

# Ottawa Cycling Plan



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## *Acknowledgements – Master Plan Report*

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The Ottawa Cycling Plan is the product of the hard work and effort of those listed above, as well as many others. We would like to thank the members of the public who gave of their time and energy in the development of this plan, especially those who participated in the public meetings and workshops, and the many others who provided written or verbal input to the study team.

This plan has been developed by City of Ottawa staff and a consultation team and was shaped by all those who participated in its creation.





## Executive Summary

The Ottawa Cycling Plan (OCP) is a long-term (20 year) strategy that consists of two phases. The first, is a ten-year implementation plan that includes network infrastructure, program initiatives and associated costs. The ten-year plan is intended to complement the City's Capital Works Plan, Transportation Master Plan and Official Plan.

The second phase, which forms the longer-term strategy (year 10 to 20) is presented as input to long-term planning initiatives. In the future when the OCP is updated (recommended every five years), elements of the long-term strategy will be reviewed and if confirmed, would be incorporated into an updated ten-year implementation plan. It is possible, however, that opportunities may occur in the shorter term to implement specific projects identified in the longer term.

The recommendations set out in the OCP support and are consistent with City Council's Strategic Directions Report (2007 – 2010) approved by Council in August 2007. The OCP responds directly to a number of Council's priorities and objectives from this report including the following<sup>1</sup>:

“Identify transportation gaps in the Transportation Master Plan and develop a plan by 2008 to fill them”

“Reduce greenhouse gas emissions by up to 20% by 2012”

“Require walking, transit and cycling oriented communities and employment centres”

“Ensure public health programs that work to promote health and prevent disease are maintained in concert with the growing population of the city”

“Develop a ten-year plan for new sidewalks, traffic lights, street lights and bicycle lanes infrastructure that have been warranted and unfunded, and close the gap by 2017”



Cycling in Ottawa

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<sup>1</sup> 2007-2010 City Strategic Directions – City of Ottawa

The plan set out in this report builds upon the existing network of on and off-road cycling facilities and programs in the City, as well as support efforts and initiatives of several area cycling groups to help improve cycling conditions in Ottawa and encourage more people to cycle more often.

### **Vision**

- The plan has been designed to achieve a vision for cycling in Ottawa by the planning horizon selected in the next update to the City's Official Plan and Transportation Master Plan (20 years plus).

The following vision statement of the plan emerged from consultations with City staff, stakeholder groups and the public.

The specific vision of the OCP is to:

*Develop a City-wide, visible and connected cycling network of on and off-road facilities that is actively used by all types of cyclists. This network would be supported by various programs, policies and strategies that would help to identify Ottawa as the premiere cycling capital of Canada, and as one of the most sustainable transportation cities in the world.*

### **Goals**

The goals of the OCP are based on input from City staff, the public as well as the goals outlined in the City's Official Plan and Transportation Master Plan. The primary goals of the Ottawa Cycling Plan are as follows:

- To build upon existing cycling initiatives by linking, connecting and expanding existing cycling facilities in the City to establish a complete, integrated and readily accessible city-wide network serving both urban and rural Ottawa;
- To make cycling safer for cyclists of all skill and age levels by providing designated on and off-road cycling facilities, while promoting cycling as an active, healthy lifestyle and also educating cyclists and motorists on safe operating practices;
- To triple the number of person-trips made by bicycle in the City from 4,500 (2001) to 12,000 by 2021; and

- To achieve the vision for cycling in Ottawa by the planning horizon selected in the next update to the City's Official Plan and Transportation Master Plan (20 years plus).

### **Approach**

The study approach that led to the development of the Ottawa Cycling Plan set out in this report consisted of the following four phases:

1. *Assess Existing Conditions:* - included an extensive inventory of existing cycling facilities; digitally mapping existing and planned cycling routes and pathways; and identifying real or perceived barriers to cycling.
2. *Develop a Cycling Network Plan:* - included establishing a vision for the network; and identified, evaluated and, ground-proofed selected cycling route alignments and confirmed the facility type by route.
3. *Review, Assess and Harmonize Cycling Policies and Programs:* - reviewed existing programs and policies from previous cycling studies completed for the former City of Ottawa and surrounding municipalities to reflect the newly amalgamated City. Then harmonized former cycling policies and programs to form a complete set suitable for the entire City of Ottawa.
4. *Document the Plan and Associated Implementation Strategy:* - synthesized all of the work completed as part of the study into a concise, informative and prescriptive "20 year plan of action", to serve as a guide for the City in its efforts to improve the state of cycling in Ottawa.

### **Public and Staff Consultation**

The central premise and a requirement in the development of the Ottawa Cycling Plan was to actively involve members of the public, and staff from affected City Departments, stakeholder groups and advisory committees. A project Technical Advisory Committee was also established and other stakeholders were identified and consulted in all phases of the study. Key activities and tasks included:

- Meetings with Project and City Advisory Committees and City Staff;



Decima Research (2003)



OCP Public Open House held at Jean Piggott Hall, City Hall – Spring, 2004

- A review of a formal Public Attitude Survey undertaken by Decima Research;
- An initial Public Open House held in the Spring of 2004 at the Jean Piggott Hall, (City Hall);
- Posting of newsletters on the City of Ottawa website;
- Conducting a second in a series of Public Workshops in the summer of 2004 at the Tom Brown Arena;
- Circulating the draft plan to key stakeholders and posting it on the City website for public review and comment;
- Conducting a Public Open House in the Spring of 2005 to provide another opportunity for the public and stakeholders to review the key components of the Draft Plan and to provide their input;
- Posting the draft report on the City’s website for public and stakeholder review and comment (8 months);
- Incorporating public and stakeholder input in a revised draft report, including establishing a ten-year implementation plan and a longer term strategy;
- Incorporating input from City Council’s Strategic Directions Report (2007 – 2010); and
- Issuing a Final Draft Report in January 2008.

