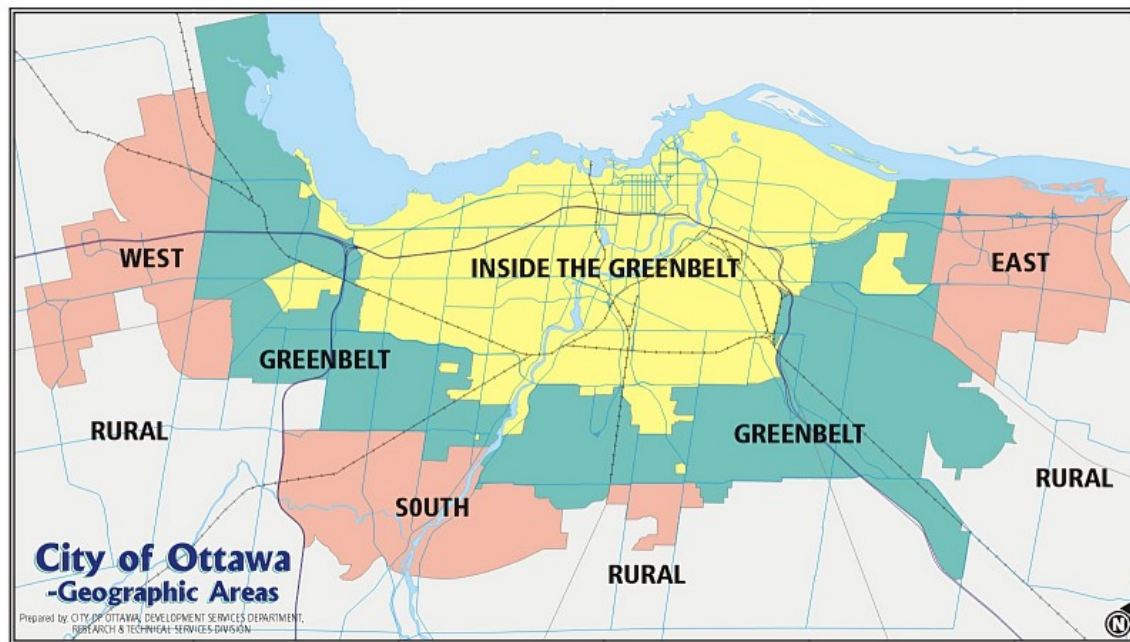
- About 6,000 kilometres of roads (see Chapter 5) including 1,400 km of arterials, 4,600 km of collectors, local streets and a freeway
- About 1,575 km of sidewalks and 340 km of on-road bicycle lanes
- City operated off-street parking lots with 2,799 spaces, and 3,773 on-street parking meters
- 990 standard and articulated buses, a Transitway system (31 km of dedicated busway, 34 stations, 16 km of arterial road bus lanes, 23 km of freeway shoulder bus lanes, and 11 Park & Ride lots with 5370 parking spaces) and the O-Train light rail line (8 km long with five stations)
- 91 lift-equipped vans and 37 cars providing specialized transit service for persons with disabilities

2.2 Population and Employment Distribution

The City of Ottawa is expecting substantial growth in population and employment by 2031, with new residents and workers placing considerable pressure on its transportation system. **Figure 2.1** summarizes these growth projections and shows that the city's population is projected to grow about 30% from 2006 to 2031. Of the 265,000 new residents, 20% will live inside the Greenbelt while 68% will live in urban areas outside the Greenbelt, and 12% will live in rural areas. The number of jobs is projected to grow about 35% from 2006 to 2031. About 42% of new jobs will be located inside the Greenbelt, while 50% will be in urban areas outside the Greenbelt and about 8% will be in rural areas.

Figure 2.1 – Projected Population and Employment Growth

		Inside Greenbelt	West Urban Centre	South Urban Centre	East Urban Centre	Rural Area	Total
Population	2006	533,100	88,400	64,500	99,000	85,700	870,700
	2031	585,800	162,200	147,600	123,500	116,600	1,135,700
	Growth	52,700	73,800	83,100	24,500	30,900	265,000
	Growth distribution	20%	28%	31%	9%	12%	100%
Employment	2006	428,600	43,600	9,800	17,900	21,800	521,700
	2031	505,500	77,000	49,300	35,000	36,200	703,000
	Growth	76,900	33,400	39,500	17,100	14,400	181,300
	Growth distribution	42%	18%	22%	10%	8%	100%



2.3 Current Travel Patterns and Trends

Results of the 2005 Origin-Destination (OD) survey of over 24,000 households in the National Capital Region provide a snapshot of weekday personal travel patterns by persons aged 11 years or more. These results can also be compared to those of previous surveys in 1986 and 1995 to illustrate changes in transportation activity that have occurred in Ottawa. The OD survey did not capture weekend travel, commercial trips or trips generated outside the National Capital Region. Within this section, data are for the National Capital Region unless otherwise noted.

2.3.1 Individual and Household Characteristics

Occupation. The 2005 survey found that 74% of persons aged 11 or older were employed individuals or students, seniors accounted for a further 17%, homemakers 5% and others 5% (e.g. unemployed).

Automobile ownership. In total there were 482,000 vehicles for Ottawa's 2005 population of 865,700. Each household owned an average of 1.39 vehicles, with 13% of households having no vehicle available, 79% having one or two vehicles and 8% having three or more vehicles. As shown in **Figure 2.2**, vehicle ownership varied considerably among different areas within Ottawa, with very low levels of multiple vehicle availability in central areas, high levels in suburban and rural areas, and more average levels in areas just inside the Greenbelt such as Beacon Hill and Bayshore. Household vehicle ownership increased by 10% over 1995, and by 14% over 1986 levels.

Figure 2.2 – Household Vehicle Availability (2005)

Area	Proportion of Households by Number of Vehicles Available			
	0	1	2	3 or more
Ottawa Central core	40%	54%	6%	0%
Ottawa Inner Area	35%	50%	13%	1%
Ottawa East	25%	50%	21%	4%
Beacon Hill	11%	55%	29%	5%
Orléans	2%	41%	48%	10%
Ottawa West	19%	53%	23%	4%
Bayshore	11%	49%	33%	6%
Kanata-Stittsville	3%	35%	53%	10%
Rural areas	1%	18-19%	53-57%	24-26%
Total City	13%	45%	34%	8%

2.3.2 Overall trip making

Daily trip rates. In 2005, Ottawa residents made 2.1 million trips over a 24-hour period. Each person made an average of 2.8 trips per day and each household made an average of 6.1 trips per day. From 1986 to 2005 the 33% growth in the total number of daily trips was smaller than the

growth in population (42%) and households (54%). As a result, the number of trips per person dropped by 2%, from 2.83 trips in 1986 to 2.78 trips in 2005. The number of trips per household dropped by 15%, from 7.08 trips in 1986 to 6.03 trips in 2005, due mostly to a reduction in the number of persons per household.

Choice of all modes—all day. Over a 24-hour period, 58% of trips were made by auto drivers, 13% by auto passengers, 13% by transit, 11% by walking, and 1% by cycling.

Choice of car—all day. Over a 24-hour period in 2005, 71% of all trips were made by car (58% as drivers and 13% as passengers), unchanged from 1996 (except that the breakdown was 55% as drivers and 16% as passengers). From 1986 to 2005, the average number of occupants in each car decreased from 1.32 to 1.23 persons, meaning that the average number of passengers per car (i.e. excluding the driver) decreased by about 30%. The total number of auto driver trips made in 2005 was 13.5% more than in 1995, and 32% more than in 1986. The total number of single-occupant auto trips, however, increased by about 18% since 1995.

Choice of transit—peak periods. In 2005, 21% of morning peak period trips starting in Ottawa and 18% of all afternoon peak period trips starting in Ottawa were made by transit. In the Outaouais, comparable figures were 17% and 14%, respectively. These figures represented a significant increase over 1996, when the survey observed figures for morning and afternoon trips of 18% and 14% for Ottawa, and 9% and 8% for the Outaouais.

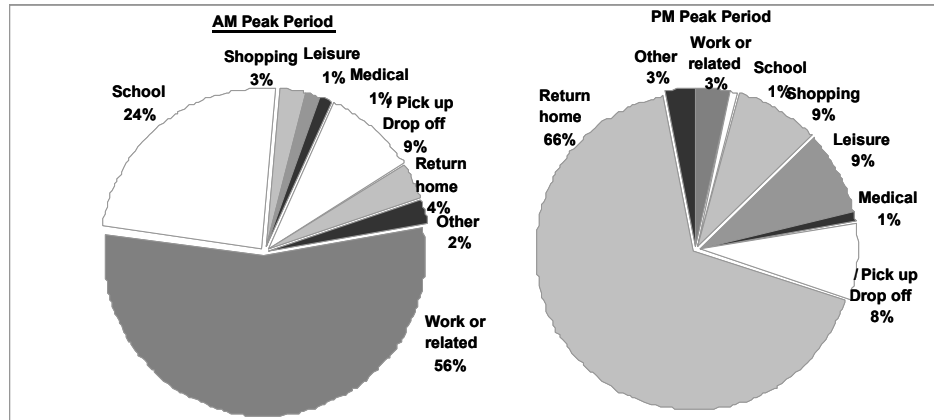
Choice of all modes—morning peak period. In the morning peak period, 478,400 trips were made to, from or within Ottawa. Of these, 62% were by car, 21% by public transit, 9% by walking, 2% by cycling and 6% by other modes (e.g. school bus, motorcycle). During the same period, 418,000 trips were made entirely within Ottawa. Of these, 61% were by car (and of these, 82% by drivers and 18% by passengers), 20% by public transit, 10% by walking, 2% by cycling and 7% by other modes.

2.3.3 Time and purpose of travel

Concentration of trips during peak hours. In 2005, the proportion of daily (i.e. 24-hour) trips that occurred during the morning and afternoon peak hours was 44% for all modes, 42% for auto drivers, 38% for auto passengers and 60% for transit users (31% in the morning and 29% in the afternoon). The afternoon peak period (644,000 trips) was busier than the morning peak period (573,000 trips), with the busiest single hour being between 4:00 and 5:00 p.m., when 281,300 trips were made. From 1996 to 2005, the number of morning peak hour trips increased by 13% while the number of afternoon peak hour trips increased by 10% (the same as the overall 24-hour period).

Travel purpose. The reasons that people travelled during the 2005 morning and afternoon peak periods are illustrated in **Figure 2.3**.

Figure 2.3 - Trip Purpose During Morning and Afternoon Peak Periods (2005)



2.3.4 Travel origins and destinations

Highest volume corridors. The major travel flows between districts in the National Capital Region for weekday mornings in 2005 (where at least 3,000 persons travelled) are shown in **Figure 2.4**. The figure clearly shows that downtown Ottawa is a dominant destination (23% of trips shown), and that a significantly greater number of residents crossed the Greenbelt from Orléans than from Kanata-Stittsville. It also shows that 57% of trips to central Ottawa from other districts came from east of the Rideau River, versus 43% from areas to the west. The largest trip flows in directions other than to downtown occurred from Orléans to Ottawa East/Beacon Hill (8,400), Hunt Club to Alta Vista (7,500 trips), Orléans to Alta Vista (5,300 trips), and Bayshore to Merivale (5,000 trips).

Figure 2.4 - Major Travel Flows, Morning Trips (2005)



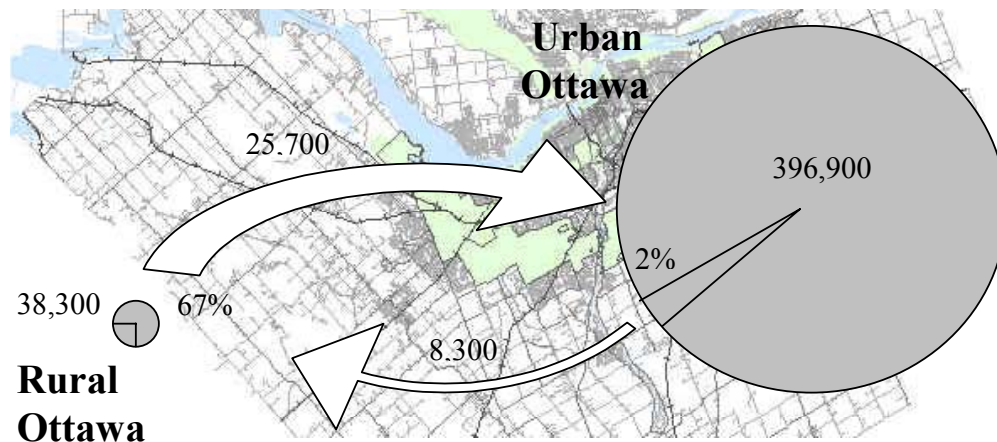
Trips between Ottawa and Gatineau. The volume of interprovincial trips in the 2005 weekday morning peak period are shown in **Figure 2.5**. Interprovincial trips account for 31% of all trips starting in the Outaouais but only 4% of all trips starting in Ottawa; these proportions were unchanged from 1995. However, the actual number of interprovincial trips in the morning peak period did increase by 18% in both directions from 1995 to 2005, resulting in an imbalance of 43,200 trips crossing from Gatineau to Ottawa but only 17,200 trips crossing from Ottawa to Gatineau. In the afternoon peak period (not illustrated) the volume of interprovincial trips rose by 25% from 1995 to 2005, reaching 44,200 northbound trips and 19,400 southbound trips.

Figure 2.5 - Interprovincial Trips, 2005 Morning Peak Period



Trips between rural and urban Ottawa. Travel between Ottawa’s rural and urban districts in the 2005 morning peak period is summarized in **Figure 2.6**. Rural-urban travel in 2005 accounted for 67% of trips starting in rural areas but only 2% of all trips starting in urban areas, with actual volumes of 25,700 rural-to-urban trips (up by 24% from 1995) and 8,300 urban-to-rural trips (up by 90% from 1995).

Figure 2.6 - Morning Trips To/From Rural and Urban Ottawa 2005



Internal trips within communities outside the Greenbelt. More complete communities tend to have a higher degree of internal trip-making as residents have more local opportunities for employment, education, shopping and recreation. In 2005, the following observations were made for trips to, from and within the urban communities outside the Greenbelt:

- Kanata-Stittsville—36% were internal, 28% came into the community, 37% left the community
- South Nepean—25% were internal, 14% came into the community, 61% left the community
- South Gloucester/Leitrim—5% were internal, 27% came into the community, 68% left the community
- Orléans—36% were internal, 14% came into the community, 50% left the community

These figures show that residents of Kanata-Stittsville and Orléans are more likely than southern communities outside the Greenbelt to make lower-impact trips that stay within their community.

2.3.5 Modal choice by area

Modal choice for shorter trips. The use of different modes for internal trips within 17 Ottawa districts in the afternoon peak period was analyzed, with the following results:

- *Walking trips* made up 75% of trips in the Ottawa central core, 54% within the Ottawa inner area (bounded by the Rideau River and O-Train line) and lesser amounts with increasing distance from downtown (e.g. 28% in Ottawa East, 20% in Beacon Hill, 13% in Orléans, 34% in Ottawa West, 20% in Bayshore, 11% in Kanata-Stittsville, and 8% to 10% in rural areas).
- *Cycling trips* ranged from a high of 4% in the Ottawa inner area to less than 2% in most other areas.
- *Transit trips* varied from 28% in the Ottawa inner area to 7-13% for districts inside the Greenbelt, and 3-4% for urban communities outside the Greenbelt except South Gloucester/Leitrim which had the same rate (below 1%) as rural areas.
- *Car trips* ranged from 17% in the Ottawa central core, 28% in the inner area, and 52-70% in other areas inside the Greenbelt, to 69-85% for urban communities outside the Greenbelt and 70-80% in the rural area.
- *Other trips* (principally school bus trips) were most significant in the rural area where they made up 11-21% of trips.

Modal choice for longer trips. A similar analysis was conducted on the use of different modes for trips between districts (i.e. non-internal trips) in the afternoon peak period, with the following results:

- *Walking and cycling trips* to or from districts varied from 1% or less in rural and urban areas outside of the Greenbelt to 2 to 4% within the Greenbelt, except for the Ottawa central core and Ottawa inner area where it was 5-17%.
- *Transit trips* made up 23-32% of all trips to or from the Ottawa central core and Ottawa inner area, 10-27% of trips to or from other districts inside the Greenbelt, 7-21% of all trips to or from urban communities outside the greenbelt (except Orléans where they made up 35% of trips), and lower levels in rural districts (less than 1% in the west, 4-8% in the southeast and southwest and a high of 9-12% in the east).
- *Car trips* made up 90% of trips to or from rural districts (except in the east where they ranged from 75-85%), 63-90% of trips to or from urban communities outside the Greenbelt, and 63-89% of trips to from districts inside the Greenbelt (except for the two central districts where they made up 43-60% of trips).

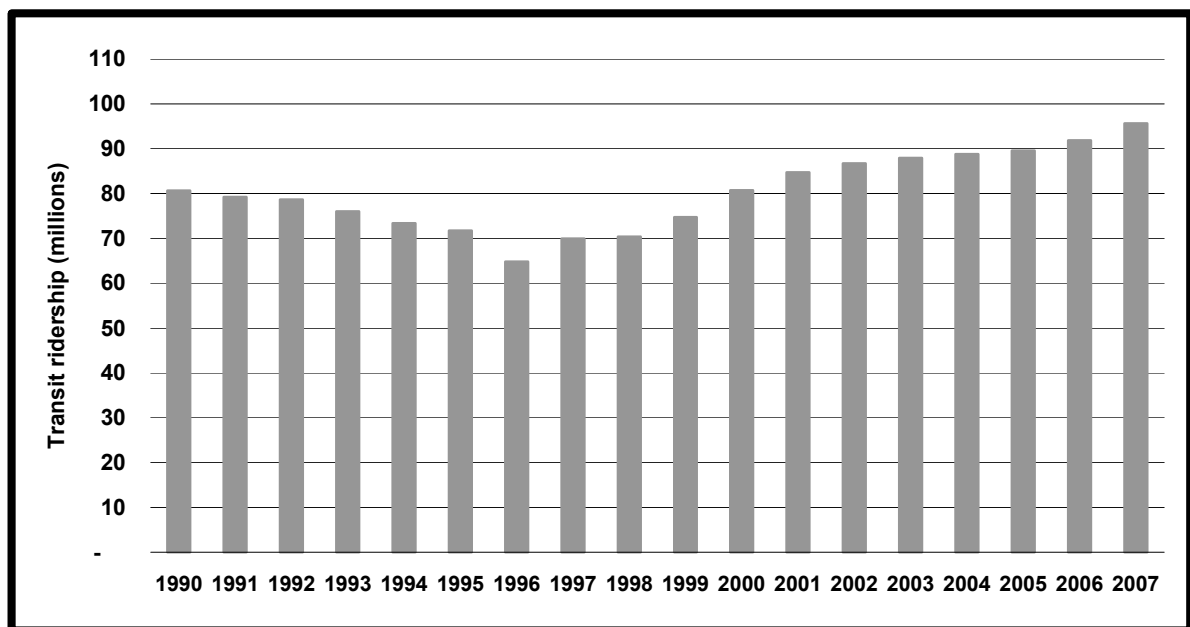
2.3.6 Transit travel

Total ridership. Ottawa's annual transit ridership of over 100 trips per capita is greater than that of all Canadian cities other than Montreal and Toronto, and of all North American cities of its size. Over the last two decades transit ridership in Ottawa has both fallen and risen, as illustrated

in **Figure 2.7**. Since hitting a low of 65 million annual transit trips in 1996, transit ridership grew about 3.5% annually to reach almost 96 million trips in 2007.

Modal shares. Public transit’s share of 24-hour trips by all modes was 13% in 2005, compared to 10% in 1995 and 15% in 1986. The total volume of transit trips was almost identical in 2005 and 1986. Transit’s share of 24-hour trips by motorized modes was 15% in 2005, up from 13% in 1995 and down from 18% in 1986.

Figure 2.7 – Annual Transit Ridership (1990 to 2007)



2.3.7 Active transportation (walking and cycling)

In 2005 active transportation comprised for 12% of all daily trips. In the am and pm peak periods cyclists were 2% of all commuters and walkers were 9%. Measured over a 24 hour period walkers accounted for 11% of all trips. A 2003 surveys of Ottawa residents revealed that 43% of the population are non-cyclists, 36% cycle for utilitarian reasons and 21% cycle for recreation only. Of households with bicycles, 73% have 2 or more cyclists.

2.3.8 Travel times by car

A survey of 2005 morning peak period travel times for automobile trips to Parliament Hill in downtown Ottawa (i.e. the intersection of Wellington and Metcalfe Streets) found the following durations, average speeds and cumulative delays due to complete stops at traffic signals or traffic congestion:

- From Orléans (Trim and Highway 174, about 18 km) – 30 minutes, 40 km/h, 3 minutes
- From Kanata (March Road and Terry Fox, about 25 km) – 35 minutes, 50 km/h, 3 minutes

- From South Nepean (Prince of Wales and Winding Way, about 17 km) – 30 minutes, 35 km/h, 7 min.

A similar survey in the afternoon period, for the return trip, found the following:

- To Orléans – 20 minutes, 60 km/h, 2 minutes
- To Kanata – 35 minutes, 45 km/h, 3 minutes
- To South Nepean – 35 minutes, 30 km/h, 9 minutes.

2.3.9 Goods movement

Goods movement is another component of travel demand in Ottawa. Almost all freight is moved within and through the city by truck, which in 2003 amounted amounting to 480 million tonnes annually compared to 900,000 tonnes by rail and 14,000 tonnes by air. About 4% of all freight trips in Ottawa are destined to and from Gatineau. In 2007, about 3,600 trucks crossed the Ottawa River each day, making up less than 2% of overall daily bridge traffic.

2.4 Future Travel Patterns

Development of this plan involved the use of computer-based modeling software to project how future travel demand in the morning peak hour on a typical weekday could change as a result of population and employment growth. The principal purpose of the modeling activity was to help identify actions the City must take to serve future travel by pedestrians, cyclists, transit users, auto drivers and passengers, and commercial vehicles¹.

While many assumptions about future conditions are required to guide the transportation modeling process, significant assumptions included the following:

- The likelihood of employed persons to travel to and from work is expected to decline, due to growth in home-based work and teleworking
- Some shift in automobile trips from the peak hour to adjacent time periods is expected to occur
- Internalization of travel in the urban communities outside the Greenbelt is expected to increase—that is, trips starting in each of the new communities are more likely to also end there—due to an improved balance of jobs with population.

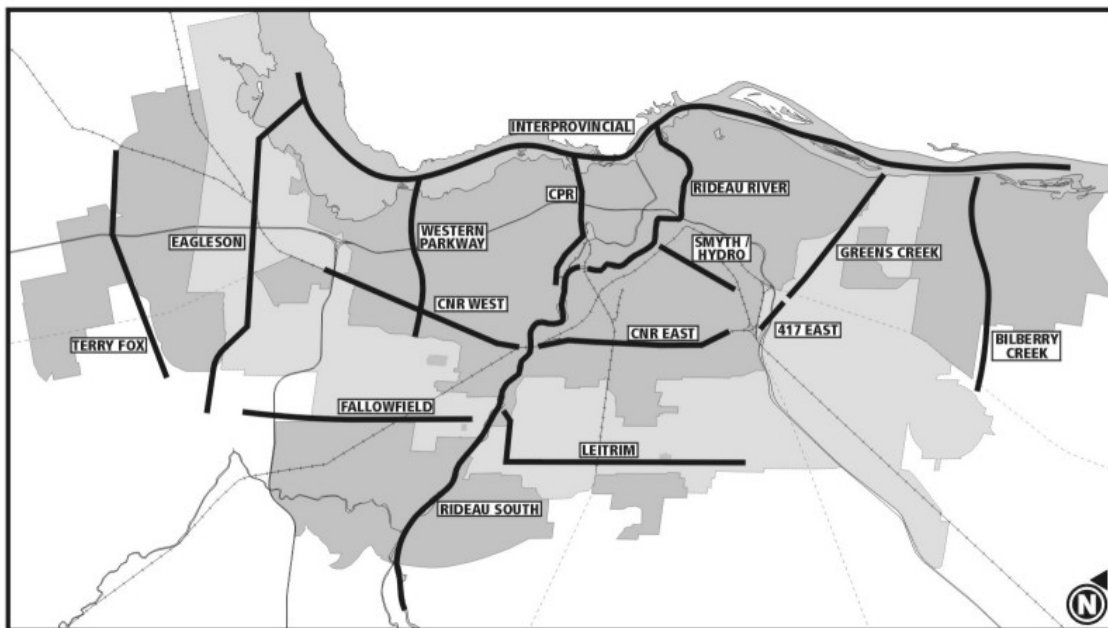
The demand projection process estimated future growth in passenger travel demand by all modes in Ottawa's morning peak hour, finding that total passenger travel demand is expected to grow from 214,800 person-trips in 2005 to about 296,000 person-trips in 2031. This increase of 38% is greater than the population growth of 30% over the same period.

¹ Commercial travel demand was not modelled explicitly in terms of trip origins and destinations; rather, the likely proportion of traffic on major roads that would be represented by commercial vehicles was estimated and applied in the system analysis.

2.4.1 Transit and Automobile Travel

While the demand projection process estimated future growth in passenger travel demand by all key travel modes (walking, cycling, transit and automobile), a subsequent detailed analysis was needed to determine the implications of automobile and transit demand on the capacity requirements of the road and rapid transit systems. This analysis used a number of screenlines² and cordons³ (see **Figure 2.8**) to assess travel demands in key corridors. (Note that due to their locations most screenlines are crossed by very few pedestrians and cyclists, and do not adequately reflect walking and cycling levels within our communities. Section 2.4.2 discusses how objectives for walking and cycling were set.)

Figure 2.8 – Major Screenlines



In order to reflect Ottawa's growth management principles (see Section 1.2) and the Transportation Vision (see Section 3.1), this plan aims to achieve the highest reasonable level of future transit usage. For this reason, an objective of achieving a 30% transit modal split in the 2031 morning peak hour was used for modeling and analysis. This means that 30% of all person-trips made using motorized modes (transit or automobile) would be by transit, and 70% by automobile. While a 30% transit modal split represents a real challenge—an increment from 2005 value of 23%—it can be achieved if the required service strategies, transit priority measures,

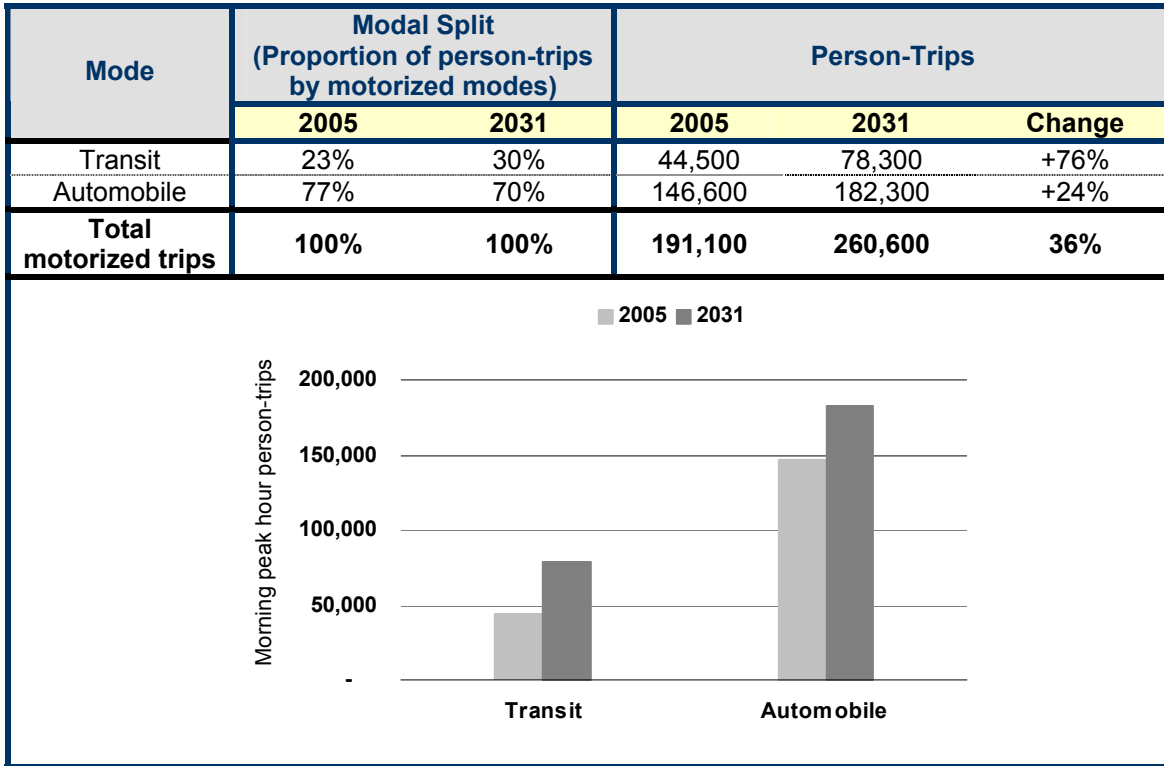
² Travel patterns in Ottawa are highly dispersed and difficult to summarize comprehensively. One way to examine how travel will change over time is through the use of screenlines. A screenline is an imaginary line drawn across major transportation facilities in a corridor, typically following a feature such as a river or railway that has limited crossing points.

³ A cordon is a screenline or group of screenlines that contains an area of interest. This analysis used cordons to examine all travel to and from the Central Area, to and from the Inner Area, and to and from lands on either side of the Greenbelt.

rapid transit lines and a variety of essential supporting actions are implemented in a comprehensive and coordinated fashion.

Figure 2.9 compares the 2005 city-wide modal splits and person-trip volumes for transit and automobile use to projections for 2031. It shows that while peak hour transit person-trips will increase by 76%, automobile person-trips will only increase by 24%.