The Ottawa Cycling Plan is based on four “cornerstones” or principles developed to guide the plan’s implementation. The four cornerstones include:

- i) ***The Proposed Ottawa Cycling Network***; outlines the approach used to expand and connect existing on and off-road cycling facilities in the urban and rural areas of the City to form a complete city-wide cycling network;
- ii) ***Making Ottawa More Cycling Friendly***; includes a set of recommended policies, practices and design considerations to improve cycling conditions on all Ottawa streets;
- iii) ***Outreach***; outlines a set of existing and proposed programs recommended to educate, encourage, and promote cycling in the City; and

iv) **Implementation;** provides the tools necessary to prioritize, estimate costs and implement the recommendations in the OCP.

Together, these four cornerstones represent the four key “pillars” of the OCP. Since all of these “pillars” are integrated, they are all required to support the goals and to achieve the ultimate vision of the plan.

**i) The Proposed Cycling Network**

The OCP contains a network development approach, which involves a set of iterative steps that were taken to establish the recommended cycling network for the City of Ottawa. The network development approach includes:

- *An inventory of existing conditions:* which compiles and digitally maps all existing or previously planned cycling facilities to establish a base condition;
- *A route selection process:* which includes a set of principles that derive qualitative and quantitative criteria for determining the preferred facility type;
- *Determining candidate routes:* which involves mapping and evaluating the many potential routes identified by city staff, stakeholders, the public and the study team; and
- *Finalizing cycling network:* this involves determining a set of recommended cycling routes and evaluating each to determine its feasibility for inclusion as part of the cycling network.

The cycling network developed for this plan is comprised of on-road designated cycling facilities including Signed-Only cycling routes, Paved Shoulders and Bike Lanes. Off-road cycling routes included in the cycling network consist of paved and unpaved Multi-Use Pathways.

The cycling network is also designed as a hierarchy of a primary “Spine” system and a secondary “Community” system. The proposed Spine system consists of cycling routes designed to provide direct links between major commercial, employment, institutional, residential and tourist nodes and destinations throughout the urban and rural areas of the City.



Recreational Cycling in Ottawa



Utilitarian Cycling

The secondary Community system consists of cycling routes that feed into the Spine system, which take advantage of quieter streets (less traffic), providing links to local destinations such as schools, community centres, residential areas, local stores and commercial nodes, parks and recreational areas.

### *ii) Making Ottawa More Cycling Friendly*

One of the key principles of the Ottawa Cycling Plan is to make Ottawa more cycling-friendly and to ensure that all City streets are designed and maintained in a way that takes into account the needs of cyclists, as well as other road users. Bicycle-friendly features include:



Children are cyclists too!

- Creating “bicycle-friendly” streets by improving design and signing on roadways and at intersections, bridges and underpasses to better accommodate cyclists;
- Providing secure, safe and convenient bicycle parking facilities at commercial, institutional, educational and employment locations to encourage increased bicycle use; and
- Integrating cycling with transit by continuing programs such as “Bike & Ride” and “Rack & Roll”, allowing bicycles on the O-Train, providing bicycle parking and connections to the Spine cycling network at key transit stops.

The OCP provides many recommendations on implementing bicycle-friendly features for the City of Ottawa that support cycling in the City that are in addition to the proposed cycling network.

### iii) Outreach

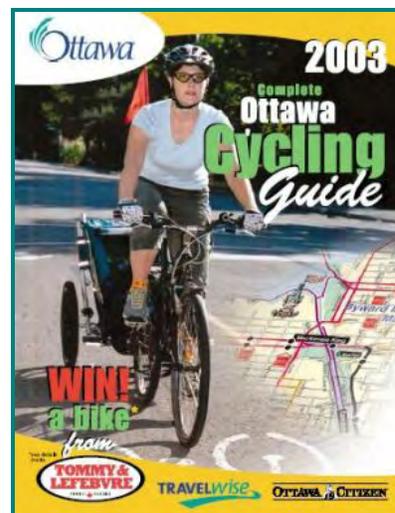
The Ottawa Cycling Plan is more than just a network of designated on and off-road cycling facilities. It also provides a strategic framework of “Outreach” services, including educational, promotional and enforcement programs to make cycling a feasible, safe and desirable alternative to automobile travel. Outreach services of the OCP include:

- Strong and focused programs aimed at encouraging and promoting cycling as well as a supporting marketing strategy;
- Recommendations for the City to provide funding for cycling education programs;
- Recommendations for the enforcement of cycling policies and practices to increase cycling safety and reduce the potential for incidents that may cause property damage, injury or death; and
- Recommendations for promoting bicycle tourism in Ottawa and developing the City into a primary destination for cyclists.

### iv) Implementation

One of the most important guiding principles of the Ottawa Cycling Plan is to implement the plan so that the vision and goals of the plan can be achieved. The Ottawa Cycling Plan provides a clear and feasible implementation strategy for all of the recommendations in the plan, as well as infrastructure and programming cost estimates. A practical 20 year strategy that identifies a recommended approach to implement the first of two 10 year phases is also provided.

Prioritizing for the types of facilities and timeframe that these facilities should be developed are illustrated in **Table EX.1**.



City of Ottawa 2003 Cycling Guide

Table EX.1: Proposed Length of Bikeway Network by Facility Type

Facility Type	Distance (km)			
	Existing	Proposed		
		Phase 1	Phase 2	Total
Bike Lanes <sup>(1)</sup>	119.0	81.6	52.7	253.3
Paved Shoulders	122.8	165.7	591.0	879.5
Wide Curb Lanes on Multi-Lane Road	28.7	58.4	38.5	125.6
Wide Curb Lanes on Two Lane Road	12.1	498.8	123.1	634.0
Off-Road Pathway (City) <sup>(2)</sup>	151.1	82.6	214.2	447.9
Off-Road Pathway (NCC)	107.1	8.9	51.8	167.8
	<b>540.8</b>	<b>896.0</b>	<b>1071.3</b>	<b>2508.1</b>

(1) Distances for bike lanes include total length of bike lanes on **both sides** of the road. For example, 119.0 km of existing Bike Lanes refers to 119.0 km of roads with bike lanes on both sides.