Figure 2.9 – Projected Transit and Automobile Travel Demand — City-Wide
(Morning peak hour)



* Include all travel originating or destined to Ottawa (i.e. excludes travel originating and destined to Gatineau/MRC)

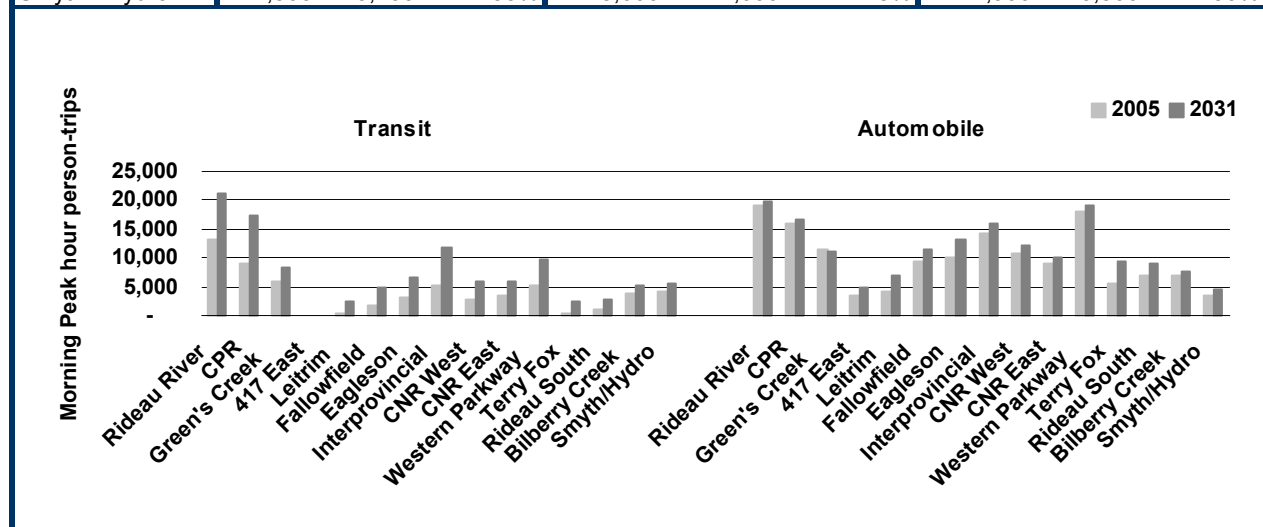
Figure 2.10 illustrates the implications of these overall demands for individual screenlines, comparing simulated 2005 person-trip volumes to those projected for 2031, and leads to the following observations:

- Automobile and transit travel across the Greenbelt will grow 40% above today's levels. This growth is less than the forecast population change (+68%) in the urban centres outside the Greenbelt, because of the employment growth and greater containment of work-related travel within those areas
- Travel demand across the Inner Area Cordon will grow about 31% above today's levels, due to an increased concentration of jobs within the Inner Area
- Person-trips by automobile are projected to increase at every screenline except Green's Creek, despite the much larger share of travel that will be carried by transit

Figure 2.10 – Projected Transit and Automobile Travel Demand – Screenlines

(Morning peak hour, peak direction, person-trips by motorized modes)

Screenline*	Transit			Auto			Total		
	2005	2031	Growth	2005	2031	Growth	2005	2031	Growth
Rideau River	13,150	21,300	62%	19,100	19,850	4%	32,250	41,150	28%
CPR	9,200	17,500	90%	16,000	16,700	4%	25,200	34,200	44%
Total: Inner Area Cordon	22,350	38,800	74%	35,100	36,550	4%	57,450	75,350	31%
Green's Creek	6,000	8,400	40%	11,300	11,100	-2%	17,300	19,500	13%
417 East	0	0	0%	3,600	4,900	36%	3,600	4,900	36%
Leitrim	200	2,300	1050%	4,200	6,800	62%	4,400	9,100	107%
Fallowfield	1,900	4,800	153%	9,400	11,600	23%	11,300	16,400	45%
Eagleson	3,100	6,600	113%	9,900	13,100	32%	13,000	19,700	52%
Total: Greenbelt Cordon	11,200	22,100	97%	38,400	47,500	24%	49,600	69,600	40%
Interprovincial	5,100	11,800	132%	14,200	15,800	11%	19,300	27,600	43%
CNR West	2,900	5,900	104%	10,900	12,100	11%	13,800	18,000	30%
CNR East	3,300	6,000	82%	9,000	10,100	12%	12,300	16,100	31%
Western Parkway	5,200	9,800	88%	18,200	19,000	4%	23,400	28,800	23%
Terry Fox	400	2,400	500%	5,600	9,300	66%	6,000	11,700	95%
Rideau South	900	2,700	200%	7,100	9,200	30%	8,000	11,900	49%
Bilberry Creek	3,900	5,100	31%	6,800	7,800	15%	10,700	12,900	21%
Smyth / Hydro	4,300	5,700	33%	3,600	4,600	28%	7,900	10,300	30%



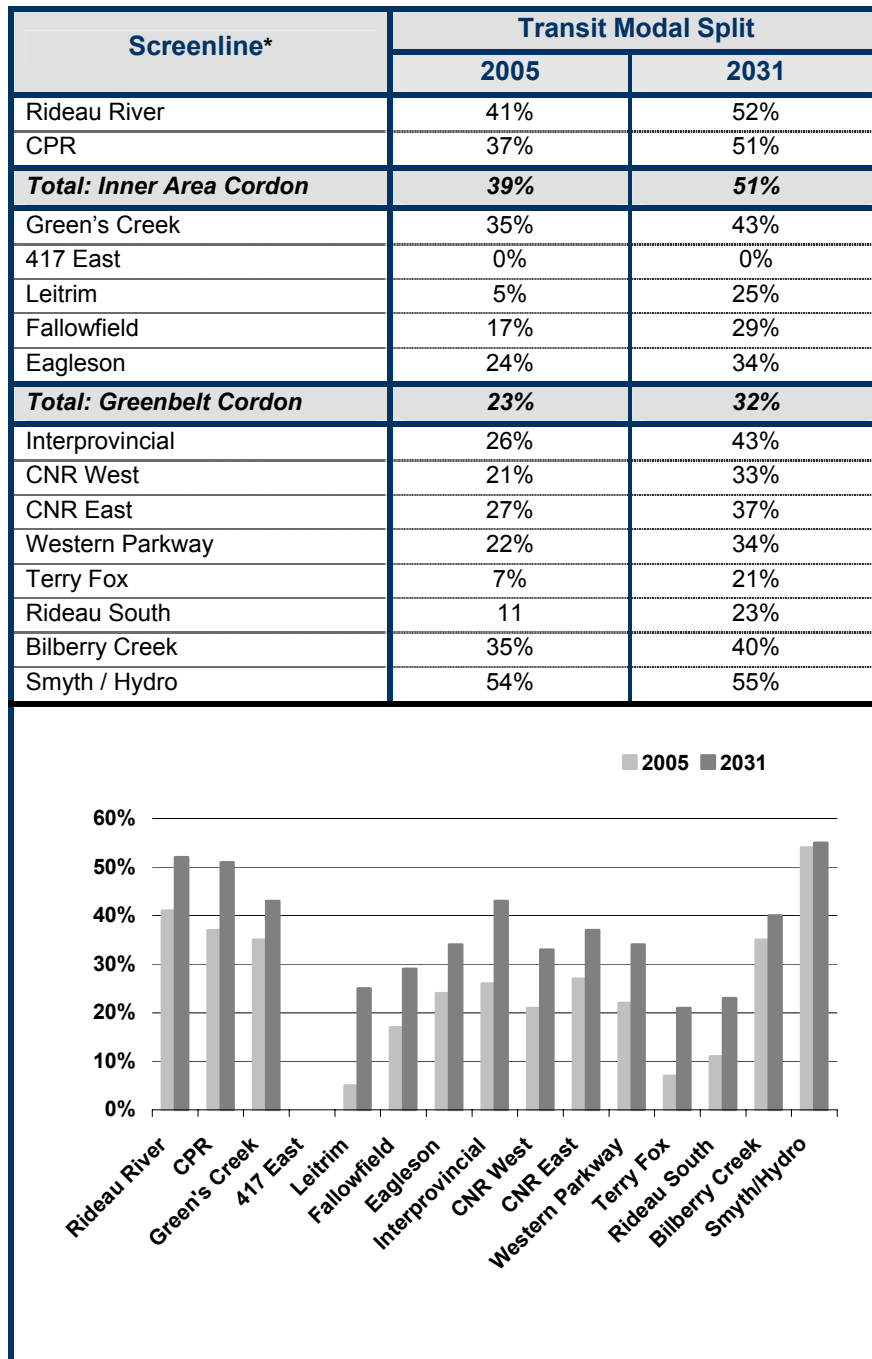
* All 2005 data shown correspond to model simulations unless otherwise noted

Figure 2.11 indicates the transit modal split increase across key screenlines from 2005 to 2031, based on the projections shown in Figure 2.10. It is notable that transit will be required to carry 51% of motorized person-trips to and from Ottawa’s Inner Urban Area (up from 39% in 2005), and 32% of trips across the Greenbelt (up from 23% in 2005) during the morning peak hour, in the peak direction. The 2031 screenline values generally exceed the 30% city-wide objective because screenlines tend to capture radial travel demands—trips from outlying areas to the urban

core—and a higher quality of transit can be provided to these trips than to those moving peripherally from suburb to suburb.

Figure 2.11 – Projected Transit Modal Splits — Screenlines

(Proportion of travel by motorized modes, morning peak hour, peak direction)



* All 2005 data shown correspond to model simulations unless otherwise noted

Forecasts of future morning peak hour automobile occupancies were applied to convert automobile person-trips to estimated automobile volumes across key screenlines. Projected automobile occupancies varied but averaged 1.20 persons per vehicle in 2031. This value is less than 1995 observed average of 1.25 persons per vehicle for the morning peak hour. This decrease in automobile occupancy levels runs counter to observed trends that have seen average peak hour auto occupancies decline from a typical 1960s value of 1.4 persons per vehicle, and represents an implied objective for the City of Ottawa. If the average auto occupancy falls below 1.20 persons per vehicle in 2031, then traffic volumes may exceed those projected in this plan—leading to greater congestion, delay and air pollution, and requiring more road infrastructure if quality of service objectives are to be met.

2.4.2 Walking and Cycling

Objectives have also been set for the roles of walking and cycling in serving future travel demands, in response the Ottawa 20/20 principles and the Transportation Vision discussed in Chapters 1 and 3 of this plan. These objectives are described in terms of morning peak hour “modal share”. They are summarized in the following points and illustrated in **Figure 2.12**.

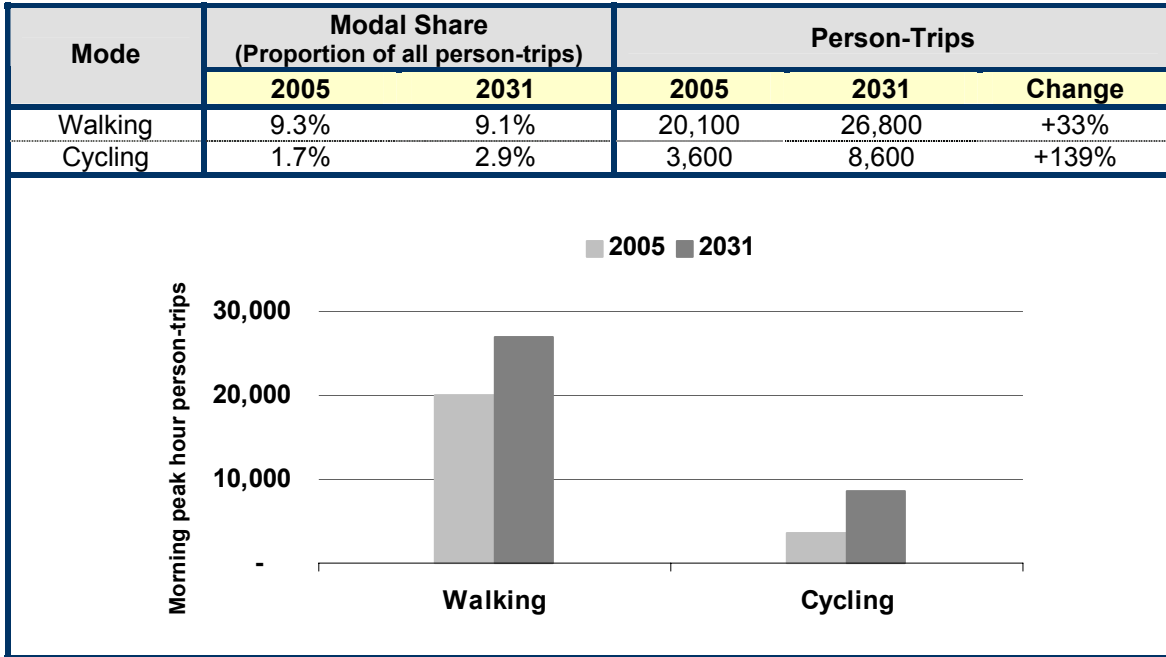
- **The walking modal share will increase from 9.3% in 2005 to 10% in 2031.** This reflects the positive impact of the Official Plan’s emphasis on compact, mixed-use development, which will be countered by significant growth in longer trips that cannot reasonably be made on foot.
- **The cycling modal share will increase from 1.7% in 2005 to 3% in 2031.** This also reflects the effects of compact, mixed-use development, as well as the effects of continued improvement in the quality and quantity of on-road cycling facilities.

These objectives are city-wide modal shares, and are very difficult to monitor. The only way to do so accurately is through expensive origin-destination surveys that are conducted every 10 years or so (the most recent one occurred in 2005). So, while progress toward these objectives cannot be accurately monitored on a frequent basis, the City will monitor other indicators of walking and cycling activity, as described in Section 3.9.

It is also important to note that, because origin-destination surveys are typically done during the fall season, the walking and cycling modal share objectives represent fall conditions. Summer modal shares will be higher, and winter modal shares will be lower.

While the City-wide non-motorized share of travel is forecast to grow by only one percent by 2031, targets were kept as 10% for walking and 3% for cycling. Implementation of the Ottawa Cycling Plan and the Ottawa Pedestrian Plan (when approved), together with the Official Plan direction towards increased intensification and density targets, make for a very supportive environment for maintaining these targeted rates for walking and cycling use.

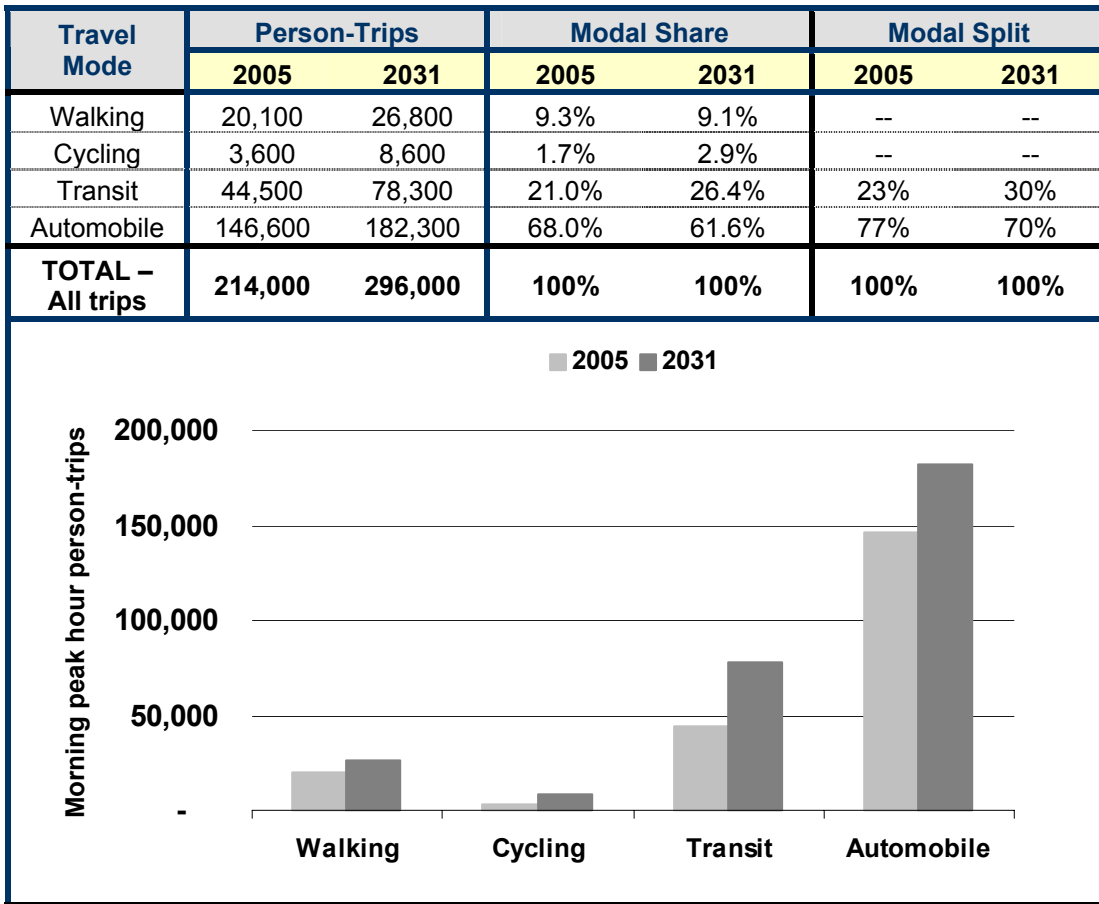
Figure 2.12 – Projected Walking and Cycling Demand — City-Wide (Morning peak hour)



2.4.3 Modal Share versus Modal Split

In the discussion about City’s transit objective it is important to note the difference between “modal share” and “modal split”. Modal share is the percentage of person-trips made by one travel mode, relative to the total number of person-trips made by all modes, whereas modal split is defined as the percentage of person-trips made by either transit or automobile, relative to the total number of person-trips made by motorized modes (i.e. transit and automobile, combined). As such, modal share relates to the whole universe of available travel modes and modal split relates to the motorized trips only. **Figure 2.13** shows the estimated 2005 and 2031 city-wide person-trip volumes, modal shares and modal split.

Figure 2.13 – Projected Travel Demand: All Modes — City-Wide (Morning peak hour)



Chapter 3 – Strategic Directions

In Section 3.1, this chapter presents a Transportation Vision for Ottawa that guides the remainder of this plan. Sections 3.2 through 3.9 discuss eight key strategic directions that are essential to achieving that vision:

- **Creating supportive land use** – Shaping development to support transportation goals
- **Managing transportation demand** – Influencing why, when, where and how people travel
- **Managing the transportation system** – Maximizing the efficiency of infrastructure and services
- **Enhancing safety and security** – Reducing the personal risks to individuals during travel
- **Protecting the environment** – Reducing the impacts of transportation facilities and activities
- **Managing and maintaining assets** – Minimizing life-cycle costs while providing desired levels of service
- **Funding implementation** – Enhancing the City’s ability to pay the costs of this plan
- **Measuring performance** – Monitoring progress toward objectives

These strategic directions are themes embedded in Chapters 4 through 6, which are the core of this plan. Sections 3.2 through 3.9 include cross-cutting policies and actions that are not found elsewhere in this plan, and identify key linkages to later chapters.

3.1 Ottawa’s Transportation Vision

During preparation of the City’s 2003 Transportation Master Plan, a Transportation Vision was developed to express how Ottawa’s transportation system in 2021 might benefit residents. That vision has been enhanced through public consultation during the Transportation Master Plan update process. The new Transportation Vision continues to recognize that transportation is a means to an end — namely, the protection and improvement of our quality of life. It is intended to be a lasting expression of critical directions and outcomes — *what* we wish to achieve through transportation, and *why*. The remainder of the Transportation Master Plan details the *how*, *where*, *when* and *who* of specific projects or services.

The Transportation Vision includes a summary statement plus 12 elements, each of which includes several principles that are intended to guide the City’s future actions. Figure 3.1 presents a summary of the vision, and the pages that follow provide additional discussion of each element and its principles.

Figure 3.1 – Transportation Vision: Summary and Elements

<p><i>Summary:</i></p> <p>IN 2031, OTTAWA’S TRANSPORTATION SYSTEM WILL ENHANCE OUR QUALITY OF LIFE BY SUPPORTING SOCIAL, ENVIRONMENTAL AND ECONOMIC SUSTAINABILITY IN AN ACCOUNTABLE AND RESPONSIVE MANNER.</p>	
<p><i>Elements:</i></p> <p>Support for social, environmental and economic sustainability</p>	<p><i>Elements:</i></p> <p>Accountability and responsiveness</p>
<p>1. Reduce automobile dependence</p> <p>2. Meet mobility needs</p> <p>3. Integrate transportation and land use</p> <p>4. Protect public health and safety</p> <p>5. Protect the environment</p> <p>6. Enhance the economy</p>	<p>7. Deliver cost-effective services</p> <p>8. Measure performance</p> <p>9. Protect the public interest</p> <p>10. Provide adequate and equitable funding</p> <p>11. Cooperate with other governments</p> <p>12. Lead by example</p>

Element 1: Reduce automobile dependence

- Principles:**
- a) Give priority to public transit in meeting future growth in travel demand
 - b) Make walking and cycling more attractive than driving for short trips
 - c) Motivate sustainable travel choices through education, promotion, incentives and disincentives
 - d) Encourage shorter trips and travel alternatives like telework

In 2031, the ability of residents to access essential opportunities will not depend on their ownership of a car. Urban residents will be able to meet daily needs by walking, cycling, taking transit or ridesharing. Rural residents will continue to rely on cars, but will have other choices. Development of more compact communities will bring homes and destinations closer together and make walking and cycling more practical. Ridesharing will be more convenient and effectively promoted. Transit, however, will remain the most affordable, accessible and all-season travel option for area residents. To this end, the City will undertake a range of measures including new rapid transit and transit priority facilities, fleet expansion, improved access to transit for pedestrians and cyclists, promotional activities and provision of user incentives. New developments and redevelopments will be carefully planned and designed to provide maximum support to transit service and transit users.

Element 2: Meet mobility needs

- Principles:**
- a) Provide a continuous, integrated system of multimodal facilities and services**
 - b) Aim to provide an acceptable standard of service for each mode of travel**
 - c) Give priority to public transit, walking and cycling over cars when conflicts arise**
 - d) Provide barrier free transportation facilities and services**

Reducing travel delays to people and goods will remain a key goal in 2031. Travel by bus, light rail and car will be reasonably direct and fast, with quality connections to walking and cycling networks. Goods will move efficiently. Persons with disabilities will not encounter barriers that restrict access to key destinations. To achieve these goals, the City will have provided new infrastructure and services that encourage desired changes in behaviour and prevent unacceptable levels of congestion and delay, neighbourhood traffic infiltration and air pollution. Transit system capacity will have increased substantially to keep pace with a rising population and growth in transit modal split. Despite a reduction the automobile's modal share, road capacity will also have increased in an effort to preserve minimum acceptable service levels for traffic.

Element 3: Integrate transportation and land use

- Principles:**
- a) Build walkable communities**
 - b) Provide rapid transit and other quality transit services to community cores and employment areas**
 - c) Foster transit-oriented development in transit nodes and corridors**
 - d) Support intensification where transit, walking and cycling can be made most attractive**
 - e) Foster a vibrant downtown by improving transit, walking and cycling access**
 - f) Recognize the distinct transportation needs of rural communities**

By 2031, walkability will be the firmly established foundation of urban sustainability, with benefits ranging from health to equity, environment and the economy. Community design will revolve around pedestrian access to transit, especially rapid transit services that offer fast and reliable links between communities and employment centres. Transit will be supported through a consistent approach to development location, mix, density and site design that makes intensification a benefit for quality of life, rather than a burden. While transportation facilities such as sidewalks, pathways, rapid transit lines and roads will enable travel, they will also serve as public spaces and enliven communities through design that is sensitive to their surroundings. Particularly in rural areas, roads will play a balanced role between mobility provider and

community asset.

Element 4: Protect public health and safety

- Principles:**
- a) Give priority to safety and security when planning, designing and operating transportation systems**
 - b) Promote safe walking, cycling and driving through education, engineering and enforcement**
 - c) Support active living by promoting walking, cycling and transit for daily travel**
 - d) Minimize the impacts of truck and automobile traffic on sensitive communities**
 - e) Minimize air pollution from transportation sources**

The people of Ottawa will enjoy sidewalks, pathways, roads and transit facilities that are planned, built and maintained to safe standards, and with an eye to providing users with security of person. Transportation choices that can improve health, like walking and cycling, will be encouraged. The City will also educate people about safe walking, cycling and driving behaviours for their own protection, and for that of their families and others. Residential areas will also be protected from the undesirable impacts of transportation activity — congestion, noise, pollution and poor driver behaviour. People want clean air to breathe, and the transportation sector's contribution to air pollution will be minimized.

Element 5: Protect the environment

- Principles:**
- a) Minimize the need for new infrastructure**
 - b) Minimize transportation energy use, greenhouse gas emissions and other impacts on air, water and land**
 - c) Maximize greening within transportation rights of way**

The health of our natural environment — local, regional and global — will grow even more important to the people of Ottawa. Because the transportation system affects nature in many ways, awareness of environmental issues will prevail throughout planning, design, construction and operations. While the most effective way to minimize the transportation system's environmental impacts is to reduce the scope and scale of that system, the transportation activity that does take place will be closely managed from an environmental perspective. Trees and other forms of vegetation will play a critical role, providing shade and wind protection for users, and improving aesthetics and air quality. Greening will occur wherever conditions allow sustainable plantings.

Element 6: Enhance the economy

- Principles:**
- a) Maximize access to businesses and institutions by employees, clients and visitors**
 - b) Support efficient freight movement to, from and within the city**

Transportation will continue to play a significant role in Ottawa's economic development. Businesses and institutions that offer employment, educational, social and recreational opportunities will require effective and efficient movement for people and goods. It will also be important that out-of-town visitors and tourists can move around Ottawa with ease, particularly to and from major intercity travel hubs.

Element 7: Deliver cost-effective services

- Principles:**
- a) Make the best possible use of existing facilities before adding new infrastructure**
 - b) Integrate the consideration of life-cycle capital and operating costs into decision-making processes**
 - c) Support appropriate roles for the private sector in delivering infrastructure and services**

In 2031, Ottawa's transportation services will return the greatest possible value to taxpayers. The City will get the most out of existing road and transit systems, maximizing efficiency through a range of transportation system management measures and maximizing reliability through effective maintenance, capital reinvestment and renewal strategies. The City will consider the long-term impacts of spending decisions, such as trade-offs between capital and operating costs. It will also explore the abilities of private sector partners and service providers to reduce costs, while protecting the public interest.

Element 8: Measure performance

- Principles:**
- a) Identify transportation performance objectives and indicators**
 - b) Regularly measure and evaluate performance**
 - c) Integrate performance evaluation results by adapting transportation plans and strategies**

By setting performance objectives and measuring key indicators, the City will be able to understand how it is progressing toward goals for transportation services, facilities and behaviours. By monitoring the transportation system closely, the City will be able to identify deficiencies, analyze alternatives and modify priorities to allocate resources where they do the most good.

Element 9: Protect the public interest

- Principles:**
- a) Encourage public input and informed decision making by reporting on transportation activities and results and providing opportunities for dialogue**
 - b) Consult with the public when planning budgets, programs and projects**

The City will succeed in reaching its transportation goals by creating a role for the public as partners, and not just clients. Joining with residents to create change, rather than subjecting them to it, will allow the City to both inform and learn. Clear and continuous communication with stakeholders – the City providing facts, figures and questions, and the public responding with desires, opinions and suggestions – will enhance the City’s understanding of needs and concerns. In this way, transportation programs will be continually rebalanced to meet public expectations.

Element 10: Provide adequate and equitable funding

- Principles:**
- a) Seek and/or establish funding sources that are stable and predictable**
 - b) Strengthen the "user pay" component of transportation system funding**

By 2031, the City will have overcome today’s funding challenges. Internal or external funding sources will ensure the City’s ability to confidently plan and deliver facilities and services to meet its long-term needs. The City will lessen its dependence on property taxes to pay for transportation facilities and services, and will get more of its transportation funding directly from users. This application of “user pay” principles will also allow the City to more effectively influence individual travel choices by managing the price of transportation.

Element 11: Cooperate with other governments

- Principles:**
- a) Liaise with provincial and federal governments to align plans and policies, and to attract financial, legislative and regulatory assistance**
 - b) Work with the National Capital Commission, Ontario Ministry of Transportation, Ministère des transports du Québec, City of Gatineau and other adjacent municipalities to develop balanced solutions**

The federal government, provincial governments of Ontario and Quebec, City of Gatineau and neighbouring Ontario municipalities are all crucial players in the development of a connected and integrated transportation system. The City will depend on their active involvement to develop and implement lasting transportation solutions, with actions ranging from policy-setting and legislation to funding partnerships and service delivery. Clear lines of communication will enable all partners to overcome shared challenges and grasp opportunities.

Element 12: Lead by example

- Principles:**
- a) **Minimize energy use and environmental impacts of City transportation facilities, fleets, operations and services**
 - b) **Foster walking, cycling and transit use by employees and visitors to City facilities**
 - c) **Forge constructive partnerships with the private sector, institutions and community organizations**

The City will succeed, in part, through a tireless approach to leadership on key issues. It will be a role model for other governments and employers, demonstrating commitment and innovation that yield reproducible results in terms of reducing environmental impacts and influencing the travel choices of staff and visitors. Another element of the City's leadership will be the development of close relationships with key partners. The private sector has an increasingly meaningful role to play in improving transportation choices for employees and customers, and community groups will also be involved in defining key issues and finding solutions. Each of these partners offers important knowledge, motivation and energy, and the City will rely on them to leverage its efforts and reach greater numbers of people more efficiently.

3.2 Creating Supportive Land Use

The Official Plan recognizes that land use and transportation systems strongly influence each other, and emphasizes the development of compact, integrated land uses to encourage a shift from automobile travel to walking, cycling and public transit use. In particular, achievement of a 30% peak hour transit modal split by 2031 will require careful coordination of land use and transportation. Transit-supportive land use strategies can be applied to the entire city, component communities, neighbourhoods and individual sites.

Mixed-use development nodes are a key element of transit-supportive communities, particularly when complemented by higher densities, quality transit service and well connected walking and cycling networks. The City's *Guidelines for Transit Oriented Development* provide direction on key design considerations that should be addressed in all developments within proximity to rapid transit stations.

The City's detailed land use policies are contained in sections of the Official Plan that deal with urban land use designations, rural villages and design criteria for new developments. Key aspects of those policies are summarized below.

The City will:

1. **Encourage compact, mixed-use development at strategic locations by:**
 - a) **Designating and providing policies for Mixed Use Centres, Mainstreets and the Central Area so residents can satisfy many daily needs locally.**

- b) **Focusing rural development on Villages, where community services such as schools, shopping and libraries may be conveniently situated.**
2. **Ensure that Community Design Plans for Villages and Urban communities:**
- a) **Indicate walking and cycling requirements including linkages to greenway systems, neighbouring communities and transit facilities (if appropriate).**
 - b) **Indicate transit routes, if appropriate.**
 - c) **Incorporate supporting strategies such as streetscape improvement and traffic management measures.**
 - d) **Ensure that developments on transit routes face the street and provide frequent pedestrian linkages into the development.**
3. **Review development proposals to ensure that:**
- a) **Sidewalks are provided as required by Chapter 4 of this plan.**
 - b) **Walking and cycling links from new developments to public areas are clearly defined.**
 - c) **Individual developments include on-site bicycle parking as required by the City's zoning by-law, as well as shower and change facilities and preferential carpool parking as warranted.**
 - d) **The road network in developing communities offers direct and convenient walking and cycling routes, and enables efficient transit routes that bring all dwellings within 400 metres walking distance of a bus stop.**
 - e) **Reports required by the City's *Transportation Impact Assessment Guidelines* address pedestrian, cycling and transit requirements in addition to roads and parking.**
 - f) **Development at transit stations meets requirements including:**
 - i) **Reduced parking requirements within 600 metres of a rapid transit station.**
 - ii) **Provision for minimum and maximum parking rates for main employment, institutional and medium/higher density residential uses.**
 - iii) **Highest densities nearest to the station.**
 - iv) **High-quality access to and between buildings, and through parking lots.**
 - v) **No large parking areas between the street and building.**
 - vi) **Clear and direct access to transit stops and stations.**
4. **Encourage compact development by reducing the land area used for parking through:**
- a) **Opportunities for shared parking among land uses as provided for in the City's Zoning By-law**
 - b) **Opportunities for partnerships with the private sector to provide parking structures rather than surface parking lots.**

3.3 Managing Transportation Demand

Transportation demand management (TDM) initiatives encourage individuals to reduce the number of trips they make, to travel more often by non-driving alternatives, to travel outside peak periods, and to reduce the length of their trips. A key goal of TDM is to minimize peak hour automobile travel and reduce the need for new or wider roads. TDM measures make alternatives to driving more attractive, build a positive public attitude towards those alternatives, and provide information and incentives that encourage responsible travel behaviours. An effective TDM program will help reduce the automobile dependence of Ottawa residents, preserve individual access to opportunity, fight congestion and pollution and maintain community livability.

Through its TravelWise/SageVirage program, the City will implement comprehensive TDM efforts that involve partnerships with other governments, the private sector, public institutions, non-governmental organizations and community groups. City efforts will be complemented through advances in information technology that enable home-based work or learning and flexible employment arrangements such as telework.

This section creates a policy framework for the City's TDM program, as a complement to TDM initiatives that will make walking, cycling, transit and ridesharing more competitive, as identified in Chapter 4 – Active Transportation, Chapter 5 – Public Transit, Section 6.8 – Ridesharing, and Section 6.11 – Parking.

The City will:*Leadership initiatives*

- 1. Work with the Ontario Ministry of Transportation, the City of Gatineau, the Société de transport de l'Outaouais, the Ministère des transports du Québec, the National Capital Commission and other federal departments and agencies to implement and coordinate TDM initiatives across the National Capital Region.**
- 2. Integrate TDM initiatives with the City's public health, recreation and environmental programs through the coordinated delivery of services such as cycling skills training, active lifestyle promotion, and public education on commuting options, active transportation, air quality, climate change and energy conservation.**
- 3. Establish a TravelWise Steering Committee with interdepartmental representation to help guide the City's TDM efforts.**
- 4. Develop a comprehensive TDM strategy for City Council approval in 2009 that will establish long-term objectives, priority short-term actions and a performance measurement framework.**
- 5. Regularly survey City staff to identify opportunities for reducing automobile commuting by employees, and to measure progress.**
- 6. Implement a communications program to promote alternatives to driving for commuting and business travel for City employees.**

7. **Review employee parking policies and practices to identify opportunities for changes to improve equity and make alternatives to driving more competitive.**
8. **Develop guidelines for City facilities to make alternatives to driving more attractive for employees, clients and visitors.**

Outreach initiatives

9. **Work with employers and post-secondary institutions to reduce car commuting, deliver products and services such as the Ecompass and transportation fairs, and support events such as the Commuter Challenge and Rideshare Week.**
10. **Work to reduce the number of children being driven to school by supporting Active and Safe Routes to School programs, events such as International Walk to School Day, and the delivery of cycling skills training courses.**
11. **Conduct a pilot test of individualized household marketing to determine the applicability of results from other North American communities, and to assess the potential of an expanded program.**
12. **Work with community organizations to minimize automobile use through measures such as a neighbourhood-based TDM toolkit and the provision of assistance to small scale TDM-related projects.**
13. **Work with festival organizers to improve travel options for event attendees by enhancing on-site facilities such as preferential bicycle or carpool parking, and offering other services, incentives and information to support walking, cycling, transit use and ridesharing.**
14. **Work with tourism partners to improve travel options for visitors to Ottawa by offering services, incentives and information to support walking, cycling and transit use.**
15. **Support private-sector carsharing services by promoting the concept of carsharing and considering a role in establishing visible, convenient parking spaces for carshare vehicles.**
16. **Regularly survey City residents to better understand commuter attitudes and behaviours, and to identify opportunities for reducing automobile commuting.**

3.4 Managing the Transportation System

As the demand on road and transit facilities approaches their capacity, careful action is required to prevent unacceptable and often unpredictable impacts. Transportation system management (TSM) strategies optimize the efficiency and people-moving capacity of transportation facilities, thereby reducing the need for new infrastructure. They can reduce delay and emissions, reduce operating costs, and improve safety and community liveability. They also support modal shift objectives by preserving the reliability of transit service, improving safety and convenience for pedestrians and cyclists, and reducing delay for carpools. All of these outcomes are especially vital given the current demands on road and transit systems, projected increases in those demands, and the financial pressures that face the City.

TSM strategies can be applied to an entire transportation system, major corridors or individual locations. They include measures like:

- traffic signs, signals, pavement markings and regulations
- computerized traffic signal coordination
- video monitoring of road and transit operations
- incident management tools to deal with weather conditions, collisions or vehicle breakdowns
- traveller information systems using variable message signs or wireless communications
- transit vehicle tracking using on-board computers and global positioning systems (GPS)

The following policies provide an overall framework for future TSM strategies including those detailed in Section 5.2.3 - Transit Priority, Section 6.5 – Road Safety, Section 6.6 – Road Corridor Optimization, and Section 6.7 – Area Traffic Management.

The City will:

- 1. Endeavour to maintain a maximum 90% volume-to-capacity ratio for mixed traffic at signalized intersections during weekday peak hours, where feasible, except in the Central Area where a 100% ratio will be acceptable. Supporting initiatives will give due consideration to City objectives for road safety and improvements to conditions for walking, cycling and transit.**
- 2. Continue to operate a traffic signal control system that, together with video monitoring of traffic conditions, enables the optimization of traffic signal timing to enhance safety and reduce delay, fuel consumption and emissions.**
- 3. Prepare and implement an Incident Management Strategy in coordination with the Ontario Ministry of Transportation to advance the provision of incident detection and traveller advisory systems, traffic signal optimization and coordination strategies, and rapid emergency response and removal of disabled vehicles. This strategy will also consider the need for a new centralized traffic control and incident management centre.**

4. **Prepare and implement a multimodal Traveller Information Strategy that optimizes the availability to individuals of real-time information on road and transit conditions, and guidance to optimize decision-making.**

3.5 Enhancing Safety and Security

Safety and security are principal objectives for the City. The use of motor vehicles poses risks to both users and non-users that can be mitigated through better education, engineering and enforcement and by shifting demand to other modes. Facilities and services for walking, cycling and transit can also be made safer and more secure for users, and outreach to travelers can help them to reduce risks through their own behaviour.

As mentioned in the preceding section, safety for all road users will be one of the considerations integrated into TSM initiatives. More specific strategies to improve safety and security are detailed in Chapter 4 – Active Transportation, Section 5.2.5 - Transit Safety and Security, Section 6.5 – Road Safety, Section 6.6 – Road Corridor Optimization, and Section 6.7 – Area Traffic Management.

3.6 Minimizing Environmental Effects

Ottawa's transportation infrastructure and operations directly influence the quality of our air and water, the integrity of our land, the vitality of our flora and fauna, and the depletion of our resources. Minimizing the environmental effects of growth will be vital to the future quality of life for Ottawa's residents. As noted in Chapter 1 of this plan, the City's overall growth management strategy included an *Environmental Strategy* and a component *Air Quality and Climate Change Management Plan*. Those documents provide comprehensive direction on many city-wide policies and programs, including some related to transportation. The following paragraphs discuss related areas of endeavour, some of which are also discussed elsewhere in this plan. It should also be noted that the City will conduct comprehensive environmental assessment processes as it implements the infrastructure requirements of this plan (see Section 8.4 for more detail).

Air quality and climate change. The *Air Quality and Climate Change Management Plan* recommends ways to reduce greenhouse gases and other air emissions from transportation, most importantly by minimizing private motor vehicle use. Even though population and traffic volumes may grow, a reduction in vehicle-kilometres traveled per person is achievable; together with advances in vehicle technologies and low-carbon fuel sources, this could reduce future transportation emissions below current levels.

Water quality. Pavement prevents water from soaking into the ground, and surface pollutants contaminate the resulting runoff. To improve runoff quality and reduce its volume, the City will support a reduction in paved areas by reducing parking requirements, encouraging shared parking and driveway accesses, promoting permeable surfaces, and following erosion control guidelines for construction. Transportation facilities will incorporate storm water management principles

and techniques, and surface water runoff will be treated using methods specified by the Ministry of the Environment before it is released into open waterways.

Vegetation. Some trees and plants are removed when transportation infrastructure is built, and others are affected by road use and maintenance. Particulate matter, sulphur dioxide, nitrous oxides and volatile organic compounds emitted by vehicles can harm vegetation, and the use of road salt in winter also impacts plant health. The City is reducing road salt use and "greening" its roadways, guided by its Salt Management Strategy and Greening Guidelines. This plan's intent to minimize automobile use will reduce the need for new infrastructure and limit air emissions.

Land consumption. To minimize the consumption of valuable agricultural and natural resource lands by transportation infrastructure expansion, the City will continue to maximize the efficient operation of existing facilities before adding new ones. It will also work to increase the use of walking, cycling and transit, which use space more efficiently than motor vehicles.

Noise. This plan aims to protect communities from unacceptable levels of noise from transportation services including aircraft noise, and noise from roads, transit and heavy rail facilities. The City's *Environmental Noise Control Guidelines*, which are consistent with regulation and guidelines of the Provincial Ministry of the Environment, identify different noise sources and design criteria, and regulate noise control measures. Readers may also refer to the Official Plan for policies on acceptable noise levels for land uses including outdoor residential areas.

The City will:

- 1. Apply best practices for environmental impact mitigation of construction, surface operations and maintenance activities.**
- 2. Encourage a reduction in motor vehicle emissions through measures including anti-idling initiatives, scrappage programs for high-polluting vehicles, and promotion of fuel-efficient vehicles, low-carbon fuels, proper driving habits and vehicle maintenance.**
- 3. Reduce carbon emissions from transit vehicles and other City vehicles.**
- 4. Educate and inform the public about climate change and local initiatives to reduce air pollution.**
- 5. Incorporate best practices for storm water management design into transportation projects.**
- 6. Implement enhanced greening guidelines for roads, rapid transit lines and multi-use pathways, including streetscaping and tree planting in the construction or reconstruction of all arterial, major collector and collector roads.**
- 7. Implement noise control measures through the planning process for new communities and transportation facilities, emphasizing the use of design and landscaping measures rather than noise attenuation barriers.**

8. **Ensure that developments with residential or other noise-sensitive land uses near existing and proposed transportation corridors conform to the *Environmental Noise Control Guidelines*.**
9. **Examine the noise impacts of major modifications to arterial or major collector roads and transit corridors, and identify attenuation requirements in accordance with the *Environmental Noise Control Guidelines*.**
10. **Apply the process set out in the *Environmental Noise Control Guidelines* for Noise-Sensitive Developments Adjacent to Existing Roads and Rapid Transit Facilities when occupants raise concerns related to noise.**

3.7 Managing and Maintaining Assets

The estimated replacement value of the City's transportation infrastructure — including roads, bridges, walkways and rapid transit facilities — is 9.5 billion. These assets are continuously deteriorating, and will eventually require rehabilitation or replacement. With limited budgets and increasing demands on the transportation network, the City is challenged to manage its assets in a way that minimizes total life-cycle costs and sustains expected levels of service.

Asset management services include condition management and the programming of reinvestment and renewal activities, as well as the control of activities such as road cuts (required to access underground services) to preserve the physical integrity of infrastructure. Effective asset management minimizes the cost of maintaining, repairing and replacing each asset over its entire life, while enabling infrastructure to support increased levels of use as the community grows.

Infrastructure maintenance services are delivered to paved or surface-treated roads, gravel roads, sidewalks and pathways, bridges and the Transitway. They include asphalt and concrete repairs, winter snow and ice control, and sweeping and litter control. Maintenance services play an essential role in infrastructure management, helping to reduce life-cycle costs while they improve safety, sustain desired levels of service and protect the natural environment.

Maintenance services must integrate the consideration of public expectations, budgetary constraints and best practices in risk management. Their effective and efficient delivery depends on the manner in which the transportation system is designed and built, and can be aided or hindered by infrastructure design, traffic management measures and landscaping features. The City's maintenance service level standards, which define the extent and timing of related activities, are currently being harmonized and are categorized into the following groups:

- **“Public safety” services and standards** — Those that impact the safety of pedestrians, cyclists and vehicles. Road maintenance standards for snow clearance, potholes and road cracks, regulatory signs and streetlights are required to comply with the Minimum Maintenance Standards for Municipal Highways as defined by the *Municipal Act*
- **“Infrastructure preservation” services and standards** — Those that reflect the City's need to protect capital assets, and that are financially justified by life-cycle cost impacts

- **“Quality of life” services and standards** — Those that enhance the quality of life for Ottawa residents and visitors, and offer some flexibility with regard to performance standards

The City will:

1. **Give priority to the management of existing infrastructure before adding new infrastructure.**
2. **Maintain an Asset Management Strategy that protects infrastructure and minimizes the total life-cycle cost of implementation, operation and renewal while providing continuous, safe and reliable services.**
3. **Benchmark and monitor the effectiveness of infrastructure management programs.**
4. **Plan and implement infrastructure, including modifications, in a manner that recognizes implications for maintenance service level standards, practices and costs.**
5. **Plan and implement infrastructure to provide adequate snow storage space and adequate green space to permit the recharging of ground water from surface water.**
6. **Introduce right-of-way enhancements, such as street furniture and planters, in a manner that preserves a clear, unencumbered right-of-way for maintenance services, wherever possible.**
7. **Protect and enhance urban forests within transportation corridors.**

3.8 Funding Implementation

The City funds its transportation infrastructure and services almost entirely from property tax revenues, development charges and senior government contributions. Except for the provincial transfer of gas tax revenue for transit, federal and provincial government funding is on a project-by-project basis that can help implement projects that might otherwise be deferred, but is unreliable from a financial planning perspective and may not support the City’s priorities.

This approach to transportation funding disconnects day-to-day development decisions from the travel costs that are subsequently borne by the residents, employees and customers of developments. For example, suburban “greenfield” developments are typically easier to get approved and built, and typically cost developers less than similar infill or redevelopment projects. However, they frequently do not permit effective or efficient transit servicing and lead to higher City costs, increased individual reliance on automobile use with greater personal costs, and more significant environmental impacts.

Development charges collected by the City fund only a portion of its actual growth-related capital costs. As a result, property taxpayers subsidize a substantial portion of the City’s growth-related costs. For the City to move toward a cost-recovery model for growth, development charge rates must enable adequate financing for long-term projects.

To the extent that current sources of funding are insufficient to support the City’s transportation programs, alternative strategies must be pursued. There are two principal options:

- **User pay.** There is a growing international trend among municipalities to have transportation system users pay for their use of the system. User fees for transportation, which can take various forms, are analogous to commonplace fees for electricity, water or natural gas consumption. The City of Ottawa’s only such fees are for parking and public transit services — automobile drivers can make unlimited use of the road system without paying anything to the municipality. While helping to fund infrastructure and services, user pay approaches also give individuals an incentive to make responsible housing location, business location, work location and travel decisions that reduce costs to them as well as to society. Examples of user pay measures include road tolls (either cordon- or facility-based), parking surcharges, fuel surcharges and vehicle registration fees. There are some Canadian instances of these, although all involve direct administration or special enabling legislation by provincial governments.
- **Public-private partnerships.** To date, the role of the private sector in developing Ottawa’s transportation system has largely been limited to that of entering into contracts for services like road and rapid transit construction, snow removal or paratransit operation. The federal and provincial governments are increasingly making private-sector involvement a criterion in their funding programs, and innovative partnerships can strengthen the City’s chance of obtaining such funding. Public-private partnerships may involve private investment in new or rehabilitated transportation infrastructure, in return for user fees or a similar revenue stream. This approach could help the City implement required transportation facilities earlier than it could otherwise afford.

The City will:

1. **Move toward full recovery of eligible costs related to growth through a new development charges by-law.**
2. **Consider development charge incentives to encourage desirable development patterns that minimize community costs and environmental impacts.**
3. **Accept, in principle, the need to reduce its reliance on property tax-based funding in favour of user pay approaches.**
4. **Continue to work cooperatively with other cities, municipal associations and interested organizations to urge senior governments to enable the City to secure sustainable transportation system funding from users, through:**
 - a) **Provincial government legislation permitting municipalities to impose annual levies on non-residential parking spaces**
 - b) **Provincial government legislation permitting municipalities to impose gasoline taxes dedicated to funding municipal transportation infrastructure and services**
 - c) **Increased transfers of federal and provincial fuel taxes to municipalities in support of sustainable transportation infrastructure and services**
5. **Encourage public-private partnership opportunities for the delivery of transportation infrastructure and services.**

3.9 Measuring Performance

The success of long-range plans depends on the ongoing monitoring of relevant conditions, actions and impacts. The City must remain aware of its progress toward key objectives so that it can add, modify or delete priorities as needed.

In developing a performance measurement strategy for this plan, the Transportation Vision identified in Section 3.1 was reconfigured into a number of functional transportation performance objectives, each of which is accompanied by one or more representative performance indicators. Together, the performance objectives and indicators paint a picture of key transportation services, facilities or behaviours and could be viewed as a “report card” on the City’s progress. The 49 performance objectives are categorized under the following headings:

- Limit motor vehicle traffic growth
- Increase transit use
- Increase cycling
- Increase walking
- Reduce unwanted social and environmental effects
- Optimize use of existing system
- Manage transportation assets
- Improve transportation safety
- Enable efficient goods movement
- Meet mobility needs of persons with disabilities
- Meet public expectations

Annex A presents indicators for each objective along with a description of the period, frequency and location of monitoring activity and an estimate of the degree of influence that the City has over any change in the indicator. Target values are provided for some indicators, but in some instances there is no analytical basis to establish one. In other cases, the indicator in question is more descriptive and has no “ideal” value.

Through the Ontario Municipal Benchmarking Initiative, Ottawa also works with 14 other municipalities to measure, compare and analyze performance in transit, road and parking services. Regular reports demonstrate the value that Ottawa residents receive for their tax dollars, and identify areas where improvements may be sought.

The City will:

- 1. Monitor and report on the indicators presented in Annex A, refining target values as required and developing new monitoring initiatives where information is lacking.**
- 2. Participate in the Ontario Municipal Benchmarking Initiative which reports on the City’s performance in transportation service delivery.**

Chapter 4 – Active Transportation: Walking and Cycling

Walking and cycling are primary indicators of a vibrant, sustainable city. They, along with other forms of active transportation, conserve energy and reduce pressure on the road network while preserving the environment, improving public health and supporting economic activity. They offer speed and convenience for shorter trips, and cycling in particular is also an effective option for longer trips. Virtually all trips, regardless of their principal transportation mode, start and end with walking. All transit trips involve walking, and a growing number involve cycling too.

To a considerable extent, the quality of life enjoyed by Ottawa residents will be a function of their ability to use walking, cycling and other forms of active transportation for their daily business. An aging population requires more careful consideration of accessibility, which also benefits children and other vulnerable persons.

Key factors that can motivate more people to walk and cycle include:

- Suitable distances from origins to destinations
- Positive individual attitudes towards walking, cycling and other forms of active transportation
- In the case of cycling, the possession of individual skills for safe bicycle operation
- Pleasant, direct routes that offer accessibility, comfort, safety and personal security
- Adequate maintenance practices for walking and cycling facilities, particularly in winter
- Suitable bicycle parking, shower and change facilities at travel destinations

In 2008 the *Ottawa Cycling Plan*, a comprehensive and detailed blueprint for expanding the role of cycling in Ottawa, was approved by City Council. Although this chapter reflects key elements of that plan, readers are referred to it for a more complete discussion of related issues.

In 2009 the *Ottawa Pedestrian Plan*, which will play a similar role in expanding walking, will be considered by Council. It is under development at the time of writing, so this chapter does not fully reflect its contents and will need to be updated in the future.

4.1 Supporting Measures

Through its actions, the City can influence many of the factors that contribute to walking and cycling levels. While Sections 4.2 through 4.4 deal with travel facilities, this section presents policies related to municipal leadership, individual attitudes and knowledge, and the broader physical context for walking and cycling. Many of these policies, notably those related to information, education and promotion as well as supportive development characteristics, will be acted upon through the City's TDM program (Section 3.3).

The City will:

Leadership and commitment

- 1. Adopt a Pedestrian Charter that expresses the City's commitment to enabling, facilitating and promoting pedestrian activity and to developing walkable communities.**

Land use and community development

- 2. Promote development practices that improve the walking and cycling environment, as described in Section 3.2.**
- 3. Incorporate tools to support walkability, such as guidelines and audits, into the Community Design Plan process.**
- 4. Incorporate tools to support walkability, such as guidelines and checklists, into the development approval process at the site and neighbourhood levels.**

Information, education and promotion

- 5. Conduct communications initiatives to build public awareness of the environmental, social and economic benefits of walking and cycling.**
- 6. Regularly update and distribute information tools, including the Ottawa Cycling Map, to inform and educate cyclists about routes and safe cycling practices.**
- 7. In partnership with employers and post-secondary institutions, engage potential pedestrians and cyclists at their place of work or education through measures including special events, transportation fairs, bicycle user groups and cycling skills courses.**
- 8. In partnership with schools and their stakeholders, identify and implement effective measures to expand walking and cycling by schoolchildren, including but not limited to special events, active and safe routes to school programs and cycling skills education.**
- 9. In partnership with community organizations, identify and implement effective measures to increase the availability and marketing of cycling skills courses for the general public.**
- 10. Conduct initiatives that promote safe walking with a focus on vulnerable pedestrians including children and seniors.**
- 11. Provide financial or in-kind support for walking- and cycling-related special events including the Commuter Challenge and those coordinated by charities.**
- 12. Continue and expand initiatives including the Bruce Timmermans Awards that recognize and reward contributions to active transportation by individuals, businesses and community organizations.**

End of trip facilities

- 13. Encourage owners and managers of existing buildings, especially multi-unit residential buildings and workplaces, to install secure long-term bicycle parking using as a guide**

the Bicycle Parking Space Rates and Provisions for new buildings as contained in the City's Zoning By-law.

14. Educate developers, planners, architects, owners and managers of workplaces about the need to offer shower and change facilities for active commuters.
15. Install medium security bicycle parking facilities at City facilities, as needed to meet demand.
16. Install bicycle parking such as ring-and-post racks in high-use public locations such as main streets, as needed to better meet demand.
17. Implement a pilot "Park and Bike" facility for long-distance bicycle commuters who wish to commute, in part, by automobile.

Connections to public transit

18. Include bicycle racks when purchasing new buses, and ensure that new light rail vehicles enable passengers to store their bicycles on board.
19. Improve the safety and convenience of walking and cycling connections to rapid transit stations.
20. Provide adequate, secure bicycle parking at rapid transit stations and major transit stops, as needed to meet demand.
21. Work with public, non-profit and private-sector partners to improve personal security along walking routes to transit stops and stations.

Public bicycles

22. Work with key partners including the National Capital Commission and City of Gatineau to investigate the feasibility of launching a smart bike program similar to the announced Bixi public bike system in Montreal and the successful Vélib program in Paris, France.

4.2 Walking Facilities

The facilities that pedestrians use are primary determinants of walkability. Facilities should offer a direct connection between origins and destinations, they should be accessible, safe and secure, and they should be maintained across the seasons and in all weather conditions. Following are City policies and actions that will contribute to the role of facilities in making Ottawa more walkable. (Note that this section addresses the overall walking network and issues related to sidewalks and pedestrian crossings; Section 4.4 covers issues specific to multi-use pathways.)

The City will:

1. Through approval of the Ottawa Pedestrian Plan (under development), adopt an integrated pedestrian network and implementation strategy to complement the projects in Figure 8.1 of this document, and establish performance measures to complement those discussed in Section 3.9 of this document.

2. **Require the provision of sidewalks on new roads, and reconstructed roads where physical constraints allow, as follows:**
 - a) **On both sides of arterial, major collector and collector roads in the urban area and arterials in Villages. A multi-use pathway in lieu of a sidewalk may be provided on one side for a collector in a Village or on one side of an urban arterial if determined to be appropriate by the City.**
 - b) **A sidewalk or multi-use pathway on at least one side of all arterial roads passing through the Greenbelt, collector roads in villages, and roads other than arterials or collectors in the urban area that serve transit.**
 - c) **Wherever the Ottawa Pedestrian Plan or a Community Design Plan has identified discontinuities in the pedestrian network.**
3. **Require the additional provision of pedestrian facilities, as follows:**
 - a) **Direct, high-quality pedestrian connections to rapid transit stations, bus stops and other major walking destinations.**
 - b) **Pedestrian crossings to link neighbourhoods that are separated by roads or other physical barriers, where safety considerations permit.**
4. **Enhance the New Sidewalk Links program by updating the criteria and weights used to assess candidate links, and establish a parallel program for non-sidewalk pedestrian facilities.**
5. **Develop consistent and comprehensive design guidelines for walking facilities, taking into account current City standards and guidelines as well as best practices from elsewhere, with particular focus on accessibility and the needs of vulnerable users including children and elderly persons.**
6. **Implement pedestrian countdown signals at all new and rebuilt traffic signals, and at other traffic signals as resources allow.**
7. **Conduct snow clearance, street sweeping and plant and tree maintenance in a manner that supports walking while considering physical, operational and financial constraints.**
8. **Continue and expand walking support programs including the Snow-Go Program that provides snow-clearance assistance to seniors and persons with disabilities, and the Yellow Grit Program that enables pedestrians to help make walking safer.**

4.3 Cycling Facilities

Cycling facilities include streets and multi-use pathways. (Note that this section addresses the overall cycling network and issues related to on-street cycling facilities; Section 4.4 covers issues specific to multi-use pathways.) The existence of safe and direct facilities for cycling is a major factor in motivating people to ride their bicycles. It can be challenging to provide such facilities in constrained environments like downtown, and in areas like arterial road corridors where traffic

speeds and volumes are high. A wide range of on-road cycling facilities may be considered, with applicability and appropriateness varying according to the specifics of each situation: signed-only routes and wide curb lanes shared with other vehicles, designated bicycle lanes and priority treatments at intersections, and paved shoulders. As with walking facilities, maintenance of cycling facilities is also a dominant concern. Following are City policies and actions that will improve cycling facilities in Ottawa, and in turn make cycling a more regular part of residents' travel habits.

The City will:

- 1. Adopt an integrated cycling network including the Spine route system and National Capital Commission Pathways shown on Map 1 and Map 3, and the complementary Community route system identified in the *Ottawa Cycling Plan*. An amendment to the Transportation Master Plan shall not be required to amend the network, provided that continuity is maintained in the same general location and access to key destinations is maintained.**
- 2. Apply cycling-supportive design and construction standards to all new, widened and reconstructed City roads except freeways on which cycling is prohibited.**
- 3. Proactively implement localized or linear cycling facilities, including those identified in Figure 8.2, that represent strategic linkages within the cycling network.**
- 4. Implement operational measures that support cycling, such as turn prohibition exemptions and contra-flow cycling lanes on one-way streets, where safety considerations permit. Consider the needs of cyclists when installing vehicle detection equipment at intersections.**
- 5. Conduct snow clearance, street sweeping, tree and plant maintenance, pothole repair and reinstatement of road cuts in a manner that supports cycling while considering physical, operational and financial constraints.**
- 6. Give priority to streets along the Spine route system identified on Map 2 when scheduling snow removal, street sweeping and other routine maintenance.**
- 7. When implementing bus lanes and transit priority measures, accommodate buses and cyclists in separate facilities; failing that, provide a shared-use curb lane designed to appropriate standards; failing that, prohibit cyclists from using the part of the road dedicated to transit.**
- 8. Develop quality of service indicators and objectives to evaluate cycling facilities and conditions, and to evaluate possible changes.**

4.4 Multi-use Pathways

Multi-use pathways are dedicated off-road facilities for walking, cycling and other modes such as in-line skating. Pathways serve both utilitarian and recreational travel needs. Given the scarcity of linear corridors for such facilities, they are generally constructed in transit corridors, abandoned

rail corridors, utility corridors, along rivers and in parks. Pathways may feature a range of surface treatments including asphalt and stone dust. The ongoing development of the City's pathway system will be coordinated with the National Capital Commission's comprehensive network of multi-use pathways.

Map 1 and **Map 3** illustrate a network of urban and rural multi-use pathways within the City, many of which are owned and maintained by the National Capital Commission. The eventual location of individual pathways may vary as a result of additional study or the provisions of a development agreement, although network continuity and connections among destinations will be maintained. The City may also develop other pathways, further to the following policies. **Annex B** identifies multi-use pathway linkages that have been identified as required infrastructure projects.

The City will:

- 1. Provide, or require others to provide, multi-use pathways within and between neighbourhoods, where physical constraints allow.**
- 2. Provide multi-use pathways in or adjacent to rapid transit corridors, where physical constraints allow, to be constructed simultaneously.**
- 3. Provide walking and cycling crossings of rapid transit corridors, where physical constraints allow, considering the level of demand and alternative crossing opportunities.**
- 4. Apply design and construction standards that minimize conflicts among all users on all new, widened and reconstructed pathways.**
- 5. Work with other agencies and interest groups to establish alignments and priorities for pathway network extensions beyond City limits.**
- 6. Develop and apply criteria to determine eligibility of pathways for winter maintenance, taking into account the transportation function of pathways such as access to rapid transit stations.**
- 7. Form a working group with representation of relevant City departments, the National Capital Commission and City of Gatineau to provide a forum for regular communication and coordination on pathway network development.**

Chapter 5 – Public Transit

Chapter summary

Ottawa has achieved greater levels of transit ridership than other North American cities of its size, but must become even more transit-oriented. The City's growth management strategy aims to increase transit's morning peak hour share of motorized person-trips to 30% by 2031. This is an increase from today's level of 23%, and compares well to many large European cities. Such an ambitious objective requires the City to improve transit's competitive position relative to the automobile.

To make transit the preferred choice of even more residents, the City must make a deliberate series of improvements to the transit system as well as to the community's broader physical, social and economic context. **To achieve a peak hour transit modal split of 30% all measures identified in this chapter are required.** Partial implementation will lead to lower transit ridership, greater air pollution and increased pressure for new road infrastructure to prevent unacceptable levels of congestion.

The City's transit strategy recognizes that substantial increases in ridership call for greater availability, reliability, speed and comfort of transit service. All of these will be achieved or enabled by expanding Ottawa's rapid transit system—the cornerstone of Ottawa's transit strategy. This chapter discusses a number of the strategy's key elements:

- **Supporting measures** in the areas of land use planning, parking management, transportation demand management, financial incentives for transit use, intermodal integration and infrastructure priority setting
- **Initiatives to provide ease of mobility** related to route network structure and service standards, rapid transit and transit priority networks, fleet expansion and maintenance, and safety and security
- **Pursuit of economic efficiency** through transit fare structures and technologies
- **Provision of accessibility for customers with disabilities** through enhancements to conventional services as well as specialized Para Transpo services
- **Improvements to environmental efficiency** through adoption of advanced vehicle and fuel technologies

5.1 Supporting Measures

A variety of measures are required to maximize transit's competitiveness with automobile use, as described in the following paragraphs.

Land use planning. Through the Province of Ontario's *Planning Act* and its own Official Plan, the City has the authority to shape land use within its borders. It controls the land uses that are permissible in various areas, and can establish conditions on new developments including the extent, type and location of automobile parking. Section 3.2 of this plan summarizes many of the transit-supportive land use policies that are contained in the Official Plan.

Parking management. The availability and price of parking are major determinants of the attractiveness of transit in reaching a destination. Sections 3.2 and 6.11 of this plan identify a number of measures through which the City can limit the challenge that abundant, free parking poses to achievement of transit ridership objectives. Examples of such measures include limiting parking supply in the vicinity of rapid transit stations, and encouraging shared and/or structured parking to enable more compact development patterns.

Transportation demand management. Section 3.3 identifies a framework for the City's transportation demand management (TDM) program. There are a number of TDM efforts that can help increase transit ridership, including partnerships with various groups to raise public awareness of transit options, build positive attitudes towards them, and promote their use.

Financial incentives. Transit faces several areas of competitive disadvantage related to the price of travel. Free parking (especially at workplaces) is the most significant, since it reduces the out-of-pocket costs for most automobile trips to below the cost of a transit fare. The City currently has virtually no ability to directly influence the provision of free parking on private lands, but by influencing parking supply it can foster a market for priced (rather than free) parking. The City will also urge the federal government to enforce the taxability of employer-provided parking benefits, and to make employer-provided transit benefits tax-exempt (as a complement to the current ability for individuals to claim a portion of the cost of transit passes on their income tax return).

Intermodal integration. Transit users rely on connections with other modes to make their trips as convenient and comfortable as possible. City initiatives to improve intermodal integration include linking transit to walking (via pathways and sidewalks), cycling (via bike parking at rapid transit stations, and provision for transit vehicles to carry bicycles), automobile use (via Park & Ride lots and passenger drop-off zones at rapid transit stations) and intercity carriers (via service to air, rail and bus terminals).

Infrastructure priority setting. The City can improve the competitive balance between transit and automobile use by placing a higher priority on providing infrastructure that improves transit service, relative to infrastructure that improves service for automobile users. This is not simply an issue of rapid transit versus roads—in fact, road projects can favour transit by giving priority to transit vehicles or otherwise improving the speed and reliability of transit operations. The phasing of new infrastructure can also influence the travel patterns of residents in new developments, and

whatever infrastructure is needed to provide high-quality transit service to such areas should be a high priority. Chapter 8 describes the infrastructure priorities established by this Plan.

The City will:

- 1. Direct new developments to be transit-supportive, through measures outlined in the Official Plan including those related to parking management.**
- 2. Partner with employers, educational institutions and community groups to implement measures that encourage transit use through education, promotion and incentives.**
- 3. Urge the federal government to locate its employment centres adjacent to rapid transit stations.**
- 4. Urge other governments to address the imbalance of inequitable public subsidies of automobile travel, and provide a more level playing field for travel by public transit, through:**
 - a) Federal government enforcement of the taxability of employer-provided parking benefits**
 - b) Federal government designation of employer-provided transit benefits as non-taxable**
 - c) Provincial government adoption of enabling legislation granting municipalities the authority to impose levies on private parking spaces**
 - d) Federal government elimination of subsidized parking for its employees**
- 5. Continue to enhance the integration of transit with other travel modes, making transit services and facilities more accessible to pedestrians, cyclists, automobile drivers and passengers, and intercity travelers.**
- 6. Give priority to the enhancement of transit service when setting priorities for all infrastructure projects, and particularly for those that serve developing communities.**

5.2 Ease of Mobility

The main strategic objective of transit service is to provide ease of mobility to individuals. To this end, the City endeavours to offer reliable and safe public transit services that satisfy the travel needs and expectations of the largest number of persons possible in various circumstances.

5.2.1 Service Delivery Model and Transit Network Structure

While transit services may be categorized conventionally in terms of mode (e.g. bus, light rail and so on), the City of Ottawa defines its four types of transit services according to the market segments they target and the profiles, needs and values of the passengers that make up those markets as well as their revenue potential:

- **Regular transit** operates throughout the city on fixed schedules and at regular fares. It includes rapid transit bus routes, “mainline” bus routes, local bus routes, peak period bus routes to employment areas, and the O-Train.
- **Commuter transit** operates on fixed schedules at premium fares. It includes express, rural express and direct-to-downtown routes that run during peak periods, along typically longer routes and faster than regular transit, and that offer trips to downtown without requiring a transfer between buses.
- **School transit** operates on fixed, local routes anchored at secondary schools, targeting a specific client group that travels for a specific purpose at specific times—namely before the start of morning classes and after dismissal in the afternoon.
- **Paratransit** is not operated on fixed schedules, nor along fixed routes. Instead, it responds to demand by individual registered customers. It may be offered using small buses, vans, cars or taxis.

Ottawa’s transit network will continue to be structured around the City’s rapid transit facilities. Over the next two decades, the rapid transit network will expand and evolve into a multimodal facility integrating the existing O-Train, new light rail transit (LRT) lines, parts of the existing Transitway, and new sections of Transitway (see Section 5.2.2). The transit services described above will continue to be provided on this transit network through the design of bus routes and rail lines that match the kinds of trips made by transit users:

- **Local routes** for shorter trips, such as a trip within a downtown neighbourhood or urban community outside the Greenbelt
- **Trunk lines** for longer trips between points that are far apart along major travel corridors, such as a trip on the Transitway between Kanata and downtown or a trip along Innes Road in Orléans
- **Feeder routes** for access trips that connect local points outside of major corridors of travel with a trunk line, such as a trip from home to a Transitway or light rail station en route to locations in the central part of the city.

The City will:

1. **Sustain high transit ridership by identifying and pursuing transit market segments defined by parameters including socio-demographics and time or purpose of travel.**
2. **Sustain high customer satisfaction by fostering quality service and regularly monitoring residents’ usage of and attitudes toward transit .**
3. **Develop and strengthen a network of trunk lines and feeder routes that will make the transit system more customer-friendly by simplifying its structure, increasing reliability through greater service availability and on-time performance, and improving efficiency by making it more robust in the face of pressures on service delivery.**

4. **Better manage customer transfers and reduce user uncertainty and waiting times by improving service scheduling and creating amenities and retail opportunities at transportation centres and main transfer points.**
5. **Expand the transit network as the City grows to maintain appropriate levels of coverage and reach for actual and potential transit customers.**
6. **Increase service levels on transit lines with growing ridership, in accordance with objectives for vehicle occupancy and passenger comfort.**
7. **Provide transit service between villages and rural areas and the rest of the transit system in accordance with rural transit service and funding policies.**
8. **Provide Park and Ride lots at the extremities of the rapid transit network for customers who live in areas without transit service or who prefer to drive their cars to the nearest major transit station, and provide smaller Park & Ride lots in rural villages served by transit routes to downtown.**
9. **Accommodate transit services operated by other municipalities or private companies that connect the City's transit network towns outside of the city as well as rural sectors of the city where municipal transit service is not provided, and support the coordination of those services with the City's.**
10. **Work with the Société de transport de l'Outaouais to provide seamless transit services and integrated fares to transit users crossing the Ottawa River.**

5.2.2 Rapid Transit

Network Corridors

The successful implementation of an expanded rapid transit network will be a critical element in the achievement of the City's transit objectives. The expansion of the rapid transit network to more parts of the city will significantly increase the ease of mobility and attractiveness of transit use for residents. The City has developed a strategic approach to expanding its rapid transit network in response to future transportation needs. This approach foresees the development of a network of inter-linked transit corridors comprised of three key components:

- **Primary rapid transit corridors**—fast, frequent, high-capacity transit service using either rail or bus technology operating in an exclusive right-of-way that is generally grade separated
- **Transit intensive corridors**—linking to the primary network, these high ridership potential corridors will have all-day, dedicated, continuous and exclusive transit facilities for use by buses or trains, operating at grade with priority at signalized intersections
- **Transit priority corridors**—connecting corridors equipped with a set of coordinated priority measures that give transit vehicles preferential treatment over other vehicles. These priority measures may include peak-period transit only lanes, short dedicated lane segments, queue-jumps and traffic signal priority.