(2) Proposed to form part of network. Does not include all existing pathways.

### *How much will it cost?*

Funding for the Ottawa Cycling Plan should be budgeted by Council and the City's partners over the 10-year timeframe. The Ottawa Cycling Plan is expected to cost approximately **\$26.6 million** over 10 years. The specific dollar amount allocated per year may fluctuate depending on Council approved budget amounts and other Public Works and Services Department priorities, which would allow new cycling facilities to be incorporated into the City's cycling network. The majority of the OCP capital costs related to proposed on-road cycling facilities are provided as component costs within planned roadway reconstruction / resurfacing projects or other City and public works projects.

The plan also provides a monitoring strategy to assess the implementation results and to serve as feedback for the on-going refinement of the plan as it is implemented.

## Conclusion

The Ottawa Cycling Plan (OCP) set out in this document is a product of extensive study and consultation. This plan is intended to guide the City over the next 20 years. The proposed network identified in this plan, along with the supporting policies, programs and recommendations are intended to encourage and promote better conditions for cycling in the City of Ottawa. This plan is also meant to assist the City in achieving its cycling goals for Ottawa, including those set out in Ottawa's Transportation Master Plan (2003) to triple the number of cycling-trips made from 4,500 in 2001 to 12,000 by 2021. Most importantly however, this plan provides the means to implement a city-wide cycling network that can be enjoyed by all residents and visitors in the City of Ottawa.

**“Bicycling is surely the most sustainable transport mode. Bikes emit virtually no GHG at all. Unlike the private car, bikes cause no pollution of any kind and use no non-renewable energy sources. Moreover, they require far less roadway and parking space, thus helping to relieve the growing congestion problems in most cities. Bicycling is also a very equitable mode of transport, since it is affordable by virtually everyone, and with proper training, most people can learn to cycle. Finally, cycling is an extraordinarily valuable form of cardiovascular exercise that improves both physical and mental health.”**

Source: Cycling Trends and Policies in Canadian Cities, John Pucher and Ralph Buehler (2003)



## 1.0 Introduction

The Ottawa Cycling Plan (OCP) is a long-term (20 year) strategy that consists of two phases. The first, is a ten-year implementation plan and includes network infrastructure, program initiatives and associated costs. The ten-year plan is intended to complement the City’s Capital Works Plan, Transportation Master Plan and the Official Plan.

The second phase, which forms the longer-term strategy (year 10 to 20) is presented as input to long-term planning initiatives by City staff and therefore, had not been assigned a cost. In the future when the OCP is updated (recommended every five years), elements of the long-term strategy will be reviewed and if confirmed, would be incorporated into an updated ten-year implementation plan. It is possible, however, that opportunities may occur in the shorter term to implement specific projects identified in the longer term.

The recommendations set out in the OCP support and are consistent with City Council’s Strategic Directions Report (2007 – 2010) approved by Council in August 2007. The OCP responds directly to a number of Council’s priorities and objectives from this report including the following<sup>1</sup>:

“Identify transportation gaps in the Transportation Master Plan and develop a plan by 2008 to fill them”

“Reduce greenhouse gas emissions by up to 20% by 2012”

“Require walking, transit and cycling oriented communities and employment centres”

“Ensure public health programs that work to promote health and prevent disease are maintained in concert with the growing population of the city”

“Develop a ten-year plan for new sidewalks, traffic lights, street lights and bicycle lanes infrastructure that have been warranted and unfunded, and close the gap by 2017”



Cycling in urban Ottawa

**The purpose of the Plan is to build upon the existing network of on and off-road cycling facilities and programs in the City.**

<sup>1</sup> 2007–2010 City Strategic Directions – City of Ottawa

**“With over a fourth of trips in Canadian cities less than 2 miles long – a distance that can easily be covered by bike – there is obviously much potential for increasing cycling and thus reducing car use that contributes so much to GHG emissions.”**

Source: *Cycling Trends and Policies in Canadian Cities*, John Pucher and Ralph Buehler



Cycling is an excellent method of enhancing personal fitness and health while encouraging an active lifestyle for the entire family.

### 1.1 *The Need for a Plan*

As stated in the Official Plan (2003), it is expected that the population of the City of Ottawa will grow by 50% within the next 20 years, which would equate to 400,000 new residents and 1.2 million new trips every day on City roads, the transit system and on cycling routes and pathways.

Cycling plans have been developed for many of the 12 municipalities that formerly comprised the Ottawa region. The amalgamation of these former municipalities into the new City of Ottawa, which occurred on January 1, 2001, was a key driving factor in the City deciding to develop a new comprehensive cycling plan to serve the City of Ottawa.

Following amalgamation, the City of Ottawa developed a growth management strategy as part of its new Official Plan and a Transportation Master Plan. They establish a strong planning framework that identifies future strategies to make cycling more of a contributor to the quality of life of Ottawa’s residents. The Cycling Plan documented in this report was prepared to identify the resources and provide the “tools” necessary to implement these strategies for the City of Ottawa.

The City of Ottawa today (2007) covers an area of approximately 2,760 square kilometres; of which about 10% is urban while the remaining are agricultural land, villages, forested lands, and wetlands. The City currently owns and operates about 6,000 km of roads including about 1,300 km of arterial roads, 1,700 km of collector roads and the remaining 3,000 km of local roads. The City also owns and operates 1,500 km of sidewalks, 300 km of multi-use pathways and 150 km of on-road cycling facilities.

In an effort to meet the transportation demands of Ottawa residents over the next 20 years, the City intends to double the number of transit vehicles and build more bus lanes, bicycle lanes, sidewalks and pathways, park and ride lots and carpool

lots.<sup>2</sup> This infrastructure is required to serve the increasing travel demands of Ottawa residents and make non - motor vehicle driving options more attractive.

Cycling is already a popular travel mode in the City of Ottawa. In fact, Ottawa is one of the leading cities in Canada, whose residents choose cycling as a travel mode. A recent 2004 article in the Ottawa Citizen reports that “Ottawa tops continent in commuting by bicycle.”<sup>3</sup>

In addition, according to the 2001 Canadian Census, the Ottawa area experiences a higher level of cycling (journey to work trips) at 1.9% compared to 0.8% for the City of Toronto. Moreover, recent research also suggests Ottawa “...has the highest bike share of travel of any major city in all of North America.”<sup>4</sup> However, more must be done if Ottawa is to meet its future transportation demands.

**Ottawa “...has the highest bike share of travel of any major city in all of North America.”<sup>3</sup>**

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<sup>2</sup> Ottawa 20/20 Transportation Master Plan, City of Ottawa 2003.

<sup>3</sup> The Ottawa Citizen, Daniel Tencer, Friday, February 20, 2004.

<sup>4</sup> Cycling Trends and Policies in Canadian Cities, John Pucher and Ralph Bueler, Rutgers University, 2005

# Ottawa tops continent in commuting by bicycle

DANIEL TENCER  
THE OTTAWA CITIZEN  
FRIDAY, FEBRUARY 20, 2004

Ottawa has far more bicycle commuters than any other city in North America, according to a report released today.

The study, conducted by the British firm Market Opinion Research International, places Ottawa at the top of a list of North American metropolitan areas with more than 900,000 people. With nearly three per cent of Ottawans commuting to work by bike, the city is far ahead of second-ranking Vancouver, where slightly less than two per cent of commuters use bicycles.

The highest ranking U.S. city on the list was San Francisco, in fourth place, with 1.4 per cent of its commuters using bikes.

Montreal ranked first in pedestrian commuters -- 7.4 per cent -- with New York and Ottawa tied for second at 6.7 per cent.

For Ottawa Mayor Bob Chiarelli, the survey results are a vindication of the city's long-standing policy to develop and promote the use of an extensive network of cycle paths.

"It reflects the value system that the residents of Ottawa have, and it also reflects the investments that have been made over a significant number of years," the mayor said.

Mr. Chiarelli credited the National Capital Commission with creating the greenspaces that host much of the city's bicycle path grid, which is part of a network of more than 170 kilometres of pathways and parkways available to cyclists.

Ned Lathrop, general manager of the city of Ottawa's planning department, said that the survey's results were "exactly in sync with the new transportation master plan."

"Our present policy creates and identifies bike lanes within our major arterial system," he said. "All you have to do is look at the recently renovated Victoria Bridge, which has bike lanes built into it."

George Dark of Urban Strategies, the world-renowned agency charged with developing a new master plan for Ottawa, says making the city accommodating for bikers is an essential detail in urban planning.

"If there's going to be biking downtown it's (a question of) making city streets calm enough and safe enough for you to do that," he said. "It gets more

complicated in the centre, because you don't have the park space continuity and connectivity to stitch (bike paths) together."

Mr. Dark also pointed out that cyclists must have somewhere to put their bikes when they arrive at work.

"You need a safe place to put your bike, so requiring major places to put in bicycle storage facilities is a very important thing to do."

However, Tom Stratton, vice-president of the Ottawa Bicycle Club -- the largest cycle club of its kind in Canada -- said effective bicycle commuting also requires continuing driver education.

"Bicycles are also road vehicles," he said, adding that proper sharing of roads is a must if Ottawa is to be conducive to bicycle commuters. While Mr. Stratton did not say that there is a specific problem with road sharing in Ottawa, he did put driver education at the top of his list of priorities for improving Ottawa's cycling environment.

The study's comparison of Canadian and U.S. commuters paints a picture of two countries with diverging philosophies about how to get to work.

In their comparison chart of car use for commuting, large American cities such as Detroit, Dallas and Houston topped the list, with more than 90 per cent of commuters driving to work, while Montreal, Toronto and New York City were at the bottom, with less than 70 per cent choosing the automobile.

Overall, Canada's four largest metropolitan areas ranked in the top seven cities for public transit use, with only New York ranking higher than Toronto and Montreal in the percentage of commuters who shunned the car in favour of mass transit.

Mr. Lathrop said that the use of mass transit is critical to the new design for transportation in Ottawa.

"The long-term plan moves aggressively on changing the habits of city dwellers -- and I'm including the suburban city dweller -- to move from the use of the automobile to use transit."

Mr. Lathrop said that the city's goal was to increase the number of mass transit commuters in Ottawa from 14 per cent of total commuters to 30 per cent.

Most cyclists in Ottawa and other cities alike can be categorized into two distinct categories, Utilitarian Cyclists, and Recreational Cyclists.

**Utilitarian Cyclists** are those who ride a bicycle for utilitarian purposes such as commuting to work or school, running errands, going shopping or visiting friends. Utilitarian cyclists may also ride a bicycle for recreation or fitness purposes.

**Recreational Cyclists** are those who ride a bicycle for recreation and fitness purposes, including tourists who choose to cycle when visiting the City. Recreational cyclists do not typically ride a bicycle for utilitarian purposes.

It should be noted that within these two main categories of “cyclist-types”, there is a wide range of skill and age levels among them and considerable variation in typical trip length and purpose.

One of the goals set out in Ottawa’s Transportation Master Plan is to increase the cycling modal share in the afternoon peak hour from 1.7% (2001) to 3% by the year 2021. In order to achieve this goal, address the needs of existing cyclists and encourage more cycling use in the future, a comprehensive plan must be developed, approved by Council and funded to ensure that the needs of cyclists are properly addressed today and into the future.<sup>5</sup> The Ottawa Cycling Plan has been designed to achieve this key goal of the Transportation Master Plan. Details of this Ottawa Cycling Plan will be input into the 2009 TMP and OP.