The rapid transit network identified on **Map 4**. This network will be implemented over the coming two decades. **Annex B** identifies the rapid transit infrastructure projects that will be required.

Rapid Transit Stations

Rapid transit stations serve high volumes of passengers arriving from or heading to nearby homes, workplaces, schools, stores and other destinations, and their immediate environments can either encourage or discourage the use of transit. Stations also serve as meeting points that allow passenger transfers between transit routes, between bus and rail transit modes, and between transit and other modes such as walking, cycling, taxis and private automobiles. They must make transfers as convenient, comfortable and secure as possible. Special effort will be made at heavily used LRT transfer stations to ensure a superior level of comfort and convenience for transit users.

Rapid transit stations are also excellent locations for future employment opportunities. However, poor planning of surrounding land uses can limit the ability of transit passengers to get to and from the station with convenience, safety, security and comfort. As well, the provision of abundant free parking for employees near rapid transit stations will negatively affect the competitiveness of the rapid transit service. The City's land use policies, as contained in the Official Plan and summarized in Section 3.2 of this Plan, outline strategies to encourage integrated office and commercial developments at selected rapid transit stations. The Official Plan also sets out intensification and density targets for key areas, which will occur at most rapid transit stations. Additional policies related to the planning of rapid transit stations are located in Chapter 4 (Active Transportation) and Section 6.11 (Parking). Safety and security at transit stations is addressed in Section 5.2.5.

Park and Ride Lots

Park and Ride lots are an important adjunct to some rapid transit stations. They serve passengers arriving by car from the rural area or adjacent municipalities, as well as passengers from the urban area who drive to and from transit in order to meet other needs en route, such as childcare, shopping or other personal business. This plan envisions several new Park & Ride lots to complete the network at the locations shown on **Map 4**. The locations of these Park & Rides lots has generally been planned with the purpose of drawing in commuters so that they transfer to transit at the rural/urban edge or at the outer edge of the Greenbelt and thereby avoid auto travel across the Greenbelt and onward towards the city centre.

The City will:

- 1. Implement a seamless network of rapid transit corridors, including a downtown tunnel and incremental extensions to urban centres outside the Greenbelt, as shown on Map 4.**
- 2. Protect the opportunity to fully grade-separate all elements of the rapid transit system, as and when required, within or beyond the planning horizon.**
- 3. Defer the costs of grade-separating rapid transit elements by introducing transit priority measures that reduce delay and improve reliability, and by incrementally introducing further enhancements to isolate transit from mixed traffic.**

4. **Implement rapid transit corridors in urban centres outside the Greenbelt in a manner that permits interim uses at early stages of development, while ensuring the earliest possible provision of high-quality transit service and the future potential to incrementally introduce grade-separated transit facilities.**
5. **Provide multi-use pathways in or adjacent to rapid transit corridors, where physical constraints allow, to be constructed simultaneously.**
6. **Provide walking and cycling crossings of rapid transit corridors, where physical constraints allow, considering the level of demand and alternative crossing opportunities.**
7. **Develop a policy to help determine the suitability of use of air rights above or easement rights below rapid transit network components including corridors, stations and Park and Ride facilities.**
8. **Purchase surplus railway rights-of-way and select utility (e.g. hydro line) corridors, as they become available, for use as future transportation corridors including rapid transit network expansions beyond the current planning horizon, including where appropriate sufficient lands for transit/transfer stations along these corridors.**
9. **Enhance the comfort, security and convenience of rapid transit stations through measures such as improved signage, seating, heating, accessibility for people with disabilities, and convenience retail and service uses.**
10. **Work to optimize development potential and integration at key transfer points, particularly at Baseline, Lincoln Fields, Hurdman, Blair and South Keys stations.**
11. **Improve transfer facilities at rapid transit stations by enhancing or adding features such as taxi loading areas, passenger drop-off and pick-up facilities, bicycle parking facilities, and pedestrian walkways.**
12. **Pursue opportunities, alone or in partnership with others, to provide and improve pedestrian connections between rapid transit stations and adjacent developments.**
13. **Maintain adequate and appropriately located Park and Ride lots at locations shown on Map 4.**
14. **Monitor and adjust Park and Ride lots as the City grows and the rapid transit system expands.**
15. **Pursue opportunities to provide or designate daily parking spaces for transit customers at existing or new developments.**

5.2.3 Transit Priority Measures

In Ottawa, over 85% of transit service is delivered on roads. In these mixed traffic environments, traffic congestion increases delay and reduces reliability for transit services. Transit priority measures can minimize the impacts of congestion through physical, operational, and legislative means that give transit buses preferential treatment over other vehicles. Their main objective is to

improve the competitiveness of transit, compared to the automobile, by reducing travel times and improving service reliability. A secondary objective is either to reduce transit operating and capital costs, or to provide more transit capacity and service with the same resources.

Transit priority measures include dedicated bus lanes, transit signal priority treatments, bus queue jumps, special bus stop arrangements, and traffic management techniques such as queue relocation. Transit priority corridors, as shown on **Map 4**, link to the primary rapid transit and transit intensive network, and are identified as specific projects shown in **Annex B**. Transit priority measures may also be implemented at other locations to improve transit service.

The City will:

- 1. Implement the transit priority network shown on Map 4 through measures that include, but are not limited to, the transit priority projects identified in Annex B.**
- 2. For those corridors shown on Map 4 that require road widening to create transit priority measures, initiate functional planning, property requirement identification and Environmental Assessment as soon as possible.**
- 3. Investigate transit priority measures and implement them, as appropriate, whenever roadway or intersection modifications are done, but especially at the following locations:**
 - a) At intersections of the Transitway and other roads**
 - b) At intersections and roadways adjacent to Transitway and LRT stations**
 - c) Along the transit priority network identified in Map 4**
 - d) At other intersections with busy transit routes.**
- 4. Implement cost-effective, ridership-enhancing interim transit priority measures in the staging of rapid transit corridor development.**
- 5. Reduce transit travel time and improve service reliability through technologies to communicate between transit vehicles and traffic control signal infrastructure, allowing implementation of traffic management strategies that favour transit movements at intersections.**
- 6. Where required to preserve public safety or the integrity of transit operations, exclude other road users (e.g. bicycles or taxis) from bus lanes.**
- 7. Identify and mitigate any short-term negative impacts of transit priority measures, including those arising from diverted automobile traffic or changes in queuing patterns.**
- 8. Build public awareness and a positive attitude towards transit priority measures through education and promotion.**

5.2.4 Transit Service Availability

Service availability is ensured through effective transit vehicle maintenance. By the end of 2008, the City's fleet of conventional transit vehicles will include 742 standard buses, 275 articulated low-floor buses, three double-decker low-floor buses, one small bus and three diesel rail cars. Para Transpo services are provided with 91 lift-equipped vans and a number of taxis registered as accessible providers.

The City's goal for increasing transit ridership will require significant investment in new buses and rail vehicles to meet expansion and replacement needs, driven by five main factors:

- The desire to increase fleet reliability and enable a reduction in the number of spare buses as a proportion of the total bus fleet
- The need to replace all buses in the current fleet, which have an expected lifespan of 18 years, over the next two decades
- The need to carry more riders resulting from service improvements, complementary land use and parking management policies, and a growing population
- The need to operate high-capacity (articulated or double-decker) buses to increase passenger capacity and alleviate downtown bus congestion during peak periods
- The need to acquire light rail vehicles consistent with the rapid transit network recommendations of this plan

The City will:

- 1. Acquire sufficient new buses and light rail vehicles to provide desired service levels and carry desired passenger volumes.**
- 2. Maintain an average age of nine years for the bus fleet.**
- 3. Continue to acquire high-capacity buses to accommodate ridership growth.**
- 4. Improve the bus spare ratio from 17% to 10%.**

5.2.5 Transit Safety and Security

Customer and employee input has dramatically increased the priority of transit safety and security in North American communities. This includes the City of Ottawa, which is using innovative physical, operational and outreach initiatives to make transit service safer and more secure.

The City will:

- 1. Further improve transit system security by hiring additional uniformed Transit Special Constables and enhancing their profile, image and training to help them serve more effectively and efficiently.**
- 2. Expand centrally monitored video surveillance systems to rapid transit stations and Park and Ride lots.**

3. **Cultivate and maintain partnerships among transit staff, police, school officials and community groups, and participate in joint initiatives to address common concerns.**
4. **Raise customer and employee awareness of safety and security through internal outreach programs and presentations to schools and community groups.**
5. **Continue programs to prevent violence toward transit employees.**
6. **Work with community groups and police to conduct security and safety audits of rapid transit stations and Park and Ride lots using Crime Prevention Through Environmental Design principles to identify and correct deficiencies.**
7. **Enhance incident reporting and standardize procedures with other transit agencies.**

5.3 Economic Efficiency

Another strategic objective of Ottawa's transit service is to offer effective travel options at the lowest possible cost. In 2007, 50% of transit's operating cost was recovered from passenger fares, with the remainder funded by property taxes. Some funding for transit operations is received from the provincial or federal governments through the gas tax transfer, but property taxes are the City's only other funding source.

Fares help determine transit's economic competitiveness compared to car ownership and operation. The transit fare structure can enhance product management and help build new markets by providing incentives for loyal customers. Fare collection systems that use advanced technologies can do even more to achieve the City's financial performance, modal shift and social objectives.

The City will:

1. **Encourage provincial and federal governments to increase their contributions to the cost of operating transit service.**
2. **Pursue transit revenues, including fares, that support the key service objectives described in Section 5.2.1, adjusting fares annually so transit revenue recovers at least 50% of operating expenses until elements of the recommended rail transit network are implemented, after which the City will work toward a cost-recovery target of 55%.**
3. **Develop an electronic fare system that uses "smart cards" to enable fare differences by user type, time of day, distance travelled or other factors, and that enable promotional measures such as value-added and cross-selling opportunities.**

5.4 Accessibility for Customers with Disabilities

A third strategic objective of Ottawa's transit service is to offer full accessibility to transit for residents and visitors who have permanent or temporary disabilities, through both specialized services and barrier-free conventional services in agreement with legislative requirements. Over the life of this plan, there will be an increased demand for accessible transit, as Ottawa's population of seniors continues to rise and medical advances increasingly allow persons with disabilities to lead fully independent lives. All Transitway and O-Train stations have been built as barrier-free as possible, and all buses purchased since 1997 have been low-floor models able to carry customers who use mobility devices such as wheelchairs. All remaining high-floor buses will be replaced by about 2015.

There will always be some people whose disabilities prevent them from using conventional transit services for some or all of their trips—with more in winter because cold weather, snow and ice are barriers to travel. As well, until all City buses are low-floor there will be some passengers who need accessible service but rely on routes where accessible service is not provided at all times. For these passengers, the City will continue to provide door-to-door Para Transpo service. Even though the number of persons with disabilities will increase over the next two decades, greater accessibility of conventional transit service should minimize the need to substantially expand Para Transpo services.

The City will:

- 1. Design all new rapid transit facilities to accommodate people with disabilities.**
- 2. Acquire only low-floor buses and rail vehicles, with the objective of operating low-floor buses exclusively after 2015.**
- 3. Until the fleet is 100% accessible, assign low-floor buses to routes and trips where they will be of greatest use to passengers with disabilities.**
- 4. Consider the needs of people with disabilities when providing information on transit services.**
- 5. Maintain Para Transpo service sufficient to accommodate the needs of passengers who cannot use conventional transit services.**

5.5 Environmental Efficiency

The fourth strategic objective of Ottawa's transit service is to achieve state-of-the-art environmental efficiency, including fuel efficiency and a reduced greenhouse gas (GHG) footprint. While diesel technology has powered almost all transit vehicles for the past several decades, new technologies are being developed. Clean diesel buses running on low-sulphur diesel fuel emit up to 90% less of several key air toxins, compared to traditional diesel engines. Hybrid diesel-electric technologies have become more reliable and affordable, and are now in general use in North America.

The City will:

1. **Acquire electric rail vehicles.**
2. **Acquire buses with the cleanest propulsion technology that fit intended duty cycles.**
3. **Phase in diesel-electric hybrid buses over three years on low-speed routes with frequent stops, to maximize their environmental benefits.**
4. **Examine the use of fuel cell technology in accordance with the City's 2004 Fleet Emission Reduction Strategy.**
5. **Monitor opportunities to acquire zero-emission buses when they become commercially available.**

Chapter 6 – Roads and Motor Vehicle Use

6.1 City of Ottawa Roads

Roads are the backbone of Ottawa’s transportation system and, to a significant, extent of its economy. They serve pedestrians, cyclists, public transit and emergency services in addition to trucks and private automobile drivers. Within the realm of road planning, design and operation, the needs of these various users compete for the scarce resources of time, space and money. In managing its road network for the greatest public benefit, the City frequently must make difficult trade-offs.

In order to guide the protection of rights-of-way and ensure that adequate width exists to accommodate needed roadway elements, City roads are classified according to their function as outlined in **Figure 6.1**. Roads of a similar function may vary in terms of their physical characteristics.

Figure 6.1 – City Road Classification Framework

Classification	Primary Function	Secondary Function
City freeway	Serve “through” travel between points not accessed directly from the road itself	None — direct access to adjacent lands is prohibited
Arterial road		Provide direct access to adjacent lands
Major collector road	Serve travel between collector and arterial roads	
Collector road	Serve neighbourhood travel between local and major collector or arterial roads	
Local road	Provide direct access to adjacent lands	Serve neighbourhood travel to and from collector or arterial roads

In Section 2.4.1 this Plan projects an increase in the number of peak hour automobile trips despite increases in levels of walking, cycling and transit use. To avoid unacceptable levels of congestion that impede Ottawa’s social, economic and environmental objectives, the City will require some new and widened roads. The process of identifying these road needs is discussed below.

First, future automobile volumes across key screenlines were estimated using the projected demand for automobile travel in 2031 (see **Figure 2.10**) and projected automobile occupancies (see Section 2.4.1). Based on an understanding of current capacities, road modifications to preserve a maximum 90% demand-to-capacity ratio were identified. System-wide operation at 100% of capacity is not desirable because even minor collisions or weather impacts could lead to network instability and gridlock; operation at 90% of capacity is more efficient and would yield

acceptable peak period congestion. Only in the Urban Core (bounded by the Ottawa River, Rideau River, Queensway and O-Train line) is operation at 100% of capacity acceptable for planning purposes – a position that reflects a greater tolerance for congestion and the physical impracticality of road expansion in that area.

Other objectives may conflict with these level of service targets – for example, public safety will always be more important. Also, the quality of service for transit vehicles may be a higher priority than automobile delay in key transit corridors. The quality of service for cyclists will be more critical on roads that are part of the cycling network, and pedestrian needs will be a vital consideration in areas like the Byward Market.

Annex B identifies the road network projects that are required to provide an acceptable level of service in 2031. **Maps 6** through **9** illustrate the resulting future road network in urban and rural areas. Chapter 8 summarizes the costs and staging of the recommended projects.

The City will:

- 1. Adopt the road network and designation of freeways, arterial roads, major collector roads and collector roads shown on Maps 6 through 9. Consideration will be given to reclassifying individual roads in response to future land use and transportation system changes. In addition, the City may also consider the study of segments of the road network in regard to ways to mitigate traffic impacts on a community.**
- 2. Implement road infrastructure projects in accordance with the priorities identified in Chapter 8.**

6.2 Federal and Provincial Roads

Provincial highways are a major part of Ottawa’s transportation system. The future City road network discussed in Section 6.1 was developed under the assumption that currently approved changes to provincial highways will be implemented; the City may have to revisit its analysis if additional future works are approved by the Province or studies are undertaken. The City is likely to favour provincial highway changes that improve safety and reduce emissions, but not those that have substantial neighbourhood impacts or increase congestion on City streets.

Federal roads under the ownership of the National Capital Commission also play an important role in Ottawa’s transportation system, both from a functional perspective and as key scenic routes and tourist attractions. Notably, the Ottawa River is spanned by five roadway bridges under federal jurisdiction. This plan projects a substantial increase in total peak hour travel demand across these bridges by 2031 and, despite higher transit ridership, traffic volume increases will warrant an additional river crossing(s) by that time. The federal government, in conjunction with both provincial governments and affected municipalities, is currently undertaking a comprehensive evaluation of possible crossing locations.

A primary consideration in the planning of a new Ottawa River crossing is its effectiveness as a truck route. This is a major factor because truck restrictions on existing bridges have concentrated trucks on King Edward Avenue and the Macdonald-Cartier Bridge, leading to trucking industry

inefficiencies and negative community and environmental impacts along King Edward Avenue and elsewhere in the Central Area.

Until the new Ottawa River crossing is constructed, it will be increasingly important for the federal government to cooperate with the municipal and provincial governments in Ontario and Quebec in implementing transit and TDM strategies, and modifying some existing bridges and their approaches to better meet transportation needs.

The City will:

- 1. Work with provincial and federal governments to develop a transportation system that supports the City’s growth management objectives.**
- 2. Work with the federal, Ontario and Quebec governments and the City of Gatineau to complete the environment assessment study for crossing(s) of the Ottawa River. Until the environmental assessment study receives final approval, the City will continue to prohibit development that could hinder the implementation of a river crossing(s) at identified potential crossing locations.**

6.3 Road Right-of-way Protection

The City’s Official Plan identifies right-of-way widths to be protected for the road network discussed in Section 6.1 of this plan. The City can secure right-of-way for new roadways or the widening of an existing right-of-way from adjacent lands as a condition of development approval for a subdivision, severance or site plan. This includes the acquisition of lands required for corner triangles at intersections and railway crossings, and for auxiliary lanes (including turn lanes) where warranted by site traffic.

It is important to note that, in some road corridors, the City will protect a right-of-way wider than strictly required to accommodate the road projects identified in **Annex B**. In other words, right-of-way sufficient for a four-lane road may be protected when only a two-lane road is required by 2031. This is because right-of-way protection should ideally address “community build-out” conditions, and by 2031 some areas within Ottawa will not have reached that status.

The City may require the exclusive use of a portion of certain road rights-of-way for transit priority operations, reserved bus lanes or light rail transit. In such cases, right-of-way requirements may increase and would be identified through future study.

The City will:

- 1. As set out in Annex A of the Official Plan, require landowners to provide land to the City for road widenings as a condition of site plan approval under Section 41 of the *Planning Act*, based on the following principles:**
 - a) Land will be conveyed at no expense to the City for road widening as a result of new development, changes in use that generate significant traffic volumes, or additions that substantially increase the size or usability of buildings or structures.**

- b) **Land may be reserved for future purchase as a result of additions that do not substantially increase the size or usability of buildings or structures.**
 - c) **Except where specifically indicated otherwise in Annex 1 of the Official Plan, land for widening will be taken equally from both sides of a road, measured from the centreline in existence at the time of site plan application. The centreline is a line running down the middle of a road surface, equidistant from both edges of the pavement. In determining the centreline, paved shoulders, bus lay-bys, auxiliary lanes, turning lanes and other special circumstances are not included in the road surface.**
 - d) **Additional land may be required for sightlines at intersections, potential grade-separations at railway crossings, stream crossings and auxiliary turning lanes, in conformance with City standards.**
2. **Require landowners to provide land as a condition of subdivision or consent applications under Section 51 of the *Planning Act* to provide for roads, pedestrian pathways, bicycle pathways and public transit rights of way as required by the City.**
 3. **When required, acquire from landowners right-of-way lands for new roads or road widenings, as set out in Annex 1 of the Official Plan, where such lands have not been obtained by policies 1 or 2 above.**
 4. **Where appropriate for reasons that may include preservation of built or natural heritage features, consider waiving the requirement for land dedication from adjacent sites for road rights-of-way, or reducing the amount of land to be dedicated, in accordance with policies in the Official Plan.**

6.4 Road Design

The design of roads should express the general values and preferences of City residents, including those related to safety, mobility and aesthetics. While some City roads function as scenic routes, parkways, or urban or village mainstreets, others pass through the Greenbelt or heritage districts. Each setting requires a road to perform different functions, and for this reason each road must be sensitive to its immediate context.

Because roads should reflect their urban or rural context, the City has produced design guidelines for urban and rural arterial roads, and for collector and major collector roads. These guidelines balance the need for roads to serve as public space, to provide access to adjacent lots, and to allow the movement of services, utilities and people by various modes. The City has also adopted a right-of-way lighting policy that applies to all roads including local streets.

The City will:

1. **Apply design guidelines for new, widened and reconstructed roads that emphasize compatibility with adjacent land uses, enhance the safety and security of all users,**

maximize greening opportunities and offer supportive environments for walking, cycling and transit use. The City's Arterial Road Corridor Design Guidelines will be applied to urban arterial roads and Village mainstreets, and the Urban/Rural Collector and Rural Arterial Road Design Guidelines will be applied to rural arterial roads and to urban, rural and Village collector roads.

2. Consider measures such as on-street parking, walking and cycling improvements, streetscaping, lane reductions or transit enhancements for roads identified as mainstreets or collectors in the Official Plan, particularly in Town Centres and Mixed-Use Centres.
3. When reviewing development applications, Official Plan amendments or concept plans, ensure that the roadway network provides:
 - a) Collector roads that link several adjacent developments with direct transit routes.
 - b) A local road layout minimizing culs-de-sac and crescents that increase travel distances for pedestrians, cyclists and transit vehicles.
 - c) A street pattern for large redevelopments compatible with surrounding street patterns.
 - d) An arrangement whereby virtually all potential building sites are within a 400-metre walking distance of a rapid transit station or bus stop.
 - e) Public access unimpeded by security gates or similar barriers.
4. Provide access to developments in accordance with the intended function of each road as outlined in Figure 6.1, and considering the City's road safety and system performance objectives.
5. Minimize, where possible, the use of roadside noise attenuation barriers through design options such as internal single-sided roads adjacent to arterial roads.
6. Ensure the collaborative design and integration of green space on both the public road allowance and private property, particularly at intersections, to create an attractive streetscape.
7. Consider the use of roundabouts and similar measures when approving subdivision road networks and reconstructing intersections, where the safety and security of pedestrians and cyclists would not be compromised.
8. Consider the use of "road diets" to reduce the number of traffic lanes (usually from four to two or three) and improve facilities for walking and cycling, when reconstructing collector roads.
9. Apply the Right-of-Way Lighting policy for public roads and sidewalks.
10. Generally not permit new accesses to Highway 174 east of Trim Road, despite that road's arterial road classification, to preserve a safe travel environment in view of its high traffic speeds and volumes.

6.5 Road Safety

In developing and managing its transportation system, the City of Ottawa gives high priority to public safety. While facilities are initially built to optimize safety, it is possible for operating environments and user expectations to change over time. Without additional preventative measures, undesirable conditions and behaviours can develop that lead to damage, injury and death. It should also be recognized that perceptions related to safety can influence individuals' choice of travel modes, and safety-related initiatives can play a role in the achievement of the City's objectives for walking, cycling and transit use. Road safety is a multidisciplinary endeavour that addresses road users, road environments and vehicles through public education and awareness, applied road safety engineering principles, enhanced enforcement, advanced technology and information systems, and communication and collaboration among road safety agencies.

In 2007, collisions in Ottawa led to 40 deaths and about 4,200 injuries, with almost 12,200 collisions resulting in property damage only. The total estimated social cost of these collisions is over \$1 billion according to the Ontario Ministry of Transportation's "willingness to pay" model. The overall collision rate in Ottawa was unchanged from 1997 to 2007, at 32 collisions per 1,000 registered vehicles.

Road safety experts agree that most collisions are no accident, and are preventable – in fact, more than 80% of collisions result at least partly from human error. The City's goal for road safety, which parallels a national goal set by Transport Canada, is a 30% reduction in the number of fatalities or serious injuries due to collisions for 2008 to 2010, compared to 1998 to 2002. When Transport Canada sets a new goal for beyond 2010, the City will likely adopt it.

The City will:

- 1. Prepare a Road Safety Plan that will:**
 - a) Align the City's road safety goals with those of Transport Canada for 2010 and beyond.**
 - b) Identify techniques to evaluate the need for and potential effectiveness of safety initiatives, using a systems approach.**
 - c) Coordinate road safety efforts in the areas of transportation, health and policing.**
 - d) Establish road safety partnerships with public agencies, the private sector and community groups.**
 - e) Provide safety-related input to City guidelines for road planning, design, maintenance and operation, taking into account issues such as collisions, best traffic safety practices, enforcement resources, and the needs of all road users particularly those who are vulnerable.**
 - f) Develop road safety strategies specific to rural roads.**
- 2. Report annual road safety results to demonstrate the City's progress toward its goals.**

3. **Establish an integrated, GIS-based collision and traffic volume database that enables advanced road safety monitoring and management initiatives, such as a road network screening program to systematically compare and rank roads based on defined safety performance criteria.**
4. **Conduct corridor- and intersection-based road safety audits that lead to safety plans with varying time horizons.**
5. **Conduct engineering-based programs such as the Safety Improvement Program, Roadside Safety Program and Rail Crossing Safety Program.**
6. **Conduct programs for children such as the School Zone Traffic Safety Program, Kiss and Ride Program and Adult School Crossing Guard and Outreach Program, and support other programs such as Active and Safe Routes to School.**
7. **Identify, evaluate and implement leading road safety technologies and methodologies, where practical, based on best practices and industry research.**
8. **Conduct initiatives to promote public awareness and understanding of safe, courteous and lawful travel behaviour by drivers, cyclists and pedestrians, common collision causes, and the benefits gained from collision reduction.**
9. **Coordinate with police on enforcement initiatives against unsafe behaviours by all road users**

6.6 Road Corridor Optimization

In recognition of the transportation system management (TSM) principles discussed in Section 3.4, it is desirable to take an integrated approach to optimizing arterial road operations. While optimization efforts strive principally to eliminate bottlenecks that create delay and compromise safety for road users, they address multiple modes (e.g. pedestrians, cyclists, transit vehicles, trucks and automobiles), multiple objectives (e.g. safety, delay, emissions, aesthetics, ease of maintenance), and multiple dimensions of the corridor itself (e.g. signalized and unsignalized intersections, connecting links, driveways, signage and markings). This breadth of perspective permits trade-offs to be made explicitly and with the involvement of relevant stakeholders.

Corridor optimization measures include:

- Road signs, markings and regulations
- Traffic signal coordination and progression
- Minor roadway modifications including accessory lanes at intersections
- Relocation, consolidation or elimination of driveways to reduce conflicts among motor vehicles, pedestrians and cyclists
- Creation, modification or removal of taxi stands, loading zones and on-street parking

- Video monitoring of road operations
- Traveler information systems including variable message signs or wireless communications

As discussed in Section 6.1, pursuing targeted service levels for motor vehicle traffic is not the City's sole and primary concern. Public safety is paramount, and service to non-automobile modes may take precedence in transit priority corridors, designated cycling routes, and pedestrian-focused neighbourhoods like the Byward Market, and other locations.

The City will:

- 1. Conduct a Corridor Optimization Program that will identify, evaluate and implement actions to optimize the operation of individual freeway and arterial road corridors. This process will integrate considerations related to facility capacity, delay to passengers and freight, access to adjacent properties, vehicular emissions, safety for all road users, and conditions for walking, cycling, transit and carpooling.**

6.7 Area Traffic Management

Area traffic management preserves quality of life in neighbourhoods by mitigating undesirable effects of motor vehicle use, including excessive volumes and speeds, aggressive driver behaviour and hostile conditions for walking and cycling. It addresses the needs of neighbourhood residents and businesses, as well as road users.

The City's *Area Traffic Management Guidelines* discuss the prioritization of study requests, techniques for public consultation, and approaches to analysis and monitoring. The document also offers guidance for the use of traffic calming measures, which represent one part of the City's area traffic management "toolbox".

It is important to recognize the link between area traffic management and corridor optimization (Section 6.6.). Some neighbourhoods experience unacceptable cut-through traffic volumes as a result of congestion on arterial roads, and while area traffic management tools can mitigate the impacts of this traffic a more complete solution may involve optimizing arterial road operations and reducing the incentive for drivers to seek a short cut through neighbourhood streets.

The City will:

- 1. Conduct an Area Traffic Management program that applies the *Area Traffic Management Guidelines* to improve the quality of life in neighbourhoods by consistently and equitably resolving public concerns about the undesirable effects of motor vehicle travel.**
- 2. Apply a wide range of area traffic management tools, as appropriate, including road network modifications, traffic control devices, traffic calming measures, streetscaping, enforcement, transportation demand management and public education, while striving to improve conditions for walking, cycling and transit use.**

6.8 Ridesharing

It is better for two or more people to share a ride than for each person to drive alone. However, demographic shifts and growing personal wealth have been causing North American auto occupancies to decline, and in Ottawa the average in the morning peak hour has declined from 1.26 persons per vehicle in 1986 to 1.23 in 2005. In Ottawa's morning peak period about 21% of cars have multiple occupants, but not all of these are true carpools — for example, a car driven by a parent taking their child to school is more of a “family taxi.” Looking more specifically at commuter carpools, the 2006 Canadian census found an average occupancy of 1.13 workers per car in Ottawa-Gatineau (given that 60.4% of commuters drove and 7.7% were automobile passengers).

This plan's objective of maintaining current automobile occupancies is an ambitious one. In Ottawa's downtown and other areas that enjoy high-quality transit service, ridesharing is unlikely to compete well with transit because it does not offer carpoolers the independence of schedule that transit riders enjoy. However, there will continue to be commuters who do not have attractive transit options and who travel far enough that walking and cycling are impractical. It is preferable for these commuters to carpool rather than drive alone, and City efforts to improve and promote ridesharing should focus on attracting them. The following text discusses the City's three main tools for doing so: TDM measures, carpool lots and carpool lanes.

TDM measures. A number of measures that can effectively encourage ridesharing will be delivered through the City's TDM program. Section 2.3 describes some of these, including working with employers and educational institutions to provide incentives such as preferential parking to their employees and students, conducting annual events including the Commuter Challenge and Rideshare Week, and testing the effectiveness of individualized household marketing. Other specific initiatives are highlighted in the following policies, including raising awareness of carpool lanes and lots in the Ottawa area, promoting the City's online ridematching service, and studying the feasibility of a regional vanpooling service.

Carpool lots. Carpool lots encourage ridesharing by letting long-distance rural commuters meet and park their extra vehicles for the day. The City operates one carpool parking lot on Carp Road south of Highway 417, and the Ontario Ministry of Transportation has several in the area:

- Three along Highway 416 at Bankfield Road (Ottawa Road 8), Rideau River Road (Ottawa Road 19), and Ottawa Road 5 (near Limoges)
- Two along Highway 7 at Cemetery Road (near Carleton Place), and Dwyer Hill Road (Ottawa Road 3)
- Highway 417 at Panmure Road
- Highway 17 at Kinburn Side Road
- March Road (Ottawa Road 49) at Dwyer Hill Road (Ottawa Road 3)

Greater use of these lots may be encouraged through more effective promotion, security and other incentives. It should be noted that the City's Park & Ride lots do not permit carpool parking due to high occupancy levels.

Carpool lanes. Carpool lanes are open to vehicles with a minimum number of occupants (usually two or three), buses and typically taxis. They may have limited hours of operation, and be open to all traffic at other times. They may extend the length of a freeway corridor, or (in the case of queue jump lanes) be limited to a single intersection approach. Potential challenges with carpool lanes include negative public response due to poor planning or design, and the need for effective enforcement through policing and public education. Carpool lanes also preclude the use of transit priority measures that offer exclusivity for buses.

There are no carpool lanes on City roads (although there is a 2+ lane on the Champlain Bridge and a 3+ lane on the Portage Bridge between Ottawa and Gatineau, and 2+ lanes are soon to open on Highway 417 between Moodie Drive and Palladium Drive). During development of the 2003 Transportation Master Plan, a preliminary assessment of the City's arterial roads identified those where carpool lanes could support the City's objectives, taking into consideration congestion levels, transit and carpool volumes, trip lengths, physical and operational constraints, and adjacent land uses. The assessment considered opportunities to create carpool lanes both through conversion of existing lanes and through designation of new lanes constructed for general capacity purposes. It found the greatest potential to encourage ridesharing through carpool lanes on the following roads (noting that these are preliminary results requiring much further study, and that some roads have a possibly conflicting designation as future transit priority corridors as shown on **Map 4**):

- Ottawa Road 174 – between Highway 417 (split) and Jeanne d'arc
- Eagleson Road — between Highway 417 and Terry Fox Drive
- March Road — between Terry Fox Drive and Highway 417
- Hunt Club Road — between Highway 416 and Highway 417
- Innes Road — between St. Laurent Boulevard and Trim Road
- Industrial Avenue — between St. Laurent Boulevard and Riverside Drive
- Innes-Walkley Connection
- Conroy Road/Alta Vista Transportation Corridor — between Hunt Club Road and Riverside Drive
- Prince of Wales Drive — between Woodroffe Avenue and Hunt Club Road
- Riverside Drive — between Hunt Club Road and Highway 417
- Rideau Street/Montreal Road Corridor — between downtown and Blair Road
- Richmond Road — between Moodie Drive and Carling Avenue
- Bank Street — between Leitrim Road and Walkley Road

The City will:

- 1. Develop a Ridesharing Strategy that recommends specific initiatives involving TDM measures, carpool lots and carpool lanes to increase ridesharing in key travel markets, nodes and corridors. The city will invite the participation of key partners including the National Capital Commission, Ontario Ministry of Transportation, City of Gatineau and adjacent municipalities in Ontario.**
- 2. Conduct initiatives to promote positive public attitudes towards ridesharing, awareness of its personal and environmental benefits, and understanding of how to use area carpool lanes and carpool lots.**
- 3. Promote the City's online ridematching service (OttawaRideMatch.com) in target markets such as large employers, post-secondary institutions, rural villages and adjacent municipalities, both independently and through partnerships with other levels of government, employers and educational institutions.**
- 4. Work with provincial governments and adjacent municipalities in Ontario and Quebec to study the feasibility of a regional vanpooling service to reduce the number of lengthy interprovincial and rural-urban car commutes.**
- 5. Provide guidance and tools to employers, developers and building operators to help them provide, manage and enforce preferential carpool parking spaces.**
- 6. Routinely consider the potential to operate curb lanes on new or widened roadways as carpool lanes.**
- 7. Consider impacts on safety and quality of service for transit users and cyclists when planning and implementing carpool lanes on arterial roads.**
- 8. Ensure effective enforcement of occupancy regulations for any City carpool lanes, and encourage similar enforcement for carpool lanes under federal or provincial jurisdiction.**

6.9 Taxis

Taxis play a unique role in Ottawa's transportation system, and complement walking, cycling, transit and ridesharing as alternatives to driving. They are an important mobility option for business travelers and visitors to Ottawa, for seniors and persons with disabilities, and for many other residents when other choices are unavailable. The taxi industry can help achieve Ottawa's objectives by offering a travel option linking rural and urban areas, and integrating with other travel modes.