**...the goal set out in Ottawa’s Transportation Master Plan is to increase the cycling modal share from 1.7% (2001) to 3% by the year 2020.**

## **1.2 Moving Forward**

The development of the Ottawa Cycling Plan was guided by a vision statement, supporting goals and four “cornerstones” or guiding principles, each with a specific set of objectives and recommendations that together form the plan. A study purpose was defined along with a set of study objectives. The comprehensive study approach was established with input from key stakeholders and the general public, and was then executed. The following subsections of

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<sup>5</sup> Ottawa Transportation Master Plan – 3.4.3 Walking and Cycling; City of Ottawa 2003.

this chapter focus on introducing the Plan’s Vision, Goals and Guiding Principles, and provide an overview of the report's structure.

### Vision of the Plan

**“Develop a city-wide, visible and connected cycling network of on and off-road facilities that is actively used by all types of cyclists. This network will be supported by various programs, policies and strategies that will help to identify Ottawa as the premiere cycling capital of Canada, and as one of the most sustainable transportation cities in the world.”**

**It is anticipated that this vision for cycling in Ottawa can be realized in 20 years through the implementation of this ten year plan and longer term strategy with the commitment of Council, City staff and the City’s partners.**

### **1.2.1 Vision of the Plan**

As indicated in Section 1.0 of this chapter, the purpose of the OCP is to build upon the existing network of on and off-road cycling facilities in the City and improve programs to support and encourage more people of all ages to cycle more often.

Specifically, the vision of the OCP is to:

*“Develop a city-wide, visible and connected cycling network of on and off-road facilities that is actively used by all types of cyclists. This network will be supported by various programs, policies and strategies that will help to identify Ottawa as the premiere cycling capital of Canada, and as one of the most sustainable transportation cities in the world.”*

It is anticipated that this vision for cycling in Ottawa can be realized in 20 years through the implementation of this ten year plan and longer term strategy with the commitment of Council, City staff and the City’s partners.

### **1.2.2 Goals**

The goals of the OCP were determined based on input from City staff, the public, and are also based upon the goals outlined in the City’s Official Plan and Transportation Master Plan (2003). The cycling goals identified in Ottawa’s Official Plan and Transportation Master Plan (2003) are to increase the cycling modal share from 1.7% (as of 2001) to 3% by the year 2021 during the afternoon peak hour. Based on the expected population growth in the City of Ottawa over the next 20 years, this is expected to triple the total number of cycling person-trips in the City by the year 2021. This will be updated in the current updates to the new Official Plan and Transportation Master Plan planning horizon. **Table 1.1** identifies the projected walking and cycling demand as set out in Ottawa’s Transportation Master Plan, and indicates the expected growth in the cycling modal share and person-trips.



**Table 1.1: Projected Walking and Cycling Demand**

Mode	Modal Share (Proportion of all person-trips)		Person-Trips		
	2001	2021	2001	2021	Change
Walking	9.6%	10%	24,000	40,000	+67%
Cycling	1.7%	3%	4,500	12,000	+167%

Source: Ottawa's Transportation Master Plan, Figure 3.8 – Projected Walking and Cycling Demand – City-Wide (Afternoon Peak Hour)

The primary goals of the OCP build upon the goals set out in the City's approved Transportation Master Plan and Official Plan. The OCP goals are to:

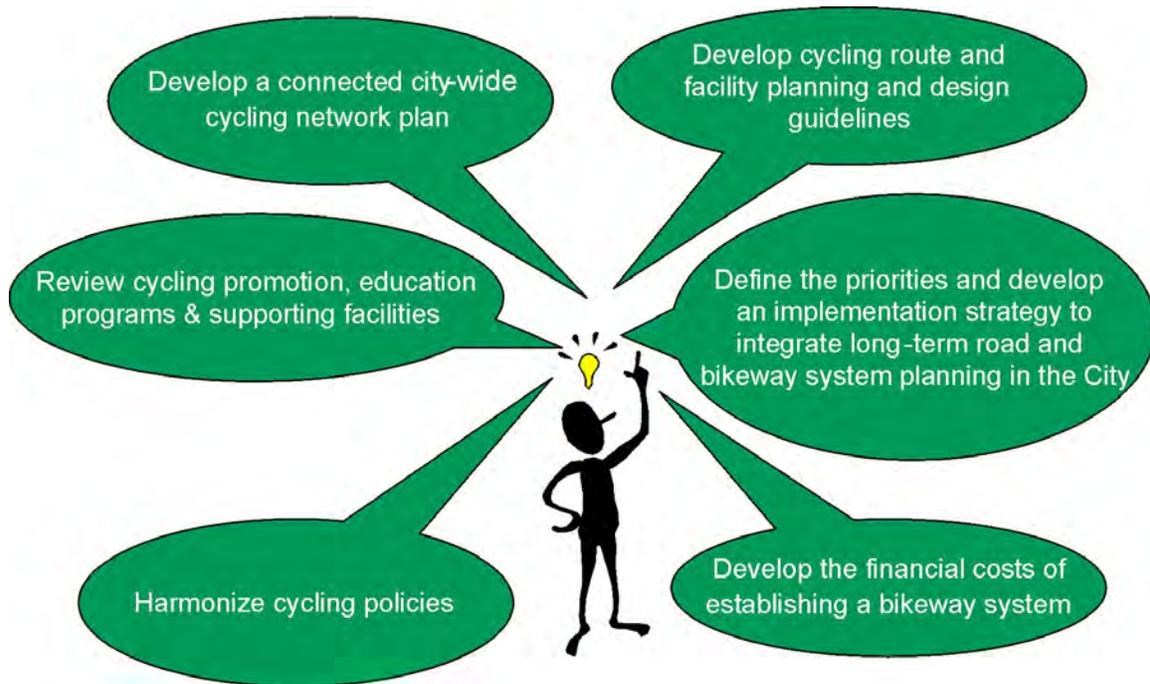
- Build upon existing cycling initiatives by linking, connecting and expanding existing cycling facilities in the City to establish a complete, integrated and readily accessible city-wide network serving both urban and rural Ottawa;
- Make cycling safer for cyclists of all skill and age levels by providing designated on and off-road cycling facilities, while promoting cycling as an active, healthy lifestyle and also educating cyclists and motorists on safe operating practices;
- Increase the cycling modal share from 1.7% (2001) to 3% in 20 years, as set out in Ottawa's Transportation Master Plan and Official Plan (2003); and
- Achieve the vision for cycling in Ottawa by the planning horizon selected in the next update to the City's Official Plan and Transportation Master Plan (20 years plus).