At this time, the city administers the issuance of taxi licenses and vehicle inspections.

The City will:

- 1. Enhance taxi services for persons with physical disabilities through the issuance of plates for accessible taxi cabs, and periodically monitor their priority use by such persons.**
- 2. Require large-scale commercial and office building, institutional developments and hotels to make provision for taxi stands on their private properties, where needed to avoid negative impacts from on-street taxi stands.**
- 3. Work with public and private sector partners to enhance the provision of taxi stands at strategic locations including major intermodal hubs such as rapid transit stations, airports, and rail and bus stations.**
- 4. Continue to provide direct telephone access to taxi dispatch in selected rapid transit stations and Park & Ride lots.**
- 5. Work with the taxi industry to improve connectivity with transit services, such as through the use of advanced communication technologies.**

6.10 Goods Movement

While efficient goods movement by truck, rail and air supports Ottawa's economic livelihood and competitiveness, trucks remain the primary mode of local freight transportation.

Ottawa's truck route system is generally represented by arterial roads that can withstand use by heavy trucks, the sizes of which are legislated by the Province of Ontario. Designation of truck routes must consider noise, vibrations, emissions and safety impacts. In general, trucking impacts on residential areas can be minimized by providing several alternative routes, so that impacts are not concentrated in one area. Because reduced routing options also increase costs, trucking restrictions on an arterial roads should be considered only where community impacts are significant, where the road in question serves exclusively non-commercial land uses, and where adequate alternative routes are available. Encouraging the use of rail, rather than trucks, to move goods, can also reduce the community impacts of trucking.

The City will:

- 1. Maintain a comprehensive network of designated truck routes, relying primarily on freeways, highways and arterial roads, that provide access to industrial and commercial areas while minimizing impacts on residential areas, and produce and distribute an up-to-date truck route map to industry representatives in partnership with other agencies.**
- 2. Work with other governments and the private sector to explore ways that through truck traffic in the Central Area, particularly on King Edward Avenue, can be reduced while ensuring the safe and efficient movement of goods.**
- 3. Consider trucking needs in road construction and rehabilitation through appropriate design standards and the inclusion of features such as on-street loading areas.**

4. **Monitor opportunities for road rehabilitation to enhance the truck route network by enabling adjusted or removed seasonal weight restrictions.**
5. **Encourage industry to explore goods movement technologies and practices that can reduce community impacts, improve efficiency and enhance regional competitiveness, such as the development of intermodal terminals that enable a transfer of tonnage from road to rail.**
6. **Ensure that noise and vibration issues are addressed by following City's *Environmental Noise Control Guidelines* for land uses adjacent to roads, railway corridors and terminal facilities.**
7. **Conduct surveys of goods movement on a regular basis to quantify demand characteristics, the use of arterial roads, and the congestion, noise and safety impacts on the community and industry.**

6.11 Parking

Parking is a strategic tool for city-building. By effectively managing its supply and price, governments can influence how people choose to travel and promote a behavioural shift from driving to transit use and other alternatives to automobile usage. By guiding the appropriate location and design of parking in new developments, the City can also support the creation of more compact communities. However, these strategic considerations are challenged by the concerns of employers, stores service providers and tourism destinations where employees, customers and visitors arrive in automobiles, whether by need or choice. In this way, short-term economic and practical realities are brought into conflict with longer-term goals – making parking one of the more challenging issues addressed in this plan.

Bearing in mind these considerations, the City's strategic parking objectives are:

- To provide short-term parking that supports the needs of local businesses, residents, institutions and tourism destinations
- To limit the supply of long-term parking in a manner that balances transit ridership objectives with the needs of automobile users
- To support intensification and minimize the amount of land devoted to parking through measures such as parking structures and arrangements to share parking among land uses

In support of these objectives, the City of Ottawa's parking services include on-street parking, several off-street parking lots and garages, public bicycle parking and parking enforcement. The City also influences the supply of parking in new developments, and has some regulatory control over privately run off-street public parking lots. Recent changes to the City's new Zoning By-law included: harmonizing parking rate requirements; reducing parking rates for employment, institutional and retail uses near rapid transit stations; providing shared parking provisions for combinations of land uses with different peak periods of parking usage; introducing parking rate reduction in circumstances where bicycle change rooms and shower facilities are provided, or

when underground rather than surface parking is provided; and introducing expanded and new bicycle parking provisions.

The following policies address on-street and off-street parking and touch on matters discussed in Chapter 3 (land use), Chapter 4 (bicycle parking), Chapter 5 (Park & Ride lots), and Chapter 6 (carpool parking).

The City will:

- 1. Develop a Municipal Parking Management Strategy in 2009 that:**
 - a) Defines a program to regularly examine public parking needs, evaluate alternatives and recommend on-street and off-street solutions in key areas including but not limited to the downtown, Business Improvement Areas and Town Centres**
 - b) Identifies parking policies and programs to support intensification and residential development in targeted areas**
 - c) Establishes guidelines for parking pricing, with key parameters including rates, hours, locations and vehicle types**
 - d) Identifies opportunities to support the parking needs of cyclists, carpoolers and private carshare companies, and examines the parking requirements of scooter, moped and motorcycle riders**
 - e) Reflects transportation demand management (TDM) principles and objectives (Section 3.3) and identifies synergies between parking and TDM initiatives**
 - f) Recommends an appropriate allocation of parking revenues to support parking programs, parking infrastructure development and TDM initiatives that defer or negate the need for new parking infrastructure**
 - g) Recommends approaches to provide transparency and clarity through communication with stakeholders about the parking program's goals and objectives, financial status and infrastructure investment plans**
- 2. Periodically review the City's Zoning By-law to ensure that minimum and maximum parking requirements for new developments (particularly commercial, retail and multi-unit residential uses) support municipal objectives for compact development and more sustainable transportation behaviours.**
- 3. Update the City's Cash-in-Lieu of Parking policy to reflect the City's growth management principles to ensure consistency with objectives and activity related to development and parking programs in the relevant areas of Ottawa.**
- 4. Support the availability of short-term parking for business (retail and service), institutional, residential and tourism uses, particularly those in the Central Area and inner city neighbourhoods, by:**
 - a) Providing on-street parking that does not compromise multimodal safety or service level targets**

- b) Giving priority to serving short-term users in City-controlled parking facilities
 - c) Providing City-operated short-term parking in mixed use developments
5. Discourage the temporary use of vacant lands for long-term parking.
 6. Conduct a pilot project to showcase proactive parking management strategies in Centrepointe mixed-use centre, a transit-oriented development node where the City has considerable landholdings and an opportunity to maximize transit ridership.
 7. Prepare a tour bus parking strategy in partnership with other levels of government, institutions, tour operators, and tourism authorities.
 8. Conduct marketing initiatives that, among other objectives:
 - a) Encourage the use of off-street parking lots rather than on-street parking
 - b) Involve Business Improvement Areas and other partner agencies
 - c) Measure overall marketing performance and customer satisfaction

Chapter 7 – Intercity Travel

The transportation linkages between Ottawa and the rest of the world support the city's economic well-being. This plan discusses the many direct connections to other municipalities, including interprovincial transit services (Section 5.2) and the roads and bridges to neighbouring municipalities (Chapter 6). There are also two privately operated ferries to Gatineau in Ottawa's west and east ends.

This chapter discusses other important linkages provided by the aviation, rail and intercity bus industries.

7.1 Intercity Passenger Terminals

The air, rail and intercity bus industries are all served by major terminals in Ottawa. The City has a major interest in providing appropriate linkages between these terminals and the local transportation system, and can enhance service or reduce costs by grasping opportunities to introduce joint facilities or services with intercity carriers.

This plan calls for enhancement of the existing high-quality bus rapid transit service to the Ottawa Macdonald-Cartier International Airport, through the extension of a rail rapid transit line to the airport. A new rapid transit line integrated with airport terminal facilities would offer the highest possible level of service to travelers as well as the many employees in the airport area.

The two VIA Rail stations in Ottawa, including the main station on Tremblay Road and the Fallowfield station on Woodroffe Avenue, are successfully integrated with rapid transit stations.

Travelers arriving in Ottawa by intercity bus lines could benefit from better integration of the Catherine Street bus terminal with rapid transit services, and any future opportunity to relocate the existing bus terminal should strive to do so. It should be noted that some intercity bus routes are permitted to travel on the Transitway for part of their journey into or out of Ottawa, and passengers can transfer from one service to the other at Transitway stations.

The City will:

- 1. Support the development of intercity passenger terminals that serve two or more travel modes, such as through the integration of intercity bus and/or rail stations with rapid transit facilities.**
- 2. Maintain high-quality roadway connections and rapid transit services to the Ottawa Macdonald-Cartier International Airport.**
- 3. Support the continued use of the Transitway by intercity buses.**

7.2 General Aviation

General aviation includes flight training operations, air taxi and charter operations, aircraft maintenance organizations and the supporting industry. It represents a majority of aircraft movements, and moves people in ways that airlines cannot. Small airports provide services such as on-demand charter, business and personal travel, flight training, medical evacuation, just-in-time parts delivery, aerial police patrols, and supply lines to remote communities.

In Ottawa general aviation supports commerce, government and recreation. The city's three general aviation airports are Carp Airport, Rockcliffe Airport and the North Field of the Macdonald-Cartier Airport; in Quebec, the City of Gatineau Airport plays a similar and complementary role.

As a result of policy changes in the 1990s, the federal government off-loaded Carp Airport to local government and in 2005 the City approved a master development plan for the Carp Airport that provided for retention and development of the core airport area, and development of aviation related land uses components including an aerospace business park and an accessory residential fly-in community.

The City will:

- 1. Provide adequate ground transportation routes to general aviation facilities, in recognition of their important role in the community.**
-

Chapter 8 – Implementation

The Transportation Master Plan requires numerous improvements to transportation infrastructure, services and programs over the planning horizon. Implementation will involve the following key processes:

- Securing the funding required to build planned transportation facilities and operate an expanded transportation system
- Allocating funding for the delivery of identified transportation services and programs
- Directing strategic investments through monitoring of transportation system performance and land development
- Incorporating transportation solutions from corridor-level or sub-area plans.

The successful implementation of the Transportation Master Plan requires that concurrent efforts be undertaken to achieve the key strategies set out in Chapter 3, such as, creating supportive land uses and managing transportation demand, and to construct the transportation infrastructure identified in this chapter. To aid in the implementation process the City intends to produce a **Transportation Outlook** (Section 8.3) that will help guide short-term decision-making on infrastructure priorities versus this Plan, which presents a phasing and longer-term outlook on such matters.

8.1 Capital Works Plan

Transportation system improvements will be made based on need, as determined through monitoring of transportation system performance and land development, and the City's ability to pay for them.

Figures 8.1 to 8.4 identify the implementation phasing of the required infrastructure projects in a manner that will provide desired transportation service levels to a growing population. The phasing provides the basis for preparation of annual budgets and long range financial plans. Wherever possible, attempts will be made to shorten the timeline for delivery of these projects. While time phases have been identified for reference purposes, it is population levels that determine transportation demand rather than simply the passing of time. The indicated time horizons must therefore be considered to be approximations subject to change.

As noted above, the City's ability to pay for projects will influence its project priorities and the rate of implementing them. The current Capital Budget document has identified a substantial "funding gap" in the City's ability to pay for new capital projects. If the City cannot tap into new revenue sources, it will have to consider a range of possible solutions including program cutbacks, adjustments in standards and service levels, deferral of infrastructure, constraints on growth, user fees or tax rate increases. The annual budget process will remain the City's principal forum for deciding how to spend available capital funds. Funding shortfalls will require choices to be made among different projects.

Figures 8.1 to 8.4 present the key transportation infrastructure projects for respectively: walking and multi-use pathways, cycling, transit and road. Annex A provides additional project details.

Table 8.1
Phasing of Required Walking and Multi-use
Pathway Infrastructure Projects

Project	Limits
PHASE 1 2009-2015	
Algonquin / Woodroffe Avenue Pedestrian Overpass	From Algonquin College to the Baseline Transitway Station
Alta Vista Transportation Corridor	From Hurdman Transit Station / Rideau River to Alta Vista Transportation Corridor to existing trail on Conroy Road
Bayview Station / Ottawa River Pathway link	From the Bayview O-Train Station to the Ottawa River Pathway
Coventry Road / Baseball Stadium Pedestrian Crossing	From the baseball stadium to the Train Transitway Station
Rural Prescott-Russell Pathway linkage	Along former CP (now VIA Rail) rail corridor between eastern border of the City and Innes Road (west of Highway 417)
Woodroffe Avenue Corridor	From Baseline Transitway Station to Fallowfield Road; Fallowfield to Greenbank via rail/transit corridor
PHASE 2 2016-2022	
Carp River / Terry Fox Drive Corridor	Along the Carp River and the Terry Fox Drive corridor from North Kanata to South Kanata
Greenbank Road Corridor	Reconstruction of pathway through the Greenbelt; construction of new pathways from Southern Corridor to Hunt Club Road, and Fallowfield to Jock River Corridor
Jock River Corridor	Along Jock River from Highway 416 to Prince of Wales Drive
Prince of Wales Drive Corridor	Hogs Back Road to southern limit of the Greenbelt
Riverside Drive / River Road Corridor	Hunt Club Road to southern limit of the Greenbelt
PHASE 3 2023-2031	
Alta Vista Drive to Ogilvie Road Corridor	From Ottawa Hospital General Campus through industrial and rail lands over the Queensway to Ogilvie Road and the Aviation Parkway
Earl Armstrong Road Corridor	River Road to Greenbelt at Bowesville Leitrim Road; parallels road corridor
Eastern Corridors	From Alta Vista Transportation Corridor to Southern Cross-town Corridor
Orléans South Corridor	From Greenbelt at Navan Road to Cardinal Creek via Blackburn Bypass / transit and hydro corridor

Project	Limits
Sawmill Creek Corridor via Airport Parkway	Following Sawmill Creek from the Rideau River to Hunt Club and to Blossom Park
Trim Road / Cardinal Creek	From Petrie Island to Frank Kenny Drive
Southern Cross town Corridor	Woodroffe Avenue to Rideau River; Rideau River to Highway 417 East

Note 1: Both the phasing and listing of projects in this table are subject to update once the Ottawa Pedestrian Plan is Council approved.

Table 8.2 Phasing of Required Cycling Infrastructure Projects

Project	Limits
PHASE 1 2009-2015	
Alta Vista Transportation Corridor	Multi-use pathway between the Lees Avenue at Nicholas interchange and Conroy Road at Walkley Road, all parallel to future AVTC
Aero Drive	Short on-road connection between Holly Acres Road to east of Inkster Street
Baseline Road / Heron Road	Cycling lanes along these roads between Pinecrest Road (Greenbank) in the west and Walkley Road in the east
Greely / Metcalfe villages link	On and off-road multi-use pathway connection between the villages of Greely and Metcalfe
March Road	Bicycle lanes or paved shoulders between Terry Fox Road and Dunrobin Road
Nicholas Street / Madame Curie Private	Improvements to cycling connection at the Campus Station underpass to the Transitway and Colonel By Drive
North Service Road	Improvements to the off-road multi-use pathway, which is part of the Ottawa River pathway, between Tenth Line and Trim Roads
Prescott-Russell Pathway linkage	Along former CP (now VIA Rail) unused rail corridor between eastern border of the City and Innes Road (west of Highway 417)
Prince of Wales Drive	Cycling Lanes between Meadowlands Drive/Hog's Back Road and Nesbitt Place
Richmond Road	Cycling lanes and paved shoulders between Moodie Drive and Churchill Avenue
Richmond Road	Paved shoulders between Stonehaven Drive and West Hunt Club Road

Project	Limits
Rideau Canal / Rideau River connection	New multi-use pathway between Campus Transit Station, Robinson Avenue and University of Ottawa's Lees Avenue campus
Scott Street / Albert Street	Bicycle lanes between Churchill Avenue and Lebreton Flats
South Keys connection	Multi-use pathway link between South Key Transitway Station and the residential community to the west of the Airport Parkway

Note 1: The projects listed are Phase 1 priorities and this table is subject to change to include other cycling infrastructure projects that are needed to implement the cycling network as set out in the approved Ottawa Cycling Plan.

Table 8.3 Phasing of Required Transit Infrastructure Projects

Project	Description
PHASE 1	
Increment one	LRT Downtown tunnel; conversion to LRT of the East Transitway from Blair station to downtown and the West Transitway from Tunney's Pasture to downtown
	BRT Southwest Transitway – from Fallowfield Road to Strandherd Drive Southwest Transitway – from Baseline station to Norice Street West Transitway – from Bayshore to Moodie Drive Cumberland Transitway – from Blair station to Innes Road Cumberland Transitway – from Innes Road (at Blair) to Navan Road (at hydro corridor)
	Supplementary (transit priority) Strandherd Drive – from Rideau River to Woodroffe Park and Ride (includes bus lanes on Strandherd/Armstrong bridge) Woodroffe Avenue – from Woodroffe Park & Ride (at Strandherd Road) to Fallowfield Park and Ride
	Other Nicholas Connection (new bridge over Rideau River and Lees Avenue)
Increment two	LRT East-West LRT – conversion to LRT of West Transitway from Tunney's Pasture to Baseline North-South LRT – twinning and conversion of O-Train route from Bayview to South Keys

	Project	Description
Increment three	LRT	North-South LRT – from South Keys to Riverside South Town Centre
	BRT	Cumberland Transitway – from Navan Road to Trim Road (at Millennium) West Transitway – from Eagleson Road to Scotia Bank Place (south of Highway 417)
PHASE 2		
	LRT	North-South LRT Airport Spur – North-South LRT to Airport West Transitway – from Lincoln Fields to Pinecrest Road Southwest Transitway – from Norice Street to Hunt Club Road Kanata North Transitway – from Eagleson Road to Klondike Road West Transitway – from Scotia Bank Place to Fernbank Road
	BRT	Barrhaven-Riverside South Transitway – from Barrhaven Town Centre to Riverside South Town Centre Southwest Transitway – from Barrhaven Town Centre to Cambrian Road Hospital Link Transitway – from Southeast Transitway (at Lycée Claudel) to Blair Road (at Innes Road) East Transitway – from Place D'Orléans to Trim Road
	Supplementary (LRT)	Carling Avenue LRT – from Lincoln Fields to North-South LRT at Carling/Preston
	Supplementary (transit priority)	Baseline Road – from Bayshore Drive to Baseline station Baseline Road – from Baseline station to Confederation station Heron-Walkley-Russell-St. Laurent – from Confederation station along this corridor to the Hospital Link Transitway (at Innes)

Table 8.4
Phasing of Required Major Roads Infrastructure Projects

Sector	Project	Description
PHASE 1 2009-2015		
EAST	Belcourt Boulevard	Widen from two to four lanes and new four-lane road, from Innes Road to Renaud Road
	Belcourt Boulevard / Mer Bleue Road connection	New four-lane road, south of Innes Road, from Belcourt Boulevard to Mer Bleue Road

Sector	Project	Description
	Blackburn Hamlet By-pass Extension	New two-lane road (later four lane), two sections: Navan Road at hydro corridor to Tenth Line Road and Portobello Boulevard to Trim Road
	Mer Bleue Road	Widen from two to four lanes from Innes Road to south of Renaud Road
	Ottawa Road 174	Widen from five to six lanes from Highway 417 to Blair Road
	Portobello Boulevard	Widen from two to four lanes from Charest Way to the Blackburn Hamlet By-pass Extension
	Trim Road	Widen/re-align Trim Road from two to four lanes from North Service Road north of Ottawa Road 174 to Blackburn Hamlet By-Pass Extension
WEST	Campeau Drive	Widen from two to four lanes from Didsbury Road to Kanata Road and new four-lane road from Didsbury Road to new North-South arterial in Kanata West
	Country Club/Jinkinson Road	New two-lane service road parallel to widened Highway 7 between the existing Jinkinson Road and the Country Club subdivision near Dwyer Hill Road
	Goulbourn Forced Road re-alignment	Re-aligned and new two-lane road from Terry Fox Drive to Kanata Avenue
	Hazeldean Road	Widen from two to four lanes from Iber Road to Terry Fox Drive
	Hope Side Road/ Crown Ridge Road	New two-lane road from Richmond Road Moodie Drive, includes completion of Crown Ridge Road
	Kanata Avenue	Upgrade existing two-lanes from Terry Fox Drive to Goulbourn Forced Road
	Terry Fox Drive	New two-lane road from Innovation Road / Flamborough Way to south of Richardson Side Road
SOUTH EAST	Alta Vista Transportation Corridor	New four-lane road (including two bus lanes) from Riverside Drive to Hospital Ring Road
	Earl Armstrong Road	Widen from two to four lanes from River Road to Limebank Road
	Hunt Club Road extension	New two-lane road (later four lanes) from Hawthorne Road to connect to Highway 417, including a new interchange
	Limebank Road	Widen from two to four lanes from Riverside Drive to south of Earl Armstrong Road
	Riverside Drive	Widen from two to four lanes from Hunt Club Road to Limebank Road
	Spratt Road	New two lane road from Limebank Road to Bowesville Road
	Strandherd - Earl Armstrong Rideau River Bridge	New bridge crossing of Rideau River to tie into Earl Armstrong Road on east side of Rideau River

Sector	Project	Description
SOUTH WEST	Chapman Mills Drive	New four lane road from Strandherd Road to Woodroffe Avenue
	Greenbank Road	Widen from two to four lanes from Malvern Drive to Strandherd Dr.
	Jockvale/ Longfields Link	New four-lane road from Strandherd Drive to Jock River
	Longfields Drive	New two-lane road from Woodroffe Avenue to South Pointe Business Park
	Strandherd Drive	New four-lane road from Woodroffe Avenue to Prince of Wales Dr.
	Strandherd - Earl Armstrong Rideau River Bridge	New bridge crossing of Rideau River to tie into Earl Armstrong Road on east side of Rideau River

PHASE 2 2016-2022

EAST	Belcourt Boulevard	New four-lane road from Renaud Road to Navan Road
	Blackburn Hamlet By-pass Extension	New four-lane road from Blackburn Hamlet By-Pass to Navan Road at hydro corridor
	Frank Kenny Road extension	New four-lane road from re-aligned Trim Road to Innes Road
	Innes-Walkley-Hunt Club Link	New two-lane road (future four-lane) from Hunt Club / new Highway 417 interchange to Innes Road west of Blackburn Hamlet
	Mer Bleue Road	New four-lane re-alignment, west of existing Mer Bleue Road, from south of Renaud Road to Navan Road
	Navan Road	Widen from two to four lanes from Blackburn Hamlet By-pass Extension to Mer Bleue Road
	Ottawa Road 174	Widen from four to six lanes from Blair Road to Jeanne d'Arc Blvd.
	St. Joseph Boulevard	Widen from two to four lanes from east of Tenth Line Road to Dairy Road
	Tenth Line Road	Widen from two to four lanes from south of Innes Road to north of urban boundary
WEST	Campeau Drive	Widen from two to four lanes from Kanata Road to March Road
	Carp Road	Widen from two to four lanes from Highway 417 to Hazeldean Road
	Eagleson Road	Widen from two to four lanes from Cadence Gate to Hope Side Road
	Earl Grey Drive – Goulbourn Forced Road	Underpass of Terry Fox Drive
	Hazeldean Road	Widen from two to four lanes from Iber Road to Stittsville Main Street
	Hope Side Road	Widen from two to four lanes from Eagleson Road to Richmond Road
	Hope Side Road	New two-lane road from Moodie Drive to Highway 416
	Huntmar Drive	Widen from two to four lanes, two sections: Campeau Drive extension to Cyclone Taylor Boulevard, and Palladium Drive to Maple Grove Road

Sector	Project	Description
	Kanata West North-South arterial	New two-lane road from Hazeldean Road to Fernbank Road
	Kanata West Main Street	New two-lane road from Palladium Drive to Maple Grove Road
	Palladium Drive Realignment	Realign in vicinity of Huntmar Road to new North-South arterial
	Terry Fox Road	Widen from two to four lanes from Winchester Drive to Eagleson Road at Hope Side Road
SOUTH EAST	Airport Parkway	Widen from two to four lanes from Brookfield Drive to Ottawa International Airport
	Alta Vista Transportation Corridor	New four-lane road (including two bus lanes) from Nicholas Street / Highway 417 interchange to Riverside Drive
	Bank Street	Widen from two to four lanes from south of Leitrim Road to Findlay Creek Drive
SOUTH WEST	Cambrian Road	Widen from two to four lanes from new Greenbank Road to Jockvale Road
	Greenbank Road	New four lane road from near Jockvale Road to Cambrian Road, includes Jock River Bridge
	Jockvale Road	Widen from two to four lanes from Jock River to Prince of Wales
	Prince of Wales Drive	Widen from two to four lanes from Fisher Avenue to Woodroffe Avenue
	Strandherd Drive	Widen from two to four lanes from Fallowfield Road to Jockvale Road
OTHER	Albert Street	Widen from four to six lanes from Booth Street to Empress Avenue

PHASE 3 2023-2031

EAST	Blackburn Hamlet Bypass (Innes Road)	Widen from four to six lanes from Innes Road (west entrance to Blackburn Hamlet) to Navan Road
	Blackburn Hamlet By-pass Extension	New two-lane road from Trim Road to Frank Kenny Road
	Coventry Road	Widen from two to four lanes from Belfast Road to St. Laurent Centre
WEST	Kanata West North-South arterial	Widen from two lanes to four lanes from Palladium Drive to Fernbank Road
	Katimavik Road	Widen from two to four lanes from Terry Fox Drive to Eagleson Road
	Hazeldean Road	Widen from two to four lanes from Carp Road to Stittsville Main St.
	Maple Grove Road	Widen from two to four lanes from Terry Fox Drive to Huntmar Drive
	March Road	Widen from two to four lanes from Morgan's Grant Way to Dunrobin Road
	Richmond Road	Widen to four lanes from Carling Avenue to Golden Avenue

Sector	Project	Description
	Terry Fox Drive	Widen from two to four lanes from March Road to south of Richardson Side Road and widen from four to six lanes from Campeau Drive to Palladium Drive
SOUTH EAST	Alta Vista Transportation Corridor	New four-lane road (including two bus lanes) from Hospital Ring Road to Conroy Road at Walkley Road
	Bank Street	Widen from two to four lanes from Findlay Creek Drive to Mitch Owens Road
	Earl Armstrong Road	Widen from two to four lanes from Limebank Road to High Road and new two-lane road from High Road to Bank Street
	Hunt Club Road	Widen from four to six lanes from Riverside to Bank Street
	Leitrim Road	Widen from two to four lanes from River Road to east of Limebank Road and new re-aligned four-lane road from east of Limebank Road to Bowesville Road
	Limebank Road	Widen from two to four lanes from south of Earl Armstrong Road to Mitch Owens Road
	New Rideau River Bridge Crossing	Additional bridge crossing across Rideau River, at a location to be determined between Hunt Club Road and future Strandherd - Earl Armstrong Bridge
	Riverside Drive	Widen from four to six lanes (phase 2) from Hunt Club Road to Limebank Road
SOUTH WEST	Barnsdale Road	Widen from two to four lanes from Highway 416 to Prince of Wales Drive, including a new interchange
	Fallowfield Road	Widen from two to four lanes from Strandherd Drive to Cedarview Road and from Woodroffe Avenue to Prince of Wales Drive
	Fallowfield Road	New four-lane road from Strandherd Drive towards Highway 416
	New Rideau River Bridge Crossing	Additional bridge crossing across Rideau River, at a location to be determined between Hunt Club Road and future Strandherd - Earl Armstrong Bridge
	Strandherd Drive	Widen from four to six lanes from Greenbank Road to Woodroffe Avenue
	West Hunt Club	Widen from four to six lanes from Highway 416 to Prince of Wales Drive

In addition to the roads projects shown in **Figure 8.4**, other road projects are under consideration by senior levels of government. **Figure 8.5** identifies these projects. While the City is consulted on the projects undertaken or initiated by senior levels of government, implementation decisions ultimately rest with the responsible agency.

Figure 8.5 – Key Federal and Provincial Road Projects

Federal Government (NCC) Projects
<ul style="list-style-type: none"> ■ Bridge crossing(s) of Ottawa River
Province of Ontario Projects
<ul style="list-style-type: none"> ■ Highway 417 (Highway 416 to Anderson Road – roadway modifications to be confirmed) ■ Highway 417 – widening from 4 to 6 lanes plus 2 HOV lanes (Palladium Drive to Highway 416) ■ Highway 417 – widening from 4 to 6 lanes (Highway 7/17 to Palladium Drive) ■ Highway 7 – widening from a 2-lane highway to a 4-lane freeway (Highway 417 to Carleton Place) ■ Highway 417 – interchange at Hunt Club Road extension
Note: Timing of implementation for these projects depends on priorities of senior levels of government.

8.2 Costs

The implementation of this Transportation Master Plan will cost about \$8.3 billion over 22 years in new infrastructure and services, including \$7.2 billion for capital costs, \$1.1 billion for operations and maintenance as shown in **Figure 8.6**.

Figure 8.6 – Total Implementation Costs of New Infrastructure and Services

Type	Capital Cost (\$ millions)	Operating & Maintenance Cost (\$ millions, net of revenues)	Total Cost (\$ millions)
Rapid Transit	4,727	900	5,627
Transit Priority	260	8	268
Bus garages	120	30	150
Roads, includes walking and cycling facilities	2,112	180	2,292
Total	7,219	1,118	8,337

Note that the costs of walking and certain of the cycling facilities are included in the “roads” category because the vast majority of walking and cycling facilities are implemented within road rights-of-way during the course of other modifications, and are addressed during the course of normal road maintenance and operations. Projects that are solely focused on walking and cycling facilities have comparatively much smaller capital budgets.

Figure 8.7 and **8.8** illustrate the distribution of capital investment over time that is required to implement the transit and road transportation projects identified in **Figures 8.3** and **8.4** and **Annex A**.

Figure 8.7 – Staged Capital Cost Requirements for Transit (\$ millions)

Facility Type	Phase 1	Phase 2	Total
Transit	3,409	1,698	5,107

Figure 8.8 – Staged Capital Cost Requirements for Roads (\$ millions)

Facility Type	Phase 1	Phase 2	Phase 3	Total
Roads				
Includes walking and cycling facilities	666	753	693	2,112

8.3 Transportation Outlook Document

The capital works identified in the TMP:

- represent a desired infrastructure "end state" for 2031 that supports the Transportation Vision in Chapter 3 and other goals and objectives identified throughout the plan
- are presented in phases that reflect known priorities (e.g. Council’s approved Cycling Plan implementation schedule) and the expected progress of development
- are not "affordable" in terms of the City's current financial resources

The TMP does not provide adequate implementation guidance in several respects, particularly with regard to shorter time horizons. In fact, because it is updated only every five years, it would be inappropriate to use it for that purpose. The City’s annual budget process has a three-year horizon and is not a good vehicle for explaining transportation strategies. The City’s LRFPP (long term financial plan) has a 10-year horizon, but is updated every three years and does not provide a level of detail suitable for planning or communicating the implementation of specific programs and projects. Therefore, the City ideally requires a new form of implementation guidance that will:

- reflect the 23-year vision of the TMP and the 10-year financial expectations of the LRFPP
- inform and guide annual decision-making on the City’s three-year budget
- effectively communicate to the public and other transportation stakeholders what they can expect the City to undertake in different areas
- guide the implementation of programs and services as well as infrastructure
- identify implementation opportunities and challenges that are not evident from the perspective of individual budgets, by looking across the full scope of TMP recommendations (e.g. opportunities to implement transit priority measures as part of

upcoming road rehabilitation projects, coordinate road and transit projects in developing areas, or coordinate school-based TDM programs with cycling network changes or road safety initiatives)

- provide Council with more focused and strategic advice regarding implementation priorities in the face of fiscal expectations -- i.e. how to maximize the value of investments when resources are limited, and what the impacts will be on performance objectives and progress toward the Transportation Vision

To provide this guidance to the public and decision-makers, the City will prepare a Ten-Year **Transportation Outlook** document on either an annual or biannual basis. The Outlook will explain how the City's transportation initiatives are making the best use of available resources. It will identify a ten-year implementation plan for infrastructure, programs and services that is realistic in terms of expected funding levels. It will summarize past progress and pending initiatives on key performance themes (e.g. demand management, accessibility, safety), and highlight priority actions within a three-to five-year window. In this way, the Outlook will be able to integrate long-term community objectives, mid-term fiscal expectations, and short-term needs.