### **1.2.3 Plan Development Objectives**

A number of objectives were developed to guide the development of the plan. Following consideration of input from City staff, the public and key stakeholders and a series of public consultation meetings early on in the study, the

initial objectives were refined into a set of six primary objectives intended to guide the development of the plan. These are illustrated in **Figure 1-1**.

**Figure 1-1: Plan Development Objectives**



### **1. Develop a connected city-wide cycling network plan**

A continuous network must be created that overcomes barriers and creates links among communities within the City; while at the same time promotes connections to surrounding municipalities. It is important to create a seamless, clearly marked and signed network, featuring linkages to existing and planned on-road bike routes and off-road routes in the City and the surrounding area.

### **2. Develop cycling route and facility planning and design guidelines**

A stand-alone network and typical design solutions are not enough. The plan must address design issues that are appropriate for the City of Ottawa yet are still within reasonable, industry accepted standards.

**3. Review cycling promotion, education programs and supporting facilities**

The plan should review existing outreach efforts by the City and its partners and recommend content and delivery methods.

This should include educating all road users, including cyclists, motorists and pedestrians on intersection policies, right-of-way policies, signing plans, parking and end-of-trip facilities and promotion.

**4. Harmonize cycling policies**

The plan should review all existing policies that relate to cycling, including those in planning documents from area municipalities prior to amalgamation. Out of this review should emerge a set of strategic policies that can be included in the City’s Official Plan and / or Transportation Master Plan.

**5. Define the priorities and develop an implementation strategy to integrate long-term road and bikeway system planning in the City**

Priorities for implementation will be established. This should be in combination with an understanding of capital project forecasts that will allow for the development of an effective implementation plan that considers planned capital projects and at the same time recognizes network development “where the users want to be”.

**6. Develop the financial costs of establishing a bikeway system**

Everyone needs to know what the system costs. A realistic calculation of network development costs plus the cost of other programs including education programs and end-of-trip facilities and promotion will be developed, to be implemented over the long term.

These six objectives were used to guide the development of the plan.

### 1.2.4 OCP “Four Cornerstones”

The successful fulfilment of the goals and the vision of the OCP are dependent on the following four principles or “cornerstones” that are intended to guide its implementation. These include:

- i) Developing a *Network* approach to expanding and connecting existing on and off-road cycling facilities in the urban and rural areas of the city to form a complete city-wide cycling network;
- ii) Developing a set of recommendations to make Ottawa “*More Cycling Friendly*”;
- iii) Developing an *Outreach* program to educate, encourage, and promote cycling in the City; and
- iv) Developing an *Implementation Strategy* that provides the tools necessary to prioritize, estimate costs and implement the recommendations in the OCP.

Together, these four cornerstones represent the four key “pillars” of the OCP. All four of these “pillars” need to be integrated and thus are all required to support the goals to achieve the vision of the plan.

### 1.2.5 Plan Overview

The OCP has been designed to be a living document that is flexible and capable of evolving over time. It is intended to manage and maintain existing programs and infrastructure, while guiding the development and implementation of new and or improved cycling facilities and programs. Implementation of the OCP is expected to encourage people to leave their cars at home and cycle, especially for utilitarian purposes.

Based on previous municipal initiatives and activities, plus the extensive consultation undertaken during the preparation of the OCP, a clear direction for cycling in Ottawa has emerged. This direction has been captured in a plan that the City is confident will reinforce Ottawa’s position as one of the best cycling cities in North America.

**The OCP has been designed to be a living document that is flexible and capable of evolving over time.**

**The OCP is more than a proposed network of cycling facilities. It establishes a clear vision for cycling that is supported by a comprehensive set of goals and objectives that address the need for education and promotion as well as the provision of cycling facilities.**



The OCP is more than a proposed network of cycling facilities. It establishes a clear vision for cycling that is supported by a comprehensive set of goals and objectives that address the need for education and promotion as well as the provision of cycling facilities.

The four main principles or “cornerstones” of the OCP establish the supporting base and foundation of this plan. The following chapters detail each of these key principles. The objectives and recommendations associated with these four guiding principles provide direction as to how each “cornerstone” of the plan can be established.

**Chapter 2** establishes the existing conditions or “context” for cycling in Ottawa.

**Chapter 3** provides direction for the first cornerstone of the plan, *the Cycling Network*. This chapter also details the process by which the proposed Ottawa Cycling Network was developed.

**Chapter 4** provides direction on the second cornerstone of the plan, *Making Ottawa More Cycling Friendly*. Recommendations for making Ottawa more “cycling-friendly” through the creation of bicycle-friendly streets and the installation of cycling supportive facilities to make cycling “easier” in Ottawa are also detailed in this chapter.

**Chapter 5** details the third cornerstone of the plan, *Outreach*. It provides a strategic framework of outreach support services for the OCP. The recommended framework addressing the need for the continuation and improvement of cycling initiatives in the areas of education, encouragement and promotion, and enforcement are all detailed in this chapter.

**Chapter 6**, the final chapter, details the fourth cornerstone of the plan, *Implementation*. It outlines a clear and feasible strategy for implementing the recommendations of the OCP. It does this by defining a recommended process, and set of steps considered necessary to implement the plan.

Each chapter includes a number of specific *technical recommendations and supporting policy recommendations* associated with the topic area of each chapter.

**The four main principles or “cornerstones” of this plan establish the supporting base and foundation of this plan.**

**"Planning" is typically considered an action oriented activity that takes existing knowledge, adds to it new ideas, balances public and private interests and then generates a plan or set of steps that can guide change while seeking to achieve a desired goal or set of goals.**

The technical recommendations identified in this report are intended to serve as tools to guide the implementation of the OCP and are specific to the four “cornerstones” of the study. These recommendations serve as a set of guidelines that articulate the technical and more detailed action plans specific to the key components of the OCP.