8.4 Environmental Assessment

Environmental assessment (EA) processes require the City to identify and mitigate the impacts of large construction projects on all aspects of the environment. All projects identified in the TMP will be subject to a combination of provincial and federal EA requirements before construction. These include:

- Ontario Environmental Assessment and Consultation Improvement Act, 1997
- Municipal Engineers Association Municipal Class Environmental Assessment, June 2000 (Class EA)
- Canadian Environmental Assessment Act, 1992 (CEAA).

The National Capital Commission also has its own assessment process for projects that affect Commission lands, based on its Framework for the Harmonization of EAs, a process intended to fulfill the requirements of the CEAA and the NCC's Environmental Assessment Policy.

According to provincial legislation roadway modifications must follow the Class EA process. All EA projects remain subject to a requirement to complete a higher order Class EA or individual EA. Changes have been made to the Ea process for transit. Transit projects are now eligible to follow the new process that will allow a faster implementation for transit projects.

Annex B includes a description of the EA status of all identified infrastructure projects. It is important to note that a significant number of these projects have already partly completed the appropriate EA process, through one of two different planning mechanisms:

This TMP update is being carried out to fulfill the requirements for Phases I and II of the Municipal Class Environmental Assessment (EA) process for roads. This includes identification of problems and opportunities, and the selection of preferred solutions.

Changes have been made to the EA Process for transit. Transit projects are now eligible to follow the new process that will allow a faster implementation for transit projects. The findings and conclusions of this TMP will become supporting documentation for future transit EA studies.

Projects that have partially completed the EA process will be required to complete later phases, including required consultation with stakeholders and the general public, before final design and construction can begin.



ANNEX A – Transportation Performance Objectives and Indicators

Performance Objectives	Performance Indicators	Period of Measurement	Location, Source and Frequency of Measurement	Target	City Influence
1. Limit motor vehicle traffic growth					
(a) Reduce motor vehicle use per capita	Individual automobile use (Daily vehicle-km per capita)	Year	To be determined	<i>TBD</i>	Medium
	Relative growth in automobile traffic volumes (% change in volumes / % change in population)	Morning & Afternoon peak period	Aggregated key screenlines (counts, annual)	Less than 1.0 over the planning period	Medium
(b) Increase auto vehicle occupancy rates	Auto occupancy rate (persons per vehicle)	Morning peak hour	a) Aggregated key screenlines (counts, annual) b) City-wide (origin-destination survey, every 10 years)	Not less than 1.3 (both screenline and city-wide)	Low
2. Increase transit use					
(a) Increase transit ridership	Annual Transit passenger rides (rides per capita)	Year	City-wide (counts)	200	High
	Transit mode -split (% of motorized trips)	Morning peak hour	a) Key screenlines (counts, annual) b) City-wide (origin-destination survey, every 10 years)	a) See footnote b) 30%	High
(b) Increase transit service availability	Proximity to employment (% of jobs within 400 m walk of 10-minute headway transit service in peak periods)	Morning peak period	City-wide (employment survey, every 5 years)	<i>TBE</i>	High
	Transit Service level (service capacity km per capita)	Year	City-wide (service statistics, annual)	<i>TBE</i>	High
(c) Increase service speed and reliability	Intersection approaches with transit signal priority (number)	<i>N/A</i>	City-wide (inventory, annual)	<i>TBE</i>	High
	Completion of transit priority network (%)	<i>N/A</i>	City-wide (inventory, annual)	100%	High
	Average transit vehicle speed (vehicle-km per vehicle-hr)	Year	City-wide (service statistics, annual)	<i>TBE</i>	Medium
	On-time performance	Year	City-wide (service statistics, annual)	<i>TBD</i>	Medium
	Cancelled trips (% of scheduled trips)	Year	City-wide (service statistics, annual)	<i>0.5% per annum</i>	High
	Completion of rapid transit network (%)	<i>N/A</i>	City-wide (inventory, annual)	100%	High

Performance Objectives	Performance Indicators	Period of Measurement	Location, Source and Frequency of Measurement	Target	City Influence
(d) Increase user comfort and convenience	Shelter provision (% of stops)	N/A	City-wide (inventory, annual)	TBE	High
3. Increase cycling					
(a) Increase cycling mode share	Cycling modal share (% of all trips)	Morning peak hour	a) Inner Area cordon (counts, annual) b) City-wide (origin-destination survey, every 10 years)	TBD (cordon) a) 3% (city-wide)	Medium
	City-wide cycling activity index (cyclist per 100 motorized vehicles)	8 hours (morning, mid-day & afternoon peak periods)	Urban area (counts, biannual)	TBD	Medium
(b) Increase availability of cycling facilities	Completion of Urban Cycling Network (%)	N/A	City-wide (annual)	100%	High
4. Increase walking					
(a) Increase walking mode share	Walking modal share (% of all trips)	Morning peak hour	a) Central Area cordon (counts, annual) b) City-wide (OD survey, every 10 years)	b) TBD (cordon) c) 10% (city-wide)	Medium
(b) Increase availability of walking facilities	Sidewalk coverage (sidewalk provisions as a % of roadway length)	N/A	Urban + villages (annual)	TBD	High
5. Reduce unwanted social and environmental effects					
(a) Reduce air emissions from transportation	Greenhouse gas emissions from passenger travel (kg per capita)	Year	City-wide (annual)	TBD	Medium Low to medium
	NOx emissions from passenger travel (kg per capita)	Year	City-wide (annual)	TBD	High
(b) Reduce road salt use	Road salt usage (tonnes)	Year	City-wide (annual)	TBD	High
(c) Reduce road surface per capita	Road surface area (square metres per capita)	N/A	City-wide (annual)	TBE	Medium to high
6. Optimize use of existing system					
(a) Increase capacity	Transportation system management coverage (% of traffic signals with real-time optimization)	N/A	City-wide (annual)	TBD	High
(b) Increase transit efficiency	Transit efficiency (passenger-km per service capacity-km)	Year	City-wide (annual)	TBE	Medium to high
(c) Spread peak travel demands – roads	Peak period factor for roads (% of daily vehicle trips in a.m. + p.m. peak periods)	Daily, morning & afternoon peak periods	Aggregated key screenlines (counts, annual)	TBE	Low to medium
(d) Spread peak travel demands – transit	Peak period factor for transit (% of daily person-trips in a.m. + p.m. peak periods)	Daily, morning & afternoon peak periods	Aggregated key screenlines (counts, annual)	TBE	Low to medium

Performance Objectives	Performance Indicators	Period of Measurement	Location, Source and Frequency of Measurement	Target	City Influence
7. Manage transportation assets					
(a) Maintain adequate condition of road, Transitway and structures	Major infrastructure condition (% of road, Transitway and structure lane-km meeting or exceeding Performance Indicator Acceptability Benchmarks)	N/A	City-wide (annual)	100%	High
(b) Maintain adequate condition of walking and cycling infrastructure	Walking and cycling infrastructure condition (% of sidewalk and cycling network meeting or exceeding Performance Indicator Acceptability Benchmarks)	N/A	City-wide (annual)	100%	High
(c) Maintain adequate condition of transit fleet	Average transit vehicle fleet age (years)	N/A	City-wide (annual)	9 yr	High
8. Improve transportation safety					
(a) Reduce death and injury from collisions	Road injuries (number)	Year	City-wide (annual)	30% reduction by 2010 (from 2003 level)	Medium
	Road fatalities (number)	Year	City-wide (annual)	30% reduction by 2010 (from 2003 level)	Medium
(b) Increase walking safety	Reported pedestrian collisions (number)	Year	City-wide (annual)	30% reduction by 2010 (from 2003 level)	Medium
(c) Increase cycling safety	Reported cyclist collisions (number)	Year	City-wide (annual)	30% reduction by 2010 (from 2003 level)	Medium
9. Enable efficient goods movement					
(a) Minimize delay for trucks	Off-peak road congestion (volume/capacity)	Mid-day period	At aggregated key screenlines (annual, counts)	TBE	Medium
10. Meet mobility needs of persons with disabilities					
(a) Increase accessibility of conventional transit service	Transit Bus accessibility (% of low-floor buses)	N/A	City-wide (annual)	100% by 2015	High
	Access to information (% of transit schedule information that is accessible on Web site)	N/A	Annual	TBD	High
(b) Maintain adequate specialized transit service	Specialized transit usage (specialized transit riders per capita)	Year	City-wide (annual)	TBE	High
(c) Increase accessibility of public rights-of-way	Pedestrian crossing accessibility (% of traffic signals with depressed medians)	N/A	City-wide (annual)	TBE	High
	Traffic signal accessibility (% of traffic signals with accessibility features)	N/A	City-wide (annual)	TBE	High

Performance Objectives	Performance Indicators	Period of Measurement	Location, Source and Frequency of Measurement	Target	City Influence
	Traffic signage accessibility (to be determined) see footnote	TBD	TBD	TBD	High
11. Meet public expectations					
(a) Increase satisfaction with transportation system	Public satisfaction with transportation system (% people rating as good or better) <ul style="list-style-type: none"> • Overall • Walking • Cycling • Transit • General traffic 	N/A	City-wide (annual)	100%	Medium
(b) Ensure transportation funding that is adequate and equitable	Capital investment (dollars per capita in municipal transportation projects) <ul style="list-style-type: none"> • Roads (multimodal) • Transit facilities and fleet • Walking facilities • Cycling facilities 	Year	City-wide (annual)	N/A	High
	Operating investment (dollars per capita in municipal transportation projects) <ul style="list-style-type: none"> • Roads (multimodal, including walking and cycling) • Transit 				Low
	Reliance on property tax (% of capital investment derived from property tax rather than more equitable sources) <ul style="list-style-type: none"> • Roads (multimodal) • Transit facilities and fleet • Walking facilities • Cycling facilities 	Year	City-wide (annual)	TBD	

Note: All indicators measured in the Transportation Performance Objectives and Indicators (Phase I & II) were based on 2003 TMP targets. These indicators will be revised further to subsequent updates to the TMP.

ANNEX B – Required Infrastructure Projects

Walking and Multi-use Pathway Projects

Project ¹	General Description	Rationale	EA Status ²
Algonquin / Woodroffe Avenue Pedestrian Overpass	From Algonquin College to the Baseline Transitway Station	Provides enhanced transit accessibility for Algonquin College. To be coordinated with the redevelopment plan of the area of the Baseline Transitway Station	Not started
Alta Vista Transportation Corridor	From Hurdman Transit Station / Rideau River to Alta Vista Transportation Corridor to existing trail on Conroy Road	Following the Alta Vista Transportation Corridor through a broad greenspace corridor, providing access to greenspace, community destinations and facilities (recreation, health educational) and to rapid transit	Completed for road/transit portion
Alta Vista Drive to Ogilvie Road Corridor	From Ottawa Hospital General Campus through industrial and rail lands over the Queensway to Ogilvie Road and the Aviation Parkway	Linking communities across Queensway and railway yard barriers; linking employment areas, sport facilities, rapid transit and passenger rail stations to communities	Not started
Bayview Station / Ottawa River Pathway link	From the Bayview O-Train Station to the Ottawa River Pathway	Linking the current terminus of the O-Train line with the Ottawa River Pathway provides a new access to and from these routes	Not started
Carp River / Terry Fox Drive Corridor	Along the Carp River and the Terry Fox Drive corridor from North Kanata to South Kanata	North-south spine route along the Carp River linking communities to employment areas, retail, mixed use areas and significant natural areas	Not started
Coventry Road / Baseball Stadium Pedestrian Crossing	From the baseball stadium to the Train Transitway Station	Provides enhanced transit accessibility to the stadium and adjacent employment area	Not started
Earl Armstrong Road Corridor	River Road to Greenbelt at Bowesville Road; parallels road corridor	Linking open spaces along Rideau River to South Gloucester community and future mixed use development	Not started
Eastern Corridors	From Alta Vista Transportation Corridor to Southern Cross-town Corridor	Traveling through a broad open space and scenic route corridor, providing access to greenspace, community destinations (recreation, health educational) and to rapid transit	Not started
Greenbank Road Corridor	Reconstruction of pathway through the Greenbelt;	Existing undersized pathway may be lost with future road improvements; replacement	Not started

Walking and Multi-use Pathway Projects

Project ¹	General Description	Rationale	EA Status ²
	construction of new pathways from Southern Corridor to Hunt Club Road, and Fallowfield to Jock River Corridor	required; coordinate with NCC	
Jock River Corridor	Along Jock River from Highway 416 to Prince of Wales Drive	Enhances accessibility of Jock River open spaces; key east-west route between business park, future town centre, and open spaces along Rideau River	Not started
Orléans South Corridor	From Greenbelt at Navan Road to Cardinal Creek via Blackburn Bypass / transit and hydro corridor	Crossing the entire southern area of Orléans, linking the Greenbelt and Cardinal Creek, providing access to greenspaces, parks, employment, retail, educational destinations	Not started
Prescott-Russell Pathway linkage	Along former CP (now VIA Rail) rail corridor between eastern border of the City and Innes Road (west of Highway 417)	Connects with major multi-use pathway in Prescott-Russell that leads eastward to the Montréal area	Not started
Prince of Wales Drive Corridor	Hogs Back Road to southern limit of the Greenbelt	Providing access along a scenic route following the Rideau River enhancing access between communities and waterfront open space and the Greenbelt	Not started
Riverside Drive / River Road Corridor	Hunt Club Road to southern limit of the Greenbelt	Providing access along a scenic route following the Rideau River enhancing access between communities and waterfront open space and the Greenbelt	Not started
Sawmill Creek Corridor via Airport Parkway	Following Sawmill Creek from the Rideau River to Hunt Club and to Blossom Park	Providing linkages to waterfront open spaces, transit, retail, recreational and environmental areas	Not started
Southern Cross town Corridor	Woodroffe Avenue to Rideau River; Rideau River to Highway 417 East	Follows a green and open setting, enhancing access to community destinations, (parks, community facilities, retail) and to rapid transit	Not started
Trim Road / Cardinal Creek	From Petrie Island to Frank Kenny Drive	Following environmentally significant creek corridor, linking communities to parks, open spaces, employment areas and the Ottawa River	Not started
Woodroffe Avenue Corridor	From Baseline Transitway Station to Fallowfield Road; Fallowfield to Greenbank via rail/transit corridor	Linking Sportsplex, education facilities, Park and Ride, rapid transit and passenger rail stations to communities and providing access to the Greenbelt	Not started

Note 1: The projects described here will be subject to update once the Ottawa Pedestrian Plan is Council approved.

Note 2: Process to meet requirements of the Planning Act and/or the Environmental Assessment Act is to occur or has occurred.

Cycling Projects			
Project¹	General Description	Rationale	EA Status
Alta Vista Transportation Corridor	Multi-use pathway between the Lees Avenue at Nicholas interchange and Conroy Road at Walkley Road, all parallel to future AVTC	Provides major north-south link between Conroy Road, Alta Vista and downtown	Completed for road/transit portion
Aero Drive	Short on-road connection between Holly Acres Road to east of Inkster Street	Improves connecting link along part of the TransCanada Trail	See Note 2
Baseline Road / Heron Road	Cycling lanes along these roads between Pinecrest Road (Greenbank) in the west and Walkley Road in the east	Improves cycling along this major east-west cycling route	See Note 2
Greely / Metcalfe villages link	On and off-road multi-use pathway connection between the villages of Greely and Metcalfe	Community supported connection to link villages	See Note 2
March Road	Bicycle lanes or paved shoulders between Terry Fox Road and Dunrobin Road	Improves access from rural area to Kanata North and the urban area	See Note 2
Nicholas Street / Madame Curie Private	Improvements to cycling connection at the Campus Station underpass to the Transitway and Colonel By Drive	Differentiates usage between wheelchair spiral ramp and new planned ramp in existing stairs	See Note 2
North Service Road	Improvements to the off-road multi-use pathway, which is part of the Ottawa River pathway, between Tenth Line and Trim Roads	Improves quality of pathway that leads to Petrie Island and residential communities south of St. Joseph Boulevard	See Note 2
Prescott-Russell Pathway linkage	Along former CP (now VIA Rail) unused rail corridor between eastern border of the City and Innes Road (west of Highway 417)	Connects with major multi-use pathway in Prescott-Russell that leads eastward to the Montréal area	See Note 2
Prince of Wales Drive	Cycling Lanes between Meadowlands Drive/Hog's Back	Improves cycling facilities through this intersection	See Note 2

Cycling Projects

Project ¹	General Description	Rationale	EA Status
	Road and Nesbitt Place		
Richmond Road	Cycling lanes and paved shoulders between Moodie Drive and Churchill Avenue	Major link between communities in the west end of the City, links to Byron Avenue cycling route	See Note 2
Richmond Road	Paved shoulders between Stonehaven Drive and West Hunt Club Road	Improve safety for cycling through the Greenbelt to/from south Kanata	See Note 2
Rideau Canal / Rideau River connection	New multi-use pathway between Campus Transit Station, Robinson Avenue and University of Ottawa's Lees Avenue campus	Completes an important link in the cycling network between the Rideau River former railway bridge (Overbrook & Riverview) and the downtown	See Note 2
Scott Street / Albert Street	Bicycle lanes between Churchill Avenue and Lebreton Flats	Main west-east commuter route to and from downtown	See Note 2
South Keys connection	Multi-use pathway link between South Key Transitway Station and the residential community to the west of the Airport Parkway	Safe and convenient connection between residential community and transit/shopping area	Underway

Note 1: The projects listed are Phase 1 priorities and this table is subject to change to include other cycling infrastructure projects that are needed to implement the cycling network as set out in the approved Ottawa Cycling Plan.

Note 2: Process to meet requirements of the Planning Act and/or the Environmental Assessment Act is to occur or has occurred.

Transit Priority Projects

Project	Limits	General Description and Rationale	EA Status
Alta Vista Transportation Corridor	Hospital segment of Transitway corridor to Walkley Road at Conroy Road	These projects generally involve operational or infrastructure modifications such as queue jumps, traffic signal priority, bus stop configuration, traffic	Requirements to be determined
Bank Street	Wellington Street to Southeast Transitway at Billings Bridge		

Transit Priority Projects

Project	Limits	General Description and Rationale	EA Status
Blair Road / federal lands	Montréal Road to East Transitway at Ottawa Road 174	management measures, and creation of bus lanes through conversion or through	
Bronson Avenue	Carling Avenue to Catherine Street / Chamberlain Avenue	construction along the whole or a portion only of the road segment.	
Carling Avenue	Merivale Road to Holland Avenue; Richmond Road to Western Transitway at Lincoln Fields; and, O-train west of Preston Street to Bronson Avenue	Projects are required to improve transit travel times and reliability. Improves transit performance levels that would be impaired by running buses in mixed traffic without these measures	
Catherine Street / Chamberlain Avenue / Isabella Street	Bronson Avenue to Highway 417 on ramps west of canal		
Conroy Road	Walkley Road to Hunt Club Road		
Eagleson Road	Hazeldean Road to Highway 417		
Highway 417	Metcalf Street ramps to Lees Avenue / Greenfield Avenue		
Holland Avenue	Carling Avenue to West Wellington Street		
Hunt Club Road	Rideau River to Conroy Road		
Merivale Road	Carling Avenue to West Hunt Club		
Montréal Road	Rideau Street to east of Blair Road		
Ogilvie Road	West of Blair Road to Montréal Road		
Richmond Road / Robertson Road	Western boundary of Bells Corners to Carling Avenue		
Rideau Street	Wellington Street to Montréal Road		
St. Laurent Boulevard	Montréal Road to Hospital segment of Transitway corridor		
Somerset Street West	West Wellington Street to Bank Street		
Tenth Line Road	Future Transitway at Ottawa Road 174 to Charlemagne Boulevard		
Wellington Street	Bank Street to Rideau Street		

Transit Priority Projects

Project	Limits	General Description and Rationale	EA Status
West Wellington Street	Holland Avenue to Somerset Street West		
West Hunt Club Road	Woodroffe Avenue to Rideau River		
Woodroffe Avenue	Fallowfield Road to Strandherd Drive		

Rapid Transit Projects

Project	General Description	Rationale	EA Status
<u>Light Rail Transit Projects</u>			
Downtown Tunnel	Tunnel under downtown from west of Bronson Avenue at Lebreton Flats to Nicholas Street in the vicinity of the University of Ottawa	Provides fast, reliable service through the downtown. Promotes development adjacent to or connecting with the underground stations along the route.	Underway
East LRT	LRT between tunnel and Blair Station	Provides fast, reliable service between downtown and the Hurdman to Blair Stations, with Transitway connections to east and southeast communities	Not started
West LRT	LRT between tunnel and Baseline Station	Provides fast, reliable service between downtown and communities to the west, including major employment, shopping and educational destinations at Tunney's Pasture, Lincoln Fields and Baseline Stations	Not started
North-South LRT	LRT between Bayview Station and Riverside South Town Centre, including airport link	Provides fast, reliable service between downtown and Ottawa south areas serving residents in Hunt Club and the growing Riverside South community. Also promotes development in the corridor at Confederation Heights and between Carling Avenue and Bayview Stations.	Completed
Carling Avenue LRT	LRT in dedicated lanes between Lincoln Fields Station and the North-South	Provides high quality citywide transit access to employment and commercial land uses adjacent to Carling Avenue, and fast, reliable	Not completed

Rapid Transit Projects

Project	General Description	Rationale	EA Status
	LRT west of Preston Street	service to major intersecting rapid transit lines for corridor residents. Also promotes corridor redevelopment.	

Bus Rapid Transit Projects

East Transitway	BRT between Blair Road and Trim Road	Provides fast, reliable service to/from downtown for eastern Orléans residents and to the Trim Road Park & Ride lot to capture ridership from outside the urban boundary	Underway
Cumberland Transitway	BRT between Blair station By-Pass and Trim Road	Provides fast, reliable service to/from downtown for south Orléans and Blackburn Hamlet residents.	Completed
Hospital Transitway Link	BRT between Southeast Transitway (Lycée Claudel), to Blair Road (at Innes Road)	Provides high quality transit access to major institutions, employment and commercial land uses (e.g. Ottawa Hospital-General Campus, and Life Science Park) in the corridor.	Underway
Kanata North Transitway	BRT between West Transitway at Highway 417 and vicinity of Old Carp Road	Provides high quality transit access to major employment area in Kanata North along March Road.	Not completed
West Transitway	BRT between Southeast Transitway (Highway 417) and Fernbank Road	Provides fast, reliable service to/from downtown for Kanata, Stittsville and Bayshore area residents	Not completed
Barrhaven-Riverside South Transitway	BRT between Southwest Transitway at Barrhaven Town Centre and the Riverside South Town Centre	Provides high quality transit access between Town Centres of Barrhaven and Riverside and transit option usage of the North-South LRT or Southwest Transitway	Not completed
Southwest Transitway	BRT between Baseline Road and Cambrian Road	Provides fast, reliable service for South Nepean residents and Woodroffe Avenue corridor.	Completed for portion

Transit Intensive - Bus Projects

Baseline Road / Confederation (Heron Road)	Dedicated bus lanes between Baseline Station and Heron Road / Southeast Transitway	Provides high quality city-wide transit access to employment, commercial and institutional land uses adjacent to Baseline Road, and fast, reliable service to major rapid transit lines for corridor residents. Also, provides key link between Southwest and Southeast rapid transit network segments by avoiding downtown and promotes corridor redevelopment particularly at Confederation Heights.	Not completed
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Rapid Transit Projects

Project	General Description	Rationale	EA Status
Baseline Road / Richmond Road	Dedicated bus lanes between Baseline Station and Bayshore Station	Provides high quality citywide transit access to major commercial, institutional and employment uses in the corridor.	Not completed
Heron Road	Dedicated bus lanes between Heron Road / Southeast Transitway Confederation Station and Walkley Road	Provides high quality citywide transit access to Alta Vista and Heron Gate communities	Not completed
Walkley Road	Dedicated bus lanes between Heron Road to Russell Road	Provides high quality citywide transit access to Alta Vista and Heron Gate communities	Not completed
Russell Road / St. Laurent Boulevard BRT	Dedicated bus lanes between Walkley Road to Hospital / Innes Road BRT link	Provides high quality citywide transit access to Alta Vista and Sheffield Glen communities	Not completed

Road Projects

Project	General Description	Rationale	EA Status
Airport Parkway	Widen from two to four lanes from Brookfield Drive to Ottawa International Airport (6.4 km)	Accommodates residual motor vehicle demands across the CNR East screenline, reflecting growth in the suburban communities of Riverside South and Leitrim, as well as the projected air travel growth at Ottawa's International Airport	Not started
Albert Street	Widen from four to six lanes from Booth Street to Empress Avenue (0.2 km)	Provides network continuity, capacity for City Centre and LeBreton Flats development, and local access	Not started
Alta Vista Transportation Corridor	New four-lane road (including two bus lanes) from Nicholas Street / Highway 417 interchange to Conroy Road at Walkley Road (5.5 km)	Addresses the capacity deficiency across the Smyth/Hydro screenline and relieves short-cutting through existing residential communities	Completed
Bank Street	Widen from two to four lanes from south of Leitrim Road to Findlay Creek Drive (1.3 km)	Provides capacity for growth in Leitrim	Not started
	Widen from two to four lanes from Findlay Creek Drive to Mitch Owens Road (4.9 km)	Provides capacity for growth in Riverside South, Leitrim and Greely areas	Not started

Road Projects

Project	General Description	Rationale	EA Status
Barnsdale Road	Widen from two to four lanes from Highway 416 to Prince of Wales Drive, requiring a new interchange (3.3 km)	Required in conjunction with recommended Barnsdale Road - Highway 416 interchange (a second Highway 416 interchange to serve growing Barrhaven / Nepean South)	Not started
Belcourt Boulevard	Widen from two to four lanes and new four-lane road from Innes Road to Navan Road (3.2 km)	Provides access to development in Orléans south of Innes Road	See Note 1
Belcourt Boulevard / Mer Bleue Rd. connection	New four-lane road, south of Innes Road, from Belcourt Boulevard to Mer Bleue Road (0.6 km)	Provides access to development in Orléans south of Innes Road	See Note 1
Blackburn Hamlet Bypass (Innes Road)	Widen from four to six lanes from Innes Road (west entrance to Blackburn Hamlet) to Navan Road (2.6 km)	Addresses capacity deficiencies across the Greens Creek screenlines and provides arterial road service for the growth areas in south Orléans	Not started
Blackburn Hamlet Bypass Extension	New two-lane road (later four lane) from the existing Blackburn Hamlet By-pass to Frank Kenny Road (10 km)	Provides access to development in Orléans south of Innes Road	Completed
Cambrian Road	Widen from two to four lanes from new Greenbank Road to Jockvale Road (1.1 km)	Provides access to development in Barrhaven South	Completed EA phases 1 and 2 in Barrhaven South CDP
Campeau Drive	Widen from two to four lanes from Didsbury Road to March Road (3.4 km)	Provides continuity in the north Kanata area, and addresses capacity and parking needs in the Kanata Town Centre	Completed
	New four-lane road from Didsbury Road to new North-South arterial in Kanata West (1.4 km)	Accommodates Kanata West Development	Completed
Carp Road	Widen from two to four lanes from Highway 417 to Hazeldean Road (2.0 km)	Provides capacity for growth in Stittsville	Not started
Chapman Mills Drive	New four lane road from Strandherd Road to Woodroffe Avenue (3.0 km)	Serves the development of the Barrhaven Town Centre	See Note 1
Coventry Road	Widen from two to four lanes	Continuity through commercial and industrial	Not started

Road Projects

Project	General Description	Rationale	EA Status
	from Belfast Road to St. Laurent Centre (0.4 km)	area between four-lane sections of Coventry Road	
Eagleson Road	Widen from two to four lanes from Cadence Gate to Hope Side Road (1.5 km)	Provides capacity for additional travel demands from new development areas and continuity from the four-lane Eagleson Road to Hope Side Road	Completed
Earl Armstrong Road	Widen from two to four lanes from River Road to High Road (7.2 km)	Provides capacity for growth in Riverside South	Completed
	New two-lane road from High Road to Bank Street (2.8 km)	Provides capacity for growth in Riverside South and completes linkage to Bank Street	Not started
Earl Grey Drive – Goulbourn Forced Road	Underpass of Terry Fox Drive	Relieve operational, safety and local development access to/from Kanata Centrum and Kanata West	See Note 1
Fallowfield Road	Widen from two to four lanes from Strandherd Drive to Cedarview Road (1.0 km)	Provides capacity to service growth in the Nepean South Urban Community	Completed
	Widen from two to four lanes from Woodroffe Ave to Prince of Wales Drive (2.7 km)	Provides capacity to service growth in the Nepean South Urban Community	Completed
	New four-lane road from Strandherd Road towards Highway 416 (1.7 km)	Provides capacity to service growth in the Nepean South Urban Community	See Note 1
Frank Kenny Road extension	New four-lane road from re-aligned Trim Road to Innes Road (1.5 km)	Provides network continuity and capacity for additional traffic generated by development growth in Orléans	Completed
Goulbourn Forced Road re-alignment	Re-aligned and new two-lane road from Terry Fox Drive to Kanata Avenue (2.2 km)	Provides capacity for growth in Kanata North	See Note 1
Greenbank Road	Widen from two to four lanes from Malvern Drive to Strandherd (1.6 km)	Accommodates growth within the Nepean South Urban Community	Completed
	New four lane road from near Jockvale Road to Cambrian Road (1.9 km)	Accommodates growth within the Nepean South Urban Community	Completed
Hazeldean	Widen from two to four lanes	Accommodates growth in Stittsville and Kanata	Completed

Road Projects

Project	General Description	Rationale	EA Status
Road	from Carp Road to Terry Fox Drive (4.4 km)	West	
Hope Side Road	Widen from two to four lanes from Eagleson Road to Richmond Road (2.0 km)	Provides capacity and network continuity for growth areas in Kanata	Initiated
	New two-lane road from Richmond Road to Highway 416 (8.2 km)	Provides capacity and network continuity for growth areas in Kanata	Initiated
Hunt Club Road	Widen from four to six lanes from Riverside to Bank Street (4.4 km)	Addresses capacity deficiencies at Rideau River South Manotick Screenlines, in conjunction with the Strandherd/Armstrong river crossing	Not started
Hunt Club Road extension	New two-lane road (later four lanes) from Hawthorne Road to connect to Highway 417, requiring a new interchange (1.6 km)	Provides arterial access to the provincial freeway network and completes link from Highway 417 east to Highway 416 in the west end	Completed
Huntmar Drive	Widen from two to four lanes from Campeau Drive extension to Cyclone Taylor Boulevard (0.6 km)	Accommodates Kanata West Development	Not started
	Widen from two to four lanes from Palladium Drive to Maple Grove Road (0.9 km)	Accommodates Kanata West Development	Completed
Innes-Walkley-Hunt Club Link	New four-lane road (initial phase two-lanes) from Hunt Club / new Highway 417 interchange to Innes Road west of Blackburn Hamlet (6.7 km)	Relieves congestion at Highway 417 interchanges and services development in Orléans south	Completed
Jockvale Road	Widen from two to four lanes from Jock River to Prince of Wales (2.4 km)	Accommodates development access and growth for development within the Nepean South Urban Community	Initiated
Jockvale/Longfields Link	New four-lane road from Strandherd Drive to Jock River (1.7 km)	Accommodates development access and growth for development within the Nepean South Urban Community	Completed
Kanata Avenue	Upgrade existing two-lanes from Terry Fox Drive to	Provides capacity for development in Kanata North	See Note 1

Road Projects

Project	General Description	Rationale	EA Status
	Goulbourn Forced Road (1.3 km)		
Kanata West Main Street	New two-lane road from Palladium Drive to Maple Grove Road (1.3 km)	Provides capacity for development in Kanata West	See Note 1
Kanata West North-South arterial	New two-lane road from Hazeldean Road to Fernbank Road (3.0 km)	Provides capacity for development in Kanata West and provides a bypass for Stittsville Main Street congestion	Initiated in Fernbank CDP
	New four-lane road from Palladium Drive to Hazeldean Road (1.8 km)	Provides capacity for development in Kanata West	Completed
Katimavik Road	Widen from two to four lanes from Terry Fox Drive to Eagleson Road (2.8 km)	Provides continuity between four-lane section of Palladium Drive and Eagleson Road	Not started
Leitrim Road	Widen from two to four lanes from River Road to east of Limebank Road (1.5 km)	Provides capacity for development in Riverside South	Completed
	New four-lane re-aligned road from east of Limebank Road to Bowesville Road (2.7 km)	Provides capacity for development in Riverside South	See Note 1
Limebank Road	Widen from two to four lanes from Riverside Drive to south of Earl Armstrong Road (5.0 km)	Addresses capacity deficiencies across the Leitrim screenline, in conjunction with the widening of Riverside Drive and Bank Street	Completed
	Widen from two to four lanes from south of Earl Armstrong Road to Mitch Owens Road (4.0 km)	Addresses capacity deficiencies across the Leitrim screenline, in conjunction with the widening of Riverside Drive and Bank Street	Not completed
Longfields Drive	New two-lane road from Woodroffe Avenue to South Pointe Business Park (1.2 km)	Provides capacity to disperse additional traffic generated by development growth in South Pointe Business Park	Completed
Maple Grove Road	Widen from two to four lanes from Terry Fox Drive to Huntmar Drive (1.8 km)	Accommodates Kanata West Development	Completed
March Road	Widen from two to four lanes from Morgan's Grant Way to Dunrobin Road (3.6 km)	Provides additional vehicular capacity to growth areas in north Kanata	Completed

Road Projects

Project	General Description	Rationale	EA Status
Mer Bleue Road	Widen from two to four lanes from Innes Road to south of Renaud Road (2.3 km)	Provide capacity for the development areas south of Innes Road	Completed
	New four-lane re-alignment, west of existing Mer Bleue Road, from south of Renaud Road to Navan Road (1.2 km)	Provide capacity for the development areas south of Innes Road	Completed
Navan Road	Widen from two to four lanes from Blackburn Hamlet By-pass Extension to Mer Bleue Road	Provide capacity for the development areas south of Innes Road	Not Started
Ottawa Road 174	Widen from four to six lanes from Highway 417 to Jeanne d'Arc (7.7 km)	Addresses local capacity, operational and safety issues	Not started
Palladium Drive Realignment	Realign in vicinity of Huntmar Road to new North-South arterial (0.4 km)	Accommodates Kanata West Development	Completed
Portobello Boulevard	Widen from two to four lanes from Charest Way to the Blackburn Hamlet By-pass Extension (1.2 km)	Services growth in south Orléans	See Note 1
Prince of Wales Drive	Widen from two to four lanes from Fisher Avenue to Woodroffe Avenue (10.6 km)	Addresses capacity deficiencies at CNR West screenline	Initiated
Richmond Road	Widen from two to four lanes from Carling Avenue to Woodroffe Avenue (2.3 km)	Addresses capacity deficiencies at the Western Parkway screenline	Not started
	Widen from three to four lanes from Woodroffe Avenue to Golden Avenue (1.9 km)		
New Rideau River Bridge Crossing	Additional bridge crossing across Rideau River, at a location to be determined between Hunt Club Road and future Strandherd - Earl Armstrong Bridge	Addresses, towards end of planning period, capacity deficiency at the Rideau River South Manotick screenline	Not started
Riverside Drive	Widen from two to four lanes (phase 1) and then four to six	Addresses capacity deficiencies at the Leitrim screenline, in conjunction with the widening of	Completed

Road Projects

Project	General Description	Rationale	EA Status
	lanes (phase 2) from Hunt Club Road to Limebank Road (1.6 km)	Limebank Road and Bank Street	
St. Joseph Boulevard	Widen from two to four lanes from east of Tenth Line Road to Dairy Road (1.7 km)	Provides capacity for additional traffic generated by Orléans urban growth	Completed
Spratt Road	New two lane road from Limebank Road to Bowesville Road (2.8 km)	Services growth in Riverside South	See Note 1
Strandherd Drive	Widen from two to four lanes from Fallowfield Road to Jockvale Road (4.0 km) Widen from four to six lanes from Jockvale Road to Woodroffe Avenue (2.8 km) New four-lane road from Woodroffe Avenue to Prince of Wales (1.4 km)	Addresses capacity deficiencies at the Rideau River South and Manotick screenlines, in conjunction with a Strandherd-Earl Armstrong Rideau River Bridge and Earl Armstrong Road widening	Completed
Strandherd - Earl Armstrong Rideau River Bridge	New bridge crossing of Rideau River to tie into Earl Armstrong Road on east side of Rideau River	Addresses capacity deficiencies at the Rideau River South and Manotick screenlines, in conjunction with Strandherd Road and Earl Armstrong Road widenings	Completed
Tenth Line Road	Widen from two to four lanes from south of Innes Road to north of urban boundary (1.9 km)	Services growth south of Innes Road	Not started
Terry Fox Drive	New two-lane road from Innovation Road / Flamborough Way to south of Richardson Side Road (1.2 km)	Provides access to adjacent developments	Completed
	Widen from two to four lanes from March Road to south of Richardson Side Road (5 km)	Accommodates the vehicular capacity deficiencies for growth areas in Kanata	Completed
	Widen from four to six lanes from Campeau Drive to Palladium Drive (1.2 km)	Accommodates Kanata West Development	Not started

Road Projects

Project	General Description	Rationale	EA Status
	Widen from two to four lanes from Winchester Drive to Eagleson Road at Hope Side Road (3.6 km)	Provides access to adjacent developments	Completed
Trim Road	Widen/re-align Trim Road from two to four lanes from North Service Road north of Ottawa Road 174 to Blackburn Hamlet By-Pass Extension (5.4 km)	Provides network continuity and capacity for additional traffic generated by development growth in Orléans	Completed
West Hunt Club	Widen from four to six lanes from Highway 416 to Prince of Wales Drive (9.0 km)	Services on-going development/redevelopment along corridor and makes full use of Rideau River Bridge	Not started

Note 1: Process to meet requirements of the Planning Act and/or the Environmental Assessment Act is to occur or has occurred.