Appendices I and II, the Planning and Design Guidelines, and the General Policies, respectively, are intended to aid City staff in implementing the Ottawa Cycling Plan.

The Planning and Design Guidelines (Appendix I) focus on specific design features that should be considered when implementing the proposed Ottawa Cycling Network. Some of the key guidelines described in Appendix I are also introduced in the main OCP report.

Appendix II provides a recommended set of more general and “strategic” policies regarding cycling that should be considered for inclusion in the City’s next update to both the Transportation Master Plan and City of Ottawa Official Plan. These strategic policies represent a harmonization of cycling supportive policies from the former pre-amalgamated Ottawa area municipalities and current City of Ottawa Official Plan and Transportation Master Plan (2003).

Moving forward requires planning. “Planning” is typically considered an action oriented activity that takes existing knowledge, adds to it new ideas, balances public and private interests and then generates a plan or set of steps that can guide change while seeking to achieve a desired goal or set of goals. The chapters that follow identify a recommended set of steps that taken together can be mutually supportive and advance or “move forward” efforts to enhance cycling in the City of Ottawa.

### **1.3 How the Plan was Developed**

The Ottawa Cycling Plan was initiated in the fall of 2003. MMM Group Limited, in association with Stantec Consulting Ltd., Noxon Associates Limited, and consultation and policy specialists Nancy Smith and David Hunt formed the team of specialists retained by the City to develop a city-wide cycling plan for the recently amalgamated City of Ottawa.



The City wanted a plan to link existing cycling facilities and identify future connections through a “blue print” that City staff could use to improve cycling facilities throughout Ottawa.

### 1.3.1 Study Approach

The study approach that led to the development of the Ottawa Cycling Plan set out in this report consisted of the following four general phases:

1. *Assessing Existing Conditions:* - involved undertaking an extensive inventory of existing cycling facilities; digitally mapping existing and planned cycling routes and pathways; and identifying real or perceived barriers to cycling.
2. *Developing the Cycling Network Plan:* - involved establishing a vision for the network; and identifying, evaluating, ground-proofing and selecting cycling route alignments and confirming the facility type by route. The facility options included on-street bike lanes and paved shoulders, signed-only routes and multi-use pathways. A key component of this phase was the development of a recommended set of Cycling Planning and Design Guidelines. This resource is documented in Appendix I of the plan.
3. *Reviewing, Assessing and Harmonizing Cycling Policies and Programs:* - involved a comprehensive review of existing programs and policies from previous cycling studies completed for the former City of Ottawa and surrounding municipalities. To reflect the newly amalgamated City, existing cycling policies and programs were then harmonized to form a complete set suitable for the entire City of Ottawa. These harmonized cycling policies and programs include recommendations related to safety, education, promotion, cycling and transit, bicycle parking and the concept of bicycle-friendly streets. Appendix II of the plan summarizes the harmonized policy recommendations.
4. *Documenting the Plan and Associated Implementation Strategy:* - involved synthesizing all the work that had been done as part of the study into a concise, informative and prescriptive 20-year implementation strategy to

**The OCP...is the product of an extensive study and consultation process, which ...reflects the interests of all Ottawa residents.**



OCP Public Open House held at Jean Piggott Hall, City Hall – Spring, 2004

**A central premise and requirement in the development of the Ottawa Cycling Plan was to actively involve members of the public and staff from affected City Departments, stakeholder groups and advisory committees.**

coincide with the City's 20-year planning horizon. It consisted of a detailed 10-year implementation plan and a strategy for developing the second phase, which forms the longer-term strategy (year 10 to 20), later. This will serve to guide the City in its efforts to improve the state of cycling in Ottawa.

### **1.3.2 Public and Staff Consultation**

A central premise and requirement in the development of the Ottawa Cycling Plan was to actively involve members of the public, and staff from affected City Departments, stakeholder groups and advisory committees. A project Technical Advisory Committee was established and other stakeholders were identified and consulted during key phases of the study. Activities and tasks included:

- Meetings with Project and City Advisory Committees and City Staff to create and provide input and guidance for the study;
- A review of a formal Public Attitude Survey undertaken by Decima Research to gather input on cycling related issues from both cyclists and non-cyclists;
- An initial Public Open House held in the Spring of 2004 at the Jean Piggott Hall, (City Hall) to identify issues, and develop a vision and set of principles to guide the development of the proposed cycling network;
- Posting of newsletters on the City of Ottawa's website outlining the purpose of the study, the work completed to date, and the next steps;
- Conducting a second in a series of Public Workshops in the summer of 2004 at the Tom Brown Arena to present the draft network plan, review key objectives and outline the next steps in the study. The opportunity was also available for the public to provide comments on the proposed network, which were later incorporated into the draft network, where feasible;
- The draft plan was then circulated to key stakeholders and posted on the City's website for public review and comment;

- A Public Open House was held in early Spring of 2005 to provide another opportunity for the public and stakeholders to review the key components of the Draft Plan and to provide their input;
- Public and stakeholder input was reviewed with City staff. In addition, careful consideration was given to City Council’s Strategic Directions Report (2007 – 2010); and
- A final draft report was then prepared that proposes a ten-year implementation plan and sets out a longer term strategy for cycling in Ottawa.

The substantial input received from those who participated in the cycling plan was reviewed and taken into consideration as the plan was developed. The OCP, therefore, is the product of an extensive study and consultation process, which the City believes will reflect the interests of all Ottawa residents and at the same time will provide a direct response to many of the needs and wishes of Ottawa cyclists.

The balance of this report sets out the details and recommendations that taken together represent the Ottawa Cycling Plan.

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## **2.0 Cycling in Ottawa**

## 2.0 Cycling in Ottawa

Establishing the existing context for cycling in Ottawa and understanding the benefits of cycling was necessary to provide a base from which to review past efforts and establish a plan to “move forward”. This chapter establishes this context. It summarizes previous planning efforts and recent survey information that polls the public’s attitude toward cycling in Ottawa. Key programs and partners that support cycling in Ottawa are also identified.