ANNEX C – Glossary

Area traffic management: Processes and techniques to preserve neighbourhood liveability by mitigating undesirable effects of vehicle travel including excessive volumes and speeds, aggressive driver behaviour and the creation of unfavourable conditions for walking and cycling

Asset management: Measures to preserve the physical integrity of infrastructure by managing its condition and determining optimal reinvestment and renewal schedules

Barrier-free: A design characteristic that maximizes accessibility for persons with disabilities

Bus lane: A roadway lane dedicated for use by public transit vehicles that may be open to mixed traffic at some hours of the day or days of the week, and that may also be open to other vehicles such as carpools, taxis or bicycles

Bus rapid transit (BRT): Fast, frequent, limited-stop bus service that operates within an exclusive right-of-way or with priority measures over mixed traffic in shared corridors

Carpool: A vehicle with two or more occupants who are ridesharing

Carpool lanes: A roadway lane dedicated for use by carpools (i.e. vehicles meeting minimum occupancy criteria, usually two or three persons) and buses, that may be open to mixed traffic at some hours of the day or days of the week, and that may also be open to other vehicles such as taxis or bicycles

Carpool parking lot: A location for carpool participants to park their cars and consolidate into one vehicle, usually located at or beyond the edge of the urban area

Cash-in-lieu of parking: A practice permitting developers to pay a charge in lieu of constructing the minimum parking spaces required by zoning regulations, thereby financially enabling the provision of City-owned public parking facilities

Central Area: The area defined in the City's Official Plan -- Schedule B that includes LeBreton Flats, Parliament Hill and the business district to its immediate south plus the areas around the Rideau Centre and the Byward Market

Cordon: An imaginary line composed of one or more screenlines, usually enclosing a geographic area

Development charges: A charge levied by the City of Ottawa on new development to help pay for growth-related infrastructure development

Environmental assessment: A planning process that is mandated by provincial and federal legislation, and that requires the systematic identification and mitigation of the effects of transportation projects on all aspects of the environment

Greenbelt: A band of green space 200 square kilometres in size, owned by the National Capital Commission and comprising the Macdonald-Cartier International Airport, farms, research

institutes, forests and wetlands, that separates the older urban portions of Ottawa from its newer suburban communities and rural areas

Growth management strategy: A comprehensive strategy identifying long-term objectives for Ottawa's physical, social and economic development, and actions to achieve them

Inner Area: The section of the City bounded by the Ottawa River, the rail line, and the Rideau River

Level of service: An indicator of the quality of operating conditions that may be applied to cycling or walking facilities (to reflect connectivity, convenience and comfort), transit service (to reflect speed, reliability and frequency) or roadways (to reflect the ratio of vehicle demand to roadway capacity, and resultant delay)

Light rail transit (LRT): Rail transit technology capable of operating in a variety of physical environments, ranging from exclusive right-of-way to mixed traffic environments on public streets, as single vehicles or multiple-vehicle consists

Modal share: The percentage of person-trips made by one travel mode, relative to the total number of person-trips made by all modes

Modal split: The percentage of person-trips made by either transit or automobile, relative to the total number of person-trips made by motorized modes (i.e. transit and automobile, combined)

Multi-use pathways: Off-road facilities for travel by walking, cycling and other modes such as in-line skating, that serve both recreational and utilitarian travel needs

OC Transpo: The identity of the City's public transit system

O-Train: The identity of the rail component of the City's public transit system

Para Transpo: Identity of the specialized door-to-door transit service provided for persons with disabilities

Park & Ride lots: Parking lots, usually located at rapid transit stations, that allow automobile users to transfer to and from transit service in a convenient manner

Peak hour: The hour of greatest person-trip demand within a given peak period

Peak period: A period of high person-trip demand on weekday mornings and afternoons, generally measured as two hours long in the morning and two-and-a half hours in the afternoon

Performance measurement: Monitoring of indicators that enable an understanding of conditions, actions and impacts that describe progress towards key objectives

Person-trip: A trip made by one person using any mode of travel

Rapid transit: Fast, frequent, high-capacity transit service provided using either bus or rail technology, operating in an exclusive right-of-way or otherwise undelayed by mixed traffic in shared corridors

Ridesharing: Shared use of a motor vehicle by two or more persons to make a trip, when they would otherwise travel separately

Road diet: A rehabilitation of an existing multilane roadway to reduce the number of motor vehicle travel lanes, usually from four to three or two lanes, with increased capacity for alternative travel modes such as cycling and walking while still allowing for efficient and safe movement of motor vehicles

Screenline: An imaginary line that crosses all major transportation facilities in a corridor, typically drawn along a feature (such as a river or railway) having a limited number of crossing points

Transit priority corridors: connecting with to rapid transit corridors, these corridors are equipped with a set of coordinated priority measures that give transit vehicles preferential treatment over other vehicles. These priority measures may include peak-period transit only lanes, short dedicated lane segments, queue-jumps and traffic signal priority

Transit priority measures: Strategies to increase transit operating speeds and transit travel time reliability in mixed traffic, such as traffic signal priority or queue jumps

Transitway: A rapid transit facility in the form of a roadway designed for the exclusive use of buses and other authorized vehicles

Transportation demand management (TDM): A range of strategies that encourage individuals to reduce the number of trips they make, to travel more often by non-driving alternatives, to travel outside peak periods and to reduce the length of their trips

Transportation system management (TSM): A range of strategies that maximize the efficient operation of the road system through operational measures and localized infrastructure modifications, for the benefit of all modes of travel

Transportation vision: An expression of what a desirable future transportation system might look like, and how it can benefit residents

Truck route system: A network of designated roadways that have been designed and constructed to permit and withstand use by heavy trucks

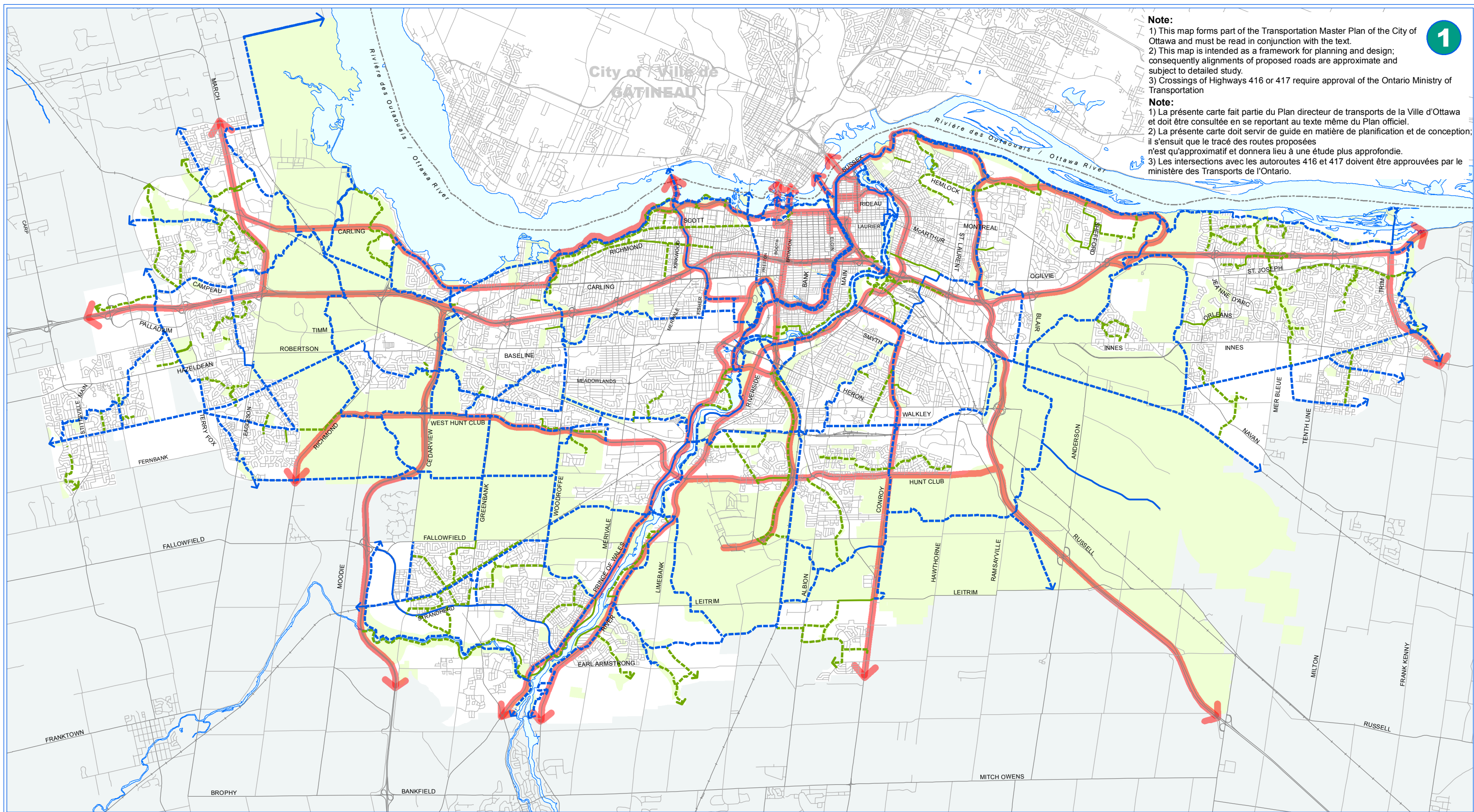
Urban Area: The area defined in the City Of Ottawa Official Plan as urban which includes all lands inside the Greenbelt, the Greenbelt itself, and the three urban communities outside it

Maps

- Map 1 Major Multi-Use Pathways (Urban)
- Map 2 Primary Urban Cycling Network
- Map 3 Cycling Network and Major Multi-Use Pathways (Rural)
- Map 4 Rapid Transit Network
- Maps 5a-5b Phasing of Transit Infrastructure Projects
- Map 6 Urban Road Network
- Map 7 Central Area/Inner City Road Network
- Map 8 Rural Road Network
- Map 9 Road Network – Select Villages
- Maps 10a-10c Phasing of Roads Infrastructure Projects

Note:
 1) This map forms part of the Transportation Master Plan of the City of Ottawa and must be read in conjunction with the text.
 2) This map is intended as a framework for planning and design; consequently alignments of proposed roads are approximate and subject to detailed study.
 3) Crossings of Highways 416 or 417 require approval of the Ontario Ministry of Transportation

Note:
 1) La présente carte fait partie du Plan directeur de transports de la Ville d'Ottawa et doit être consultée en se reportant au texte même du Plan officiel.
 2) La présente carte doit servir de guide en matière de planification et de conception; il s'ensuit que le tracé des routes proposées n'est qu'approximatif et donnera lieu à une étude plus approfondie.
 3) Les intersections avec les autoroutes 416 et 417 doivent être approuvées par le ministère des Transports de l'Ontario.



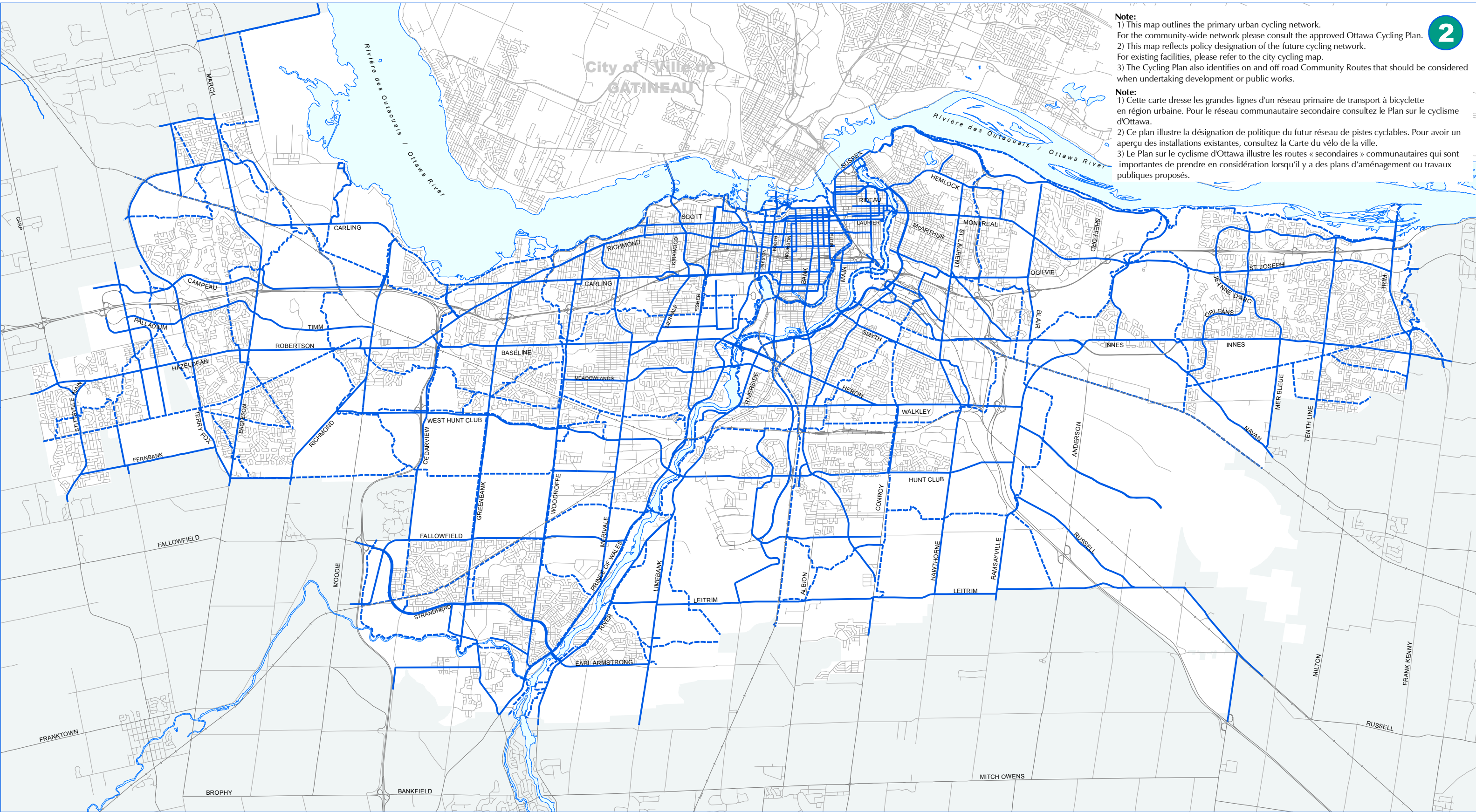
City of Ville de
GATINEAU

TRANSPORTATION MASTER PLAN - Map 1
Multi-Use Pathways and Scenic-Entry Routes (Urban)
****DRAFT / ÉBAUCHE****
 PLAN DIRECTEUR DES TRANSPORTS - Carte 1
Sentiers polyvalents et routes d'entrée - panoramiques (urbain)

- | | |
|---|--|
| MULTI-USE PATHWAYS - OFF-ROAD | SENTIERS POLYVALENTS - HORS CHEMINS |
| City-wide Routes | Routes principales |
| Community Routes | Routes communautaires |
| MULTI-USE PATHWAYS - ON-ROAD CONNECTIONS | SENTIERS POLYVALENTS - SUR CHEMIN |
| City-wide Routes | Routes principales |
| Community Routes | Routes communautaires |
| SCENIC ENTRY ROUTES | ROUTES D'ENTRÉE PANORAMIQUES |

1 0.5 0 1 2 3
 Kilometers

Prepared by: City of Ottawa, Department of Infrastructure Services and Community Sustainability, November 2008
 Préparé par: Ville d'Ottawa, Les Services d'infrastructure et Viabilité des collectivités, novembre 2008



Note:
 1) This map outlines the primary urban cycling network. For the community-wide network please consult the approved Ottawa Cycling Plan.
 2) This map reflects policy designation of the future cycling network. For existing facilities, please refer to the city cycling map.
 3) The Cycling Plan also identifies on and off road Community Routes that should be considered when undertaking development or public works.

Note:
 1) Cette carte dresse les grandes lignes d'un réseau primaire de transport à bicyclette en région urbaine. Pour le réseau communautaire secondaire consultez le Plan sur le cyclisme d'Ottawa.
 2) Ce plan illustre la désignation de politique du futur réseau de pistes cyclables. Pour avoir un aperçu des installations existantes, consultez la Carte du vélo de la ville.
 3) Le Plan sur le cyclisme d'Ottawa illustre les routes « secondaires » communautaires qui sont importantes de prendre en considération lorsqu'il y a des plans d'aménagement ou travaux publics proposés.

TRANSPORTATION MASTER PLAN - Map 2
PRIMARY URBAN CYCLING NETWORK

****DRAFT / ÉBAUCHE****

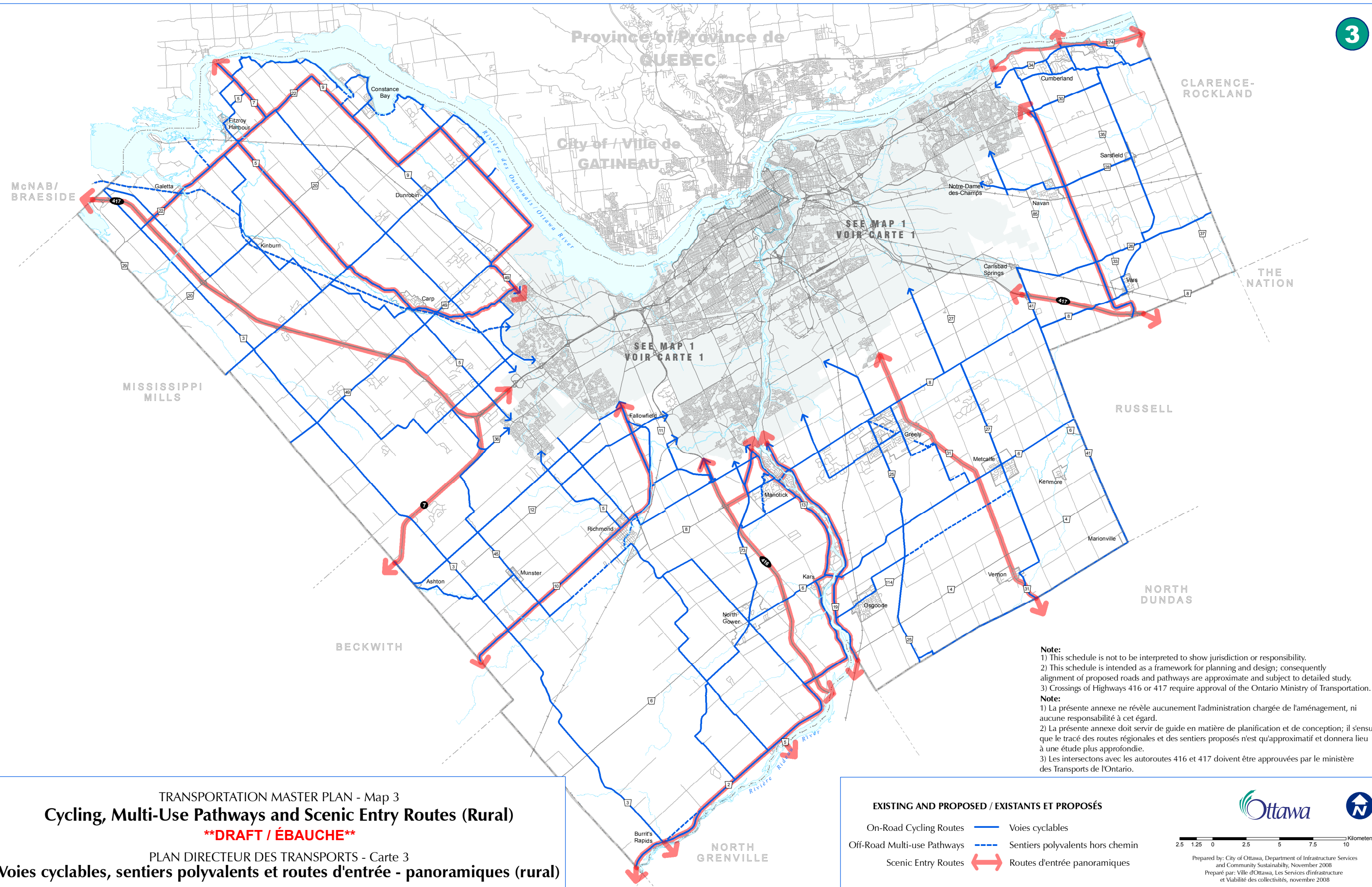
PLAN DIRECTEUR DES TRANSPORTS - Carte 2

PLAN DU RÉSEAU URBAIN DE PISTES CYCLABLES PRINCIPALES

CITY-WIDE NETWORK **RESEAU PRINCIPAL**
 On-road Cycling Routes — Voies cyclables
 Off-road Cycling Routes (multi-use pathways) — Cyclables hors chemin (sentiers polyvalents)

1 0.5 0 1 2 3 Kilometers

Prepared by: City of Ottawa, Department of Infrastructure Services and Community Sustainability, November 2008
 Préparé par: Ville d'Ottawa, Les Services d'infrastructure et Viabilité des collectivités, novembre 2008



Province of / Province de
QUEBEC

City of / Ville de
GATINEAU

McNAB/
BRAESIDE

CLARENCE-
ROCKLAND

MISSISSIPPI
MILLS

THE
NATION

RUSSELL

NORTH
DUNDAS

BECKWITH

NORTH
GRENVILLE

SEE MAP 1
VOIR CARTE 1

SEE MAP 1
VOIR CARTE 1

Note:
1) This schedule is not to be interpreted to show jurisdiction or responsibility.
2) This schedule is intended as a framework for planning and design; consequently alignment of proposed roads and pathways are approximate and subject to detailed study.
3) Crossings of Highways 416 or 417 require approval of the Ontario Ministry of Transportation.

Note:
1) La présente annexe ne révèle aucunement l'administration chargée de l'aménagement, ni aucune responsabilité à cet égard.
2) La présente annexe doit servir de guide en matière de planification et de conception; il s'ensuit que le tracé des routes régionales et des sentiers proposés n'est qu'approximatif et donnera lieu à une étude plus approfondie.
3) Les intersections avec les autoroutes 416 et 417 doivent être approuvées par le ministère des Transports de l'Ontario.

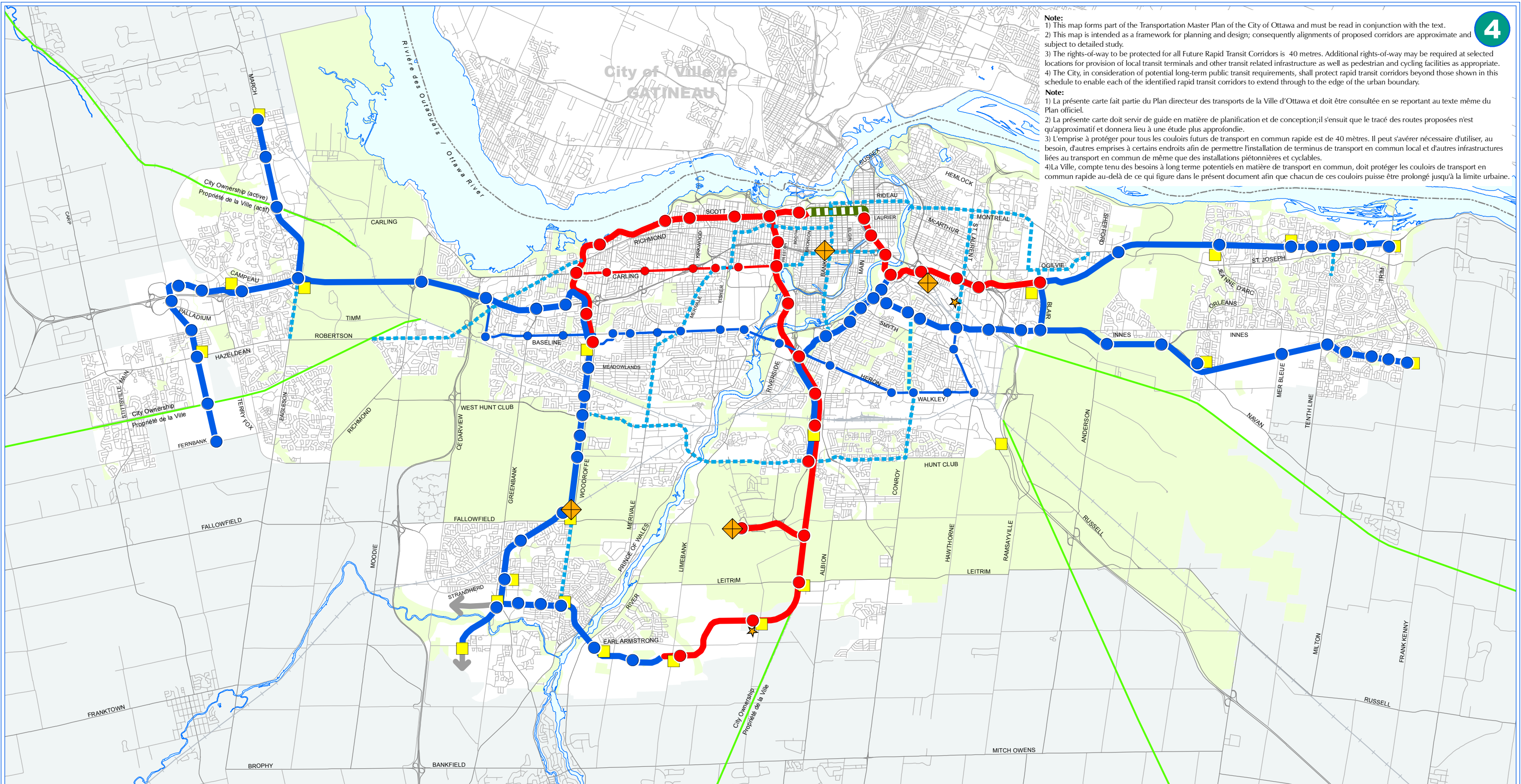
TRANSPORTATION MASTER PLAN - Map 3
Cycling, Multi-Use Pathways and Scenic Entry Routes (Rural)
****DRAFT / ÉBAUCHE****
PLAN DIRECTEUR DES TRANSPORTS - Carte 3
Voies cyclables, sentiers polyvalents et routes d'entrée - panoramiques (rural)

EXISTING AND PROPOSED / EXISTANTS ET PROPOSÉS

On-Road Cycling Routes — Voies cyclables
Off-Road Multi-use Pathways - - - Sentiers polyvalents hors chemin
Scenic Entry Routes ↔ Routes d'entrée panoramiques

2.5 1.25 0 2.5 5 7.5 10 Kilometers

Prepared by: City of Ottawa, Department of Infrastructure Services and Community Sustainability, November 2008
Préparé par: Ville d'Ottawa, Les Services d'Infrastructure et Viabilité des collectivités, novembre 2008



Note:
 1) This map forms part of the Transportation Master Plan of the City of Ottawa and must be read in conjunction with the text.
 2) This map is intended as a framework for planning and design; consequently alignments of proposed corridors are approximate and subject to detailed study.
 3) The rights-of-way to be protected for all Future Rapid Transit Corridors is 40 metres. Additional rights-of-way may be required at selected locations for provision of local transit terminals and other transit related infrastructure as well as pedestrian and cycling facilities as appropriate.
 4) The City, in consideration of potential long-term public transit requirements, shall protect rapid transit corridors beyond those shown in this schedule to enable each of the identified rapid transit corridors to extend through to the edge of the urban boundary.

Note:
 1) La présente carte fait partie du Plan directeur des transports de la Ville d'Ottawa et doit être consultée en se reportant au texte même du Plan officiel.
 2) La présente carte doit servir de guide en matière de planification et de conception; il s'ensuit que le tracé des routes proposées n'est qu'approximatif et donnera lieu à une étude plus approfondie.
 3) L'emprise à protéger pour tous les couloirs futurs de transport en commun rapide est de 40 mètres. Il peut s'avérer nécessaire d'utiliser, au besoin, d'autres emprises à certains endroits afin de permettre l'installation de terminus de transport en commun local et d'autres infrastructures liées au transport en commun de même que des installations piétonnières et cyclables.
 4) La Ville, compte tenu des besoins à long terme potentiels en matière de transport en commun, doit protéger les couloirs de transport en commun rapide au-delà de ce qui figure dans le présent document afin que chacun de ces couloirs puisse être prolongé jusqu'à la limite urbaine.

TRANSPORTATION MASTER PLAN - Map 4

RAPID TRANSIT NETWORK

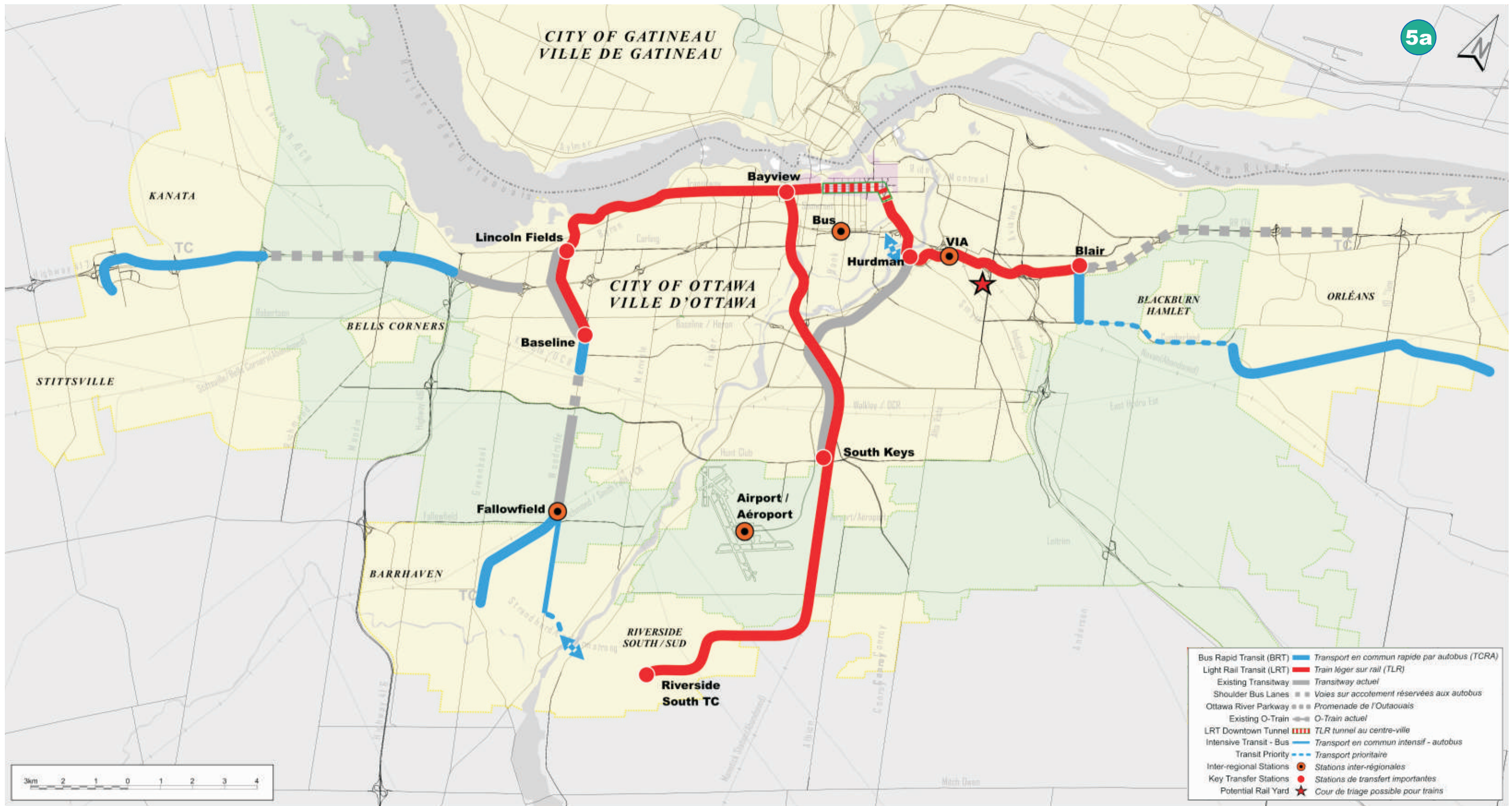
****DRAFT / ÉBAUCHE****

PLAN DIRECTEUR DES TRANSPORTS - Carte 4

RÉSEAU DE TRANSPORT EN COMMUN RAPIDE

PRIMARY	PRINCIPAL
Light Rail Transit (LRT)	Train léger sur rail (TLR)
Bus Rapid Transit (BRT)	Transport en commun rapide par autobus (TCRA)
LRT Downtown Tunnel	TLR Tunnel au centre-ville
SUPPLEMENTARY	SUPPLÉMENTAIRE
Intensive Transit - Bus	Transport en commun intensif - autobus
Intensive Transit - Rail	Transport en commun intensif - train
Transit Priority	Transport prioritaire

Park and Ride	Parc-O-Bus
Transit Station - rail	Station du transport - train
Transit Station - bus	Station du transport - autobus
Conceptual Future Transit Corridor	Avenir conceptuel - Couloir de transport en commun
Abandoned Railway Corridor	Emprises ferroviaires abandonnées
Inter-regional Stations	Stations interrégionales
Potential Rail Yard	Cour de tirage possible pour trains

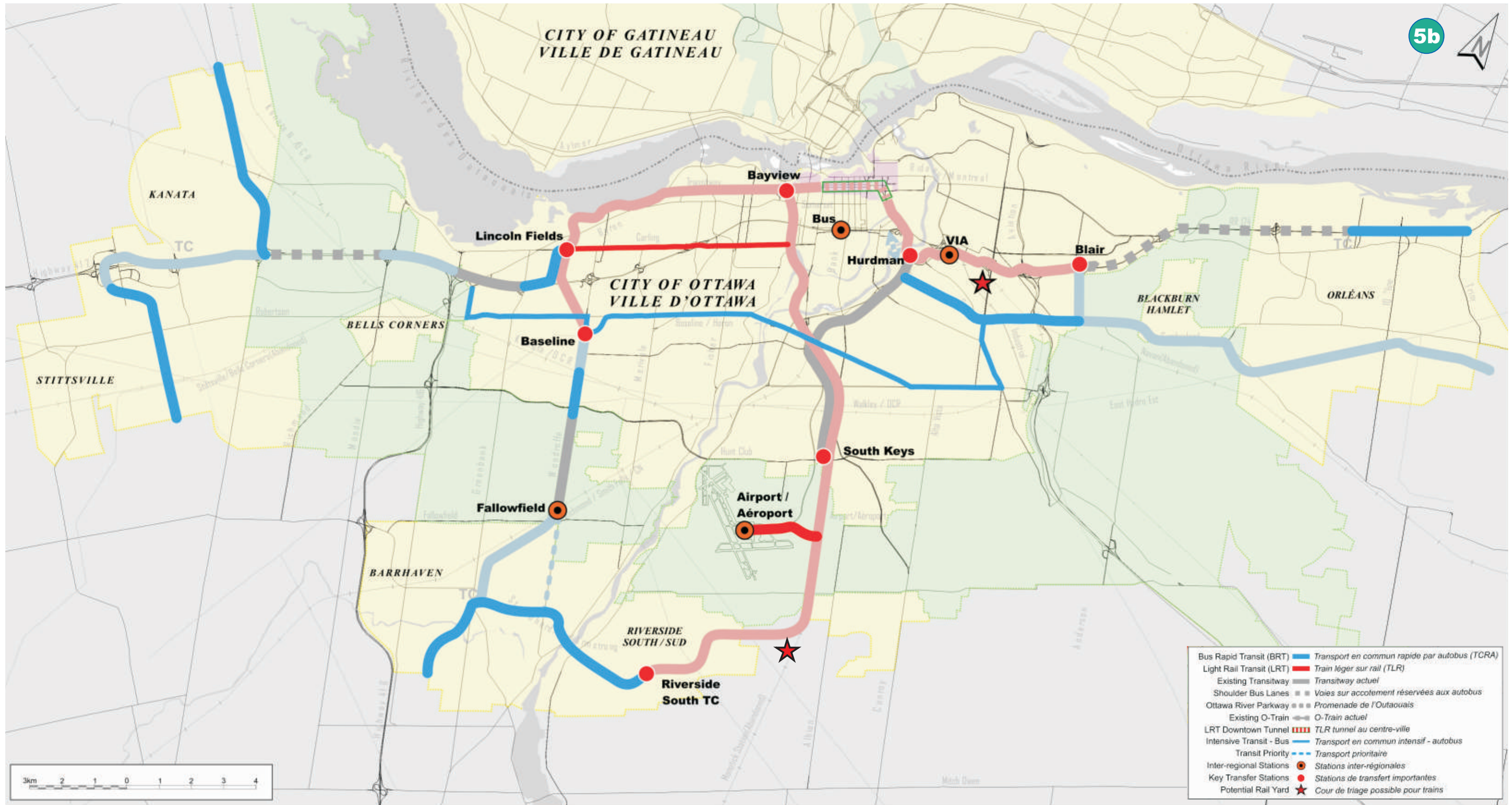


TRANSPORTATION MASTER PLAN - Map 5a
RAPID TRANSIT NETWORK - IMPLEMENTATION - PHASE 1

****DRAFT / ÉBAUCHE****

PLAN DIRECTEUR DES TRANSPORTS - Carte 5a

RÉSEAU DE TRANSPORT EN COMMUN RAPIDE - MISE EN ŒUVRE - PHASE 1



TRANSPORTATION MASTER PLAN - Map 5b
RAPID TRANSIT NETWORK - IMPLEMENTATION - PHASE 2

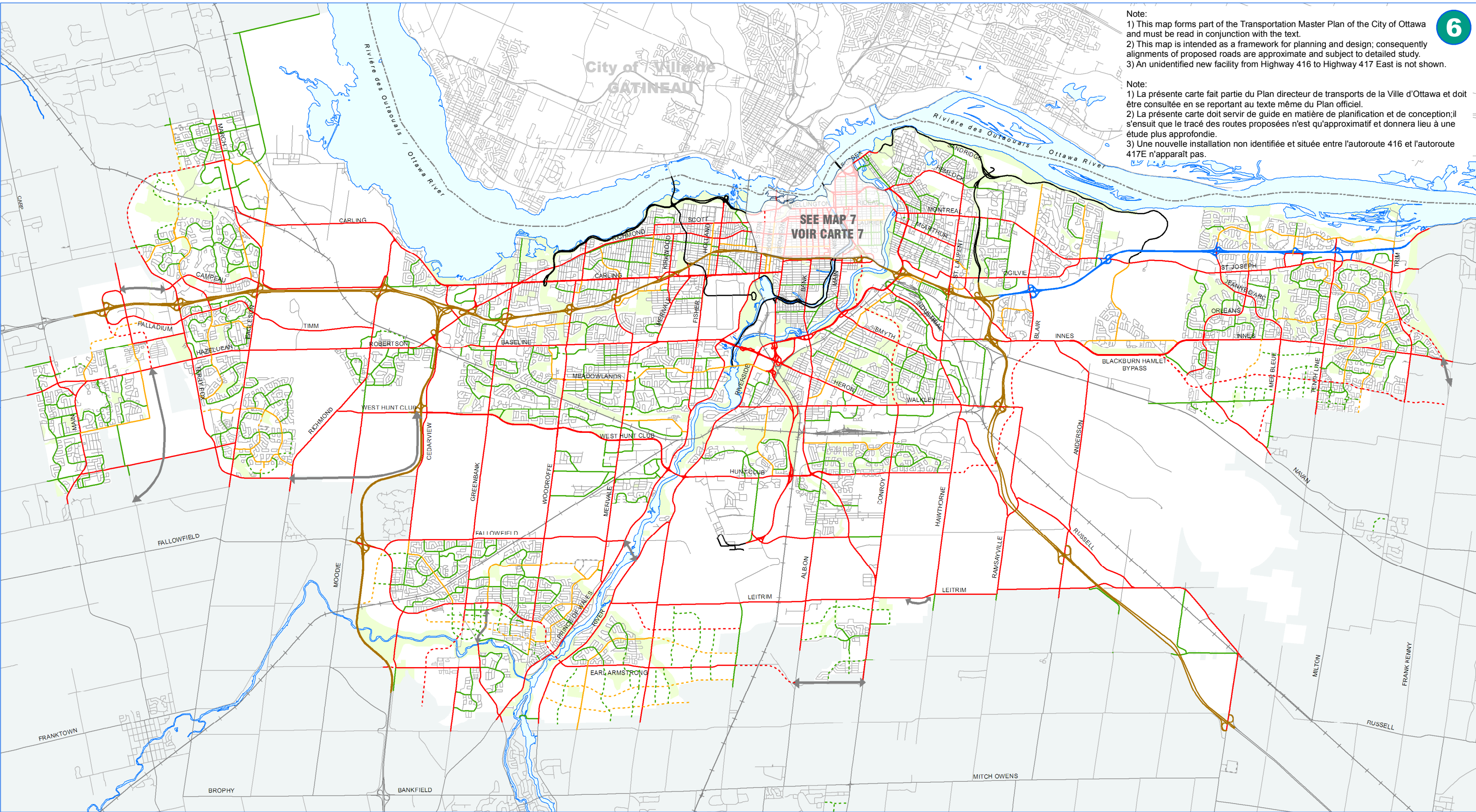
****DRAFT / ÉBAUCHE****

PLAN DIRECTEUR DES TRANSPORTS - Carte 5b

RÉSEAU DE TRANSPORT EN COMMUN RAPIDE - MISE EN ŒUVRE - PHASE 2

Note:
 1) This map forms part of the Transportation Master Plan of the City of Ottawa and must be read in conjunction with the text.
 2) This map is intended as a framework for planning and design; consequently alignments of proposed roads are approximate and subject to detailed study.
 3) An unidentified new facility from Highway 416 to Highway 417 East is not shown.

Note:
 1) La présente carte fait partie du Plan directeur de transports de la Ville d'Ottawa et doit être consultée en se reportant au texte même du Plan officiel.
 2) La présente carte doit servir de guide en matière de planification et de conception; il s'ensuit que le tracé des routes proposées n'est qu'approximatif et donnera lieu à une étude plus approfondie.
 3) Une nouvelle installation non identifiée et située entre l'autoroute 416 et l'autoroute 417E n'apparaît pas.

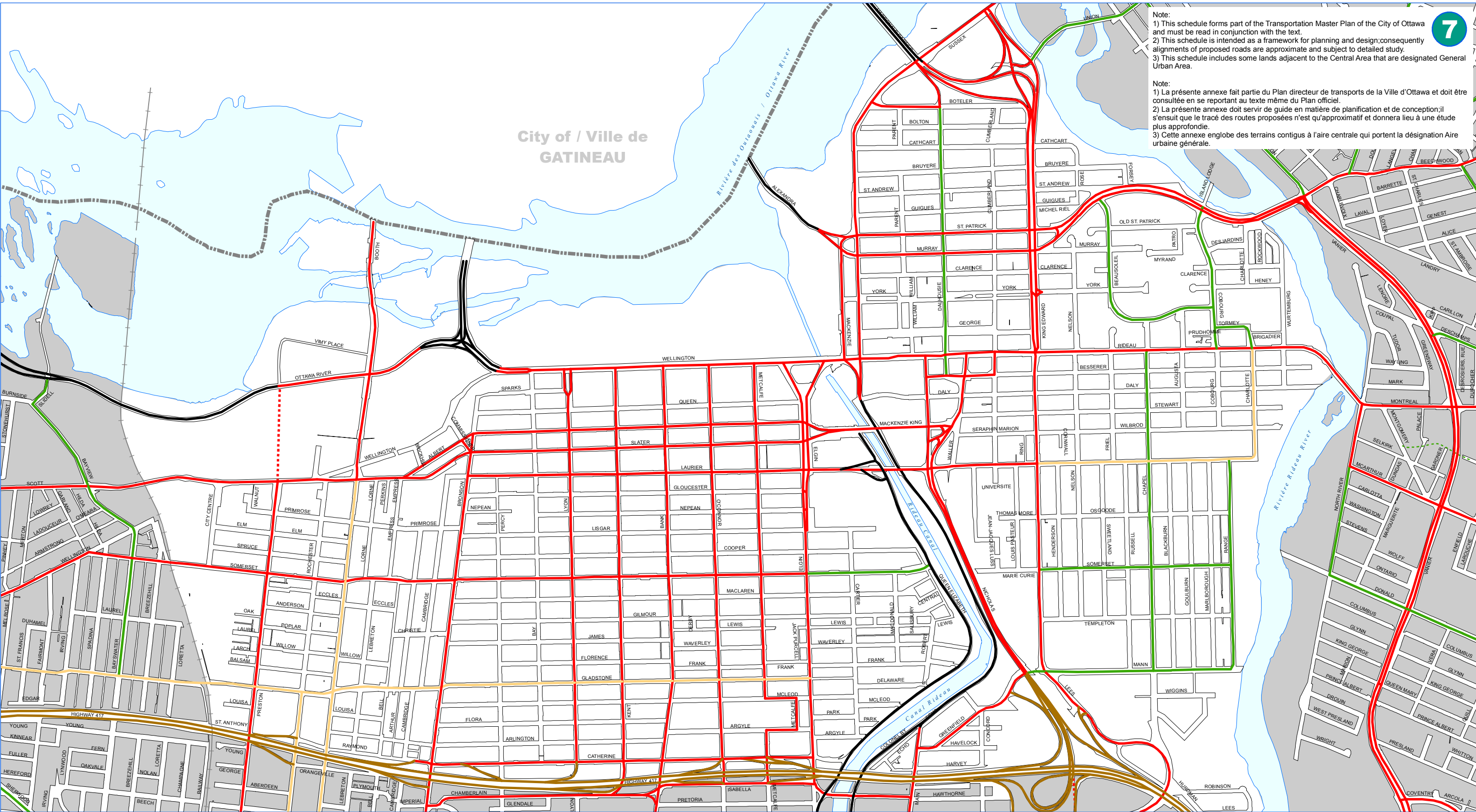


TRANSPORTATION MASTER PLAN - Map 6
URBAN ROAD NETWORK
****DRAFT / ÉBAUCHE****
 PLAN DIRECTEUR DES TRANSPORTS - Carte 6
ROUTES ARTERIAL - URBAIN

- | | | | | | |
|----------------------|---|-----------------------------|---|-------|---|
| Provincial Highway | — | Chemin de propriété fédéral | Arterial - Existing | — | Artère - Établie |
| Federally Owned Road | — | Route provinciale | Arterial - Proposed (alignment defined) | - - - | Artère - Proposé (alignement déterminée) |
| City Freeway | — | Autoroute de ville | Arterial - Conceptual (alignment undefined) | ↔ | Artère - Conceptuelle (alignement à déterminer) |
| | | | Major Collector - Existing | — | Grande collectrice - Établie |
| | | | Major Collector - Proposed | - - - | Grande collectrice - Proposé |
| | | | Collector - Existing | — | Collectrice - Établie |
| | | | Collector - Proposed | - - - | Collectrice - Proposé |

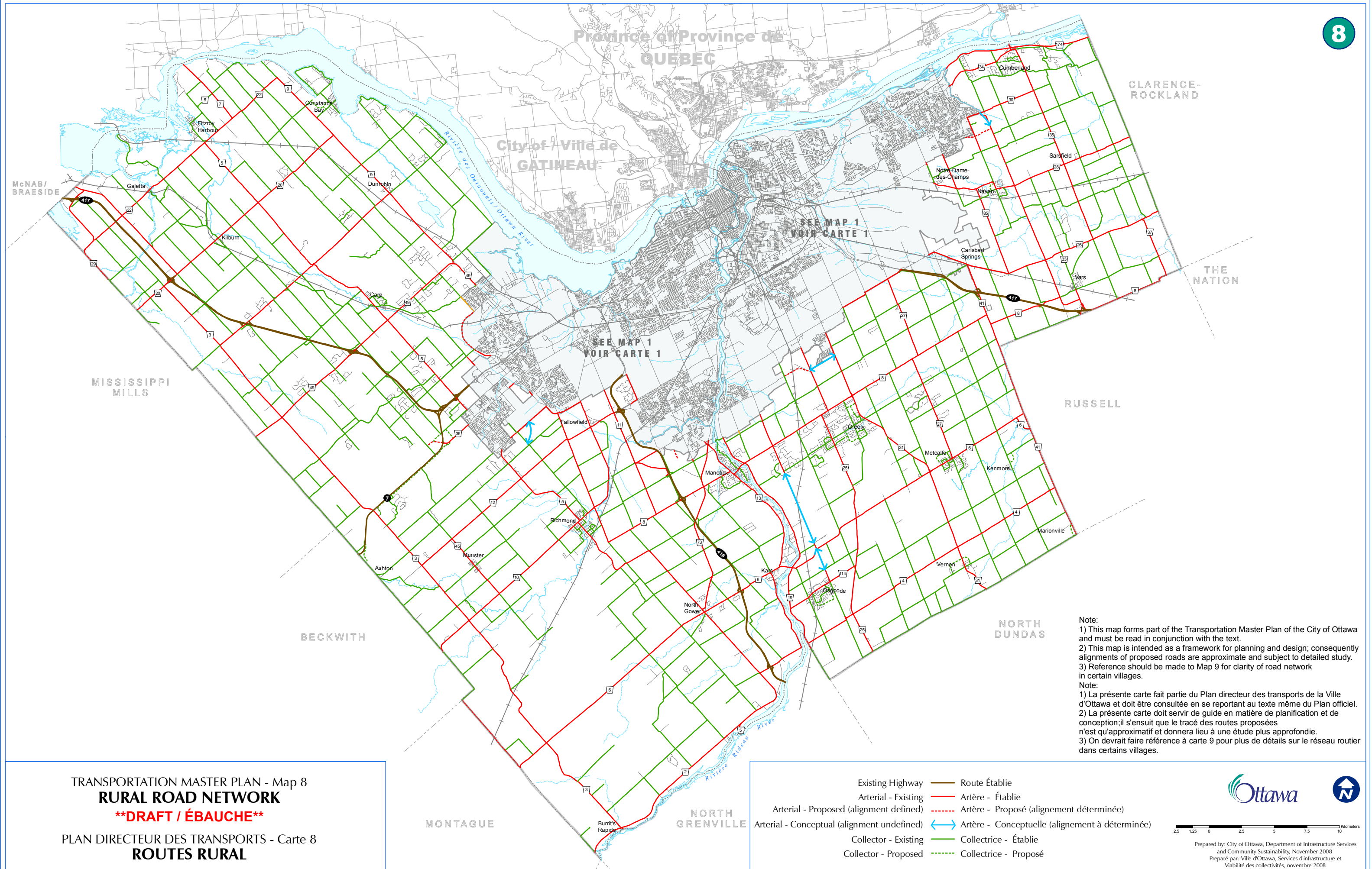
Note:
 1) This schedule forms part of the Transportation Master Plan of the City of Ottawa and must be read in conjunction with the text.
 2) This schedule is intended as a framework for planning and design; consequently alignments of proposed roads are approximate and subject to detailed study.
 3) This schedule includes some lands adjacent to the Central Area that are designated General Urban Area.

Note:
 1) La présente annexe fait partie du Plan directeur de transports de la Ville d'Ottawa et doit être consultée en se reportant au texte même du Plan officiel.
 2) La présente annexe doit servir de guide en matière de planification et de conception; il s'ensuit que le tracé des routes proposées n'est qu'approximatif et donnera lieu à une étude plus approfondie.
 3) Cette annexe englobe des terrains contigus à l'aire centrale qui portent la désignation Aire urbaine générale.



TRANSPORTATION MASTER PLAN - Map 7
CENTRAL AREA / INNER CITY ROAD NETWORK
****DRAFT / ÉBAUCHE****
 PLAN DIRECTEUR DES TRANSPORTS - Carte 7
AIRE CENTRALE / RÉSEAU ROUTIER DE L'HYPERCENTRE

- Provincial Highway — Route provinciale
- Federally Owned Road — Chemins de propriété fédéral
- Arterial - Existing — Artère - Établie
- Arterial - Proposed (alignment defined) — Artère - Proposé (alignement déterminée)
- Major Collector - Existing — Grande collectrice - Établie
- Collector - Existing — Collectrice - Établie

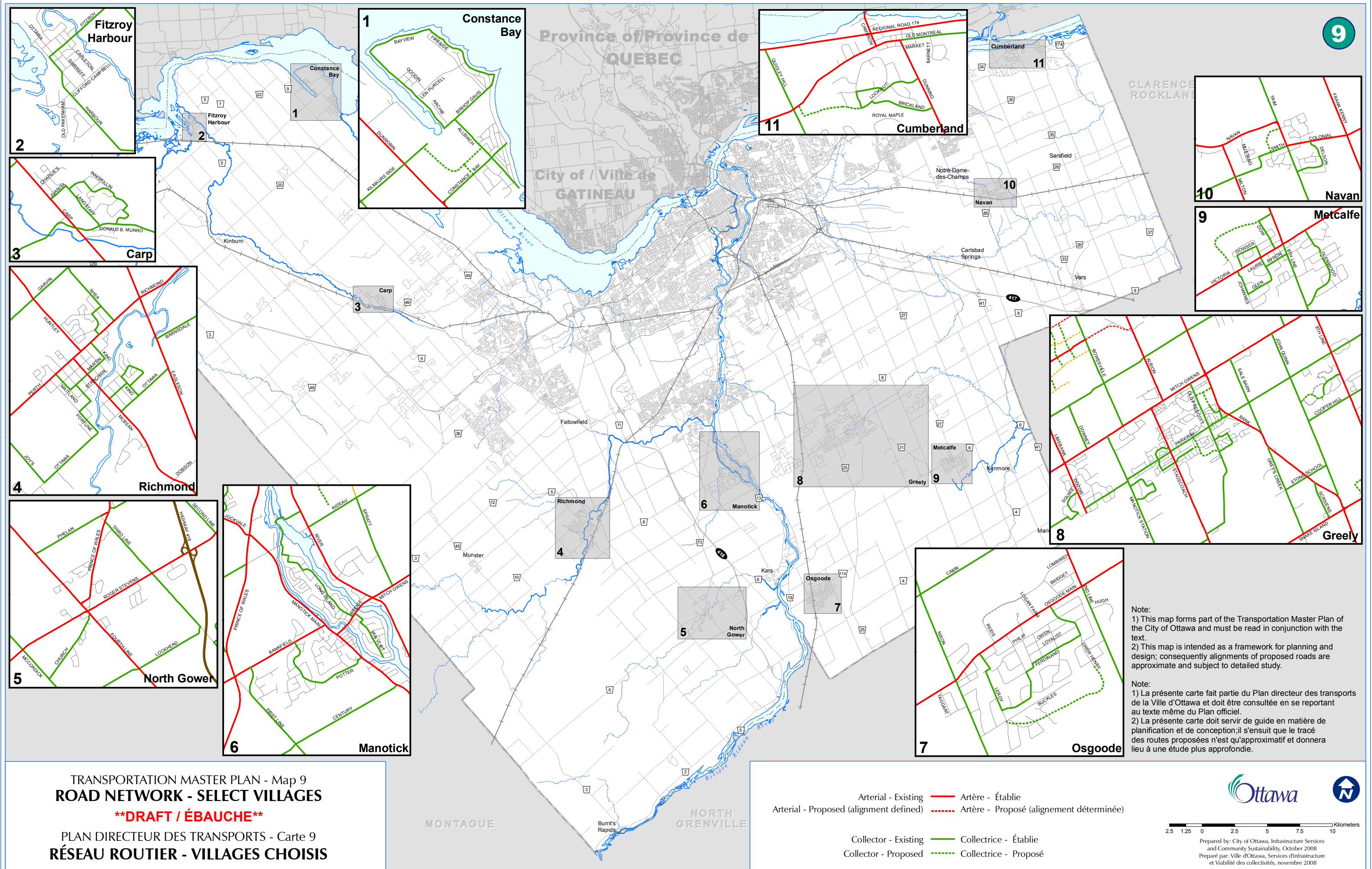


TRANSPORTATION MASTER PLAN - Map 8
RURAL ROAD NETWORK
****DRAFT / ÉBAUCHE****
 PLAN DIRECTEUR DES TRANSPORTS - Carte 8
ROUTES RURAL

- | | |
|---|---|
| Existing Highway | Route Établie |
| Arterial - Existing | Artère - Établie |
| Arterial - Proposed (alignment defined) | Artère - Proposé (alignement déterminée) |
| Arterial - Conceptual (alignment undefined) | Artère - Conceptuelle (alignement à déterminer) |
| Collector - Existing | Collectrice - Établie |
| Collector - Proposed | Collectrice - Proposé |

Note:
 1) This map forms part of the Transportation Master Plan of the City of Ottawa and must be read in conjunction with the text.
 2) This map is intended as a framework for planning and design; consequently alignments of proposed roads are approximate and subject to detailed study.
 3) Reference should be made to Map 9 for clarity of road network in certain villages.

Note:
 1) La présente carte fait partie du Plan directeur des transports de la Ville d'Ottawa et doit être consultée en se reportant au texte même du Plan officiel.
 2) La présente carte doit servir de guide en matière de planification et de conception; il s'ensuit que le tracé des routes proposées n'est qu'approximatif et donnera lieu à une étude plus approfondie.
 3) On devrait faire référence à carte 9 pour plus de détails sur le réseau routier dans certains villages.

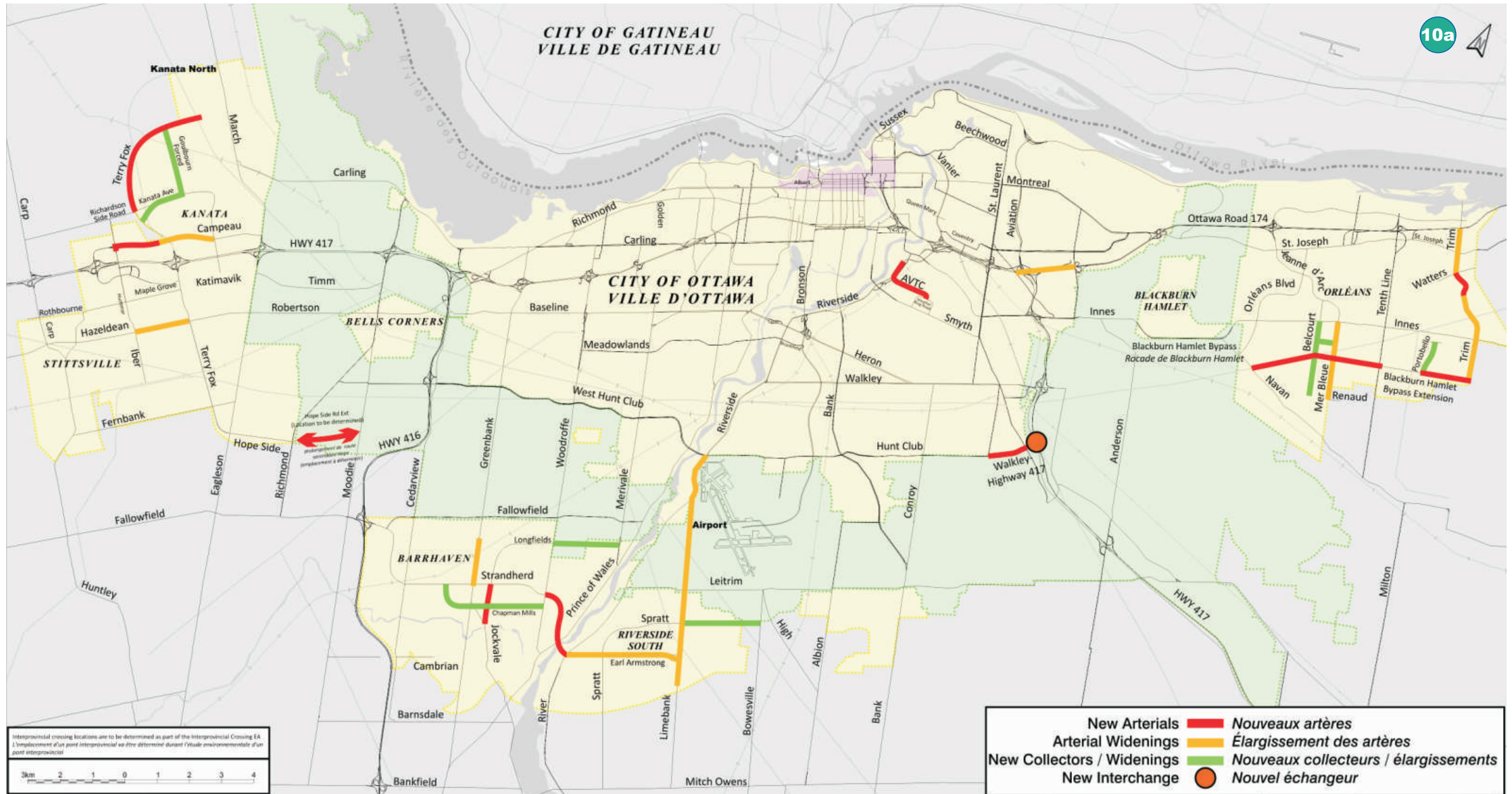


TRANSPORTATION MASTER PLAN - Map 9
ROAD NETWORK - SELECT VILLAGES
****DRAFT / ÉBAUCHE****
 PLAN DIRECTEUR DES TRANSPORTS - Carte 9
RÉSEAU ROUTIER - VILLAGES CHOISIS

Arterial - Existing	— (Solid Red)	Artère - Établie
Arterial - Proposed (alignment defined)	- - - (Dashed Red)	Artère - Proposé (alignement déterminée)
Collector - Existing	— (Solid Green)	Collectrice - Établie
Collector - Proposed	- - - (Dashed Green)	Collectrice - Proposé

Note:
 1) This map forms part of the Transportation Master Plan of the City of Ottawa and must be read in conjunction with the text.
 2) This map is intended as a framework for planning and design; consequently alignments of proposed roads are approximate and subject to detailed study.

Note:
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 2) La présente carte doit servir de guide en matière de planification et de conception; il s'ensuit que le tracé des routes proposées n'est qu'approximatif et donnera lieu à une étude plus approfondie.



TRANSPORTATION MASTER PLAN - Map 10a
URBAN ROAD NETWORK - IMPLEMENTATION - PHASE 1

****DRAFT / ÉBAUCHE****

PLAN DIRECTEUR DES TRANSPORTS - Carte 10a
ROUTES ARTERIAL - URBAIN - MISE EN ŒUVRE - PHASE 1