### 2.1 Harmonizing Former Municipal Cycling Plans

One of the key tasks in developing this plan was to review and evaluate all the cycling plans and studies undertaken from the 12 former municipalities from the former Region of Ottawa-Carleton that now make up the City of Ottawa. This harmonizing of pre-amalgamation initiatives included policies, design alternatives, promotional and educational programs, plus network routes. The study team put forth a significant effort to include all of the previous work completed by the former municipalities in order to account for these significant past planning efforts and to identify any deficiencies these former plans may have if “cobbled” together. This included the following steps:

- (1) Review relevant cycling-related planning documents.
- (2) Evaluate these various studies, eliminate redundancies, evaluate design guidelines and programs, plus identify existing and proposed network links from the former municipalities of Ottawa.
- (3) Refine the above work completed in the previous plans and integrate it with ideas from previous studies completed by the study team, as well as through available cycling literature and through public input in order to create a comprehensive and dynamic plan.
- (4) Document the harmonized network routes, policies and programs from the previous plans and incorporate them into the cycling plan if they satisfied the route selection criteria established for the Ottawa Cycling Plan (OCP)

**This chapter summarizes previous planning efforts and recent survey information that polls the public’s attitude toward cycling in Ottawa.**

and are consistent with recommended strategies to educate cyclists and promote the plan.

**“A transportation system that emphasizes transit, walking and cycling will be built.”**

Source: Ottawa 20/20 Official Plan

**The direction of cycling as laid out in the Official Plan includes cycling facilities within new development or redevelopment projects where feasible, the provision of cycling facilities during the construction or reconstruction of transportation facilities, and that consideration will be given to cyclists while undertaking or reviewing land-use planning studies.**

## **2.2 Ottawa Official Plan (2003)**

The Official Plan for the City of Ottawa provides a vision of the future growth of the City and a policy framework to guide its physical development to the year 2021. As part of this vision, the Official Plan supports cycling as an important alternative mode of transportation, whereby the seasonally adjusted modal share of afternoon peak hour person-trips should increase from 1.7 percent to 3.0 percent by the year 2021.

The direction of cycling as laid out in the Official Plan includes cycling facilities within new development or redevelopment projects where feasible, the provision of cycling facilities during the construction or reconstruction of transportation facilities, and that consideration will be given to cyclists while undertaking or reviewing land-use planning studies. It also includes the protection of corridors for the development of a network of major urban cycling routes that will accommodate commuter cycling needs. Missing links in the cycling network will be identified and a program will be developed to correct any discontinuities.<sup>1</sup>

Establishing this Ottawa Cycling Plan is consistent with the following direction provided by Ottawa’s Official Plan:

*“The City will prepare a Cycling Plan by the end of 2004, which will include the harmonizing of cycling policies, establishing supporting guidelines and updating a plan for the integrated cycling network. The Cycling Plan will guide the City in the development and implementation of new programs and facilities to encourage people to cycle...”<sup>2</sup>*

## **2.3 Ottawa’s Transportation Master Plan**

The City’s 2003 Transportation Master Plan, adopted by Council is intended to guide the City over the next two

<sup>1</sup> Ottawa 20/20 City of Ottawa Official Plan – City of Ottawa, May 2003.

<sup>2</sup> Ibid

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 2021 to meet the travel needs of residents and businesses, and to support the development pattern identified in the Official Plan.

In association with Ottawa's growth management principles, the Transportation Master Plan reinforces the importance of cycling as an alternative mode of transportation. The TMP recommends that the City should maximize cycling access to community services, facilities and the downtown through the provision of high-quality services and facilities for cycling. Furthermore, the use of cycling should be maximized through supply and demand management as well as through the promotion of cycling and the provision of a comprehensive network.<sup>3</sup>

The Transportation Master Plan also includes provisions for the inclusion of cycling while making land use planning decisions in terms of community design plans, development proposal reviews and travel demand management to ensure the cycling requirements have been addressed. By virtue of this plan, the City has adopted a "leadership by example" role to improve and promote pedestrian, cycling and transit options for clients and visitors to City facilities. The direction outlined in the Transportation Master Plan was another important document that helped to shape the development of the OCP.<sup>4</sup>

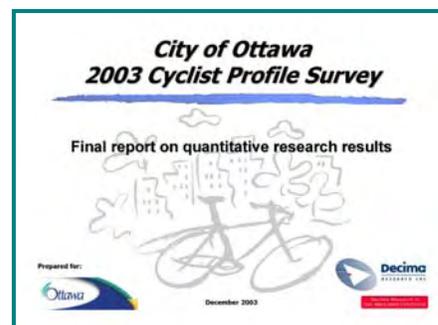
## 2.4 2003 Cycling Profile Survey

The City retained Decima Research Inc. in 2003 to conduct a Cycling Profile Survey of Ottawa residents in order to poll the public's attitude toward cycling in the City of Ottawa. The overall objective of this survey was to measure the prevalence of cycling in Ottawa. This comprehensive and statistically valid survey of over 1,000 residents, aged 16 years and older, established a profile of cyclists and identified which measures may be most likely to increase the level of cycling in the City.

<sup>3</sup> Ottawa Transportation Master Plan for the City of Ottawa 2003.

<sup>4</sup> Ibid

**...the Transportation Master Plan reinforces the importance of cycling as an alternative mode of transportation. The TMP recommends that the City should maximize cycling access to community services, facilities and the downtown through the provision of high-quality services and facilities for cycling.**



Decima Research (2003)

**The results of this survey confirm what City staff and cyclists already knew, that cycling is an important mode of transportation and that people will cycle more often if given the right on and off-road facilities and supportive programming.**

The survey sample was divided into four regions: inner area, inner suburbs, outer suburbs, and rural. The results of this survey confirm what City staff and cyclists already knew, that cycling is an important mode of transportation and that people will cycle more often if given the right on and off-road facilities and supportive programming.

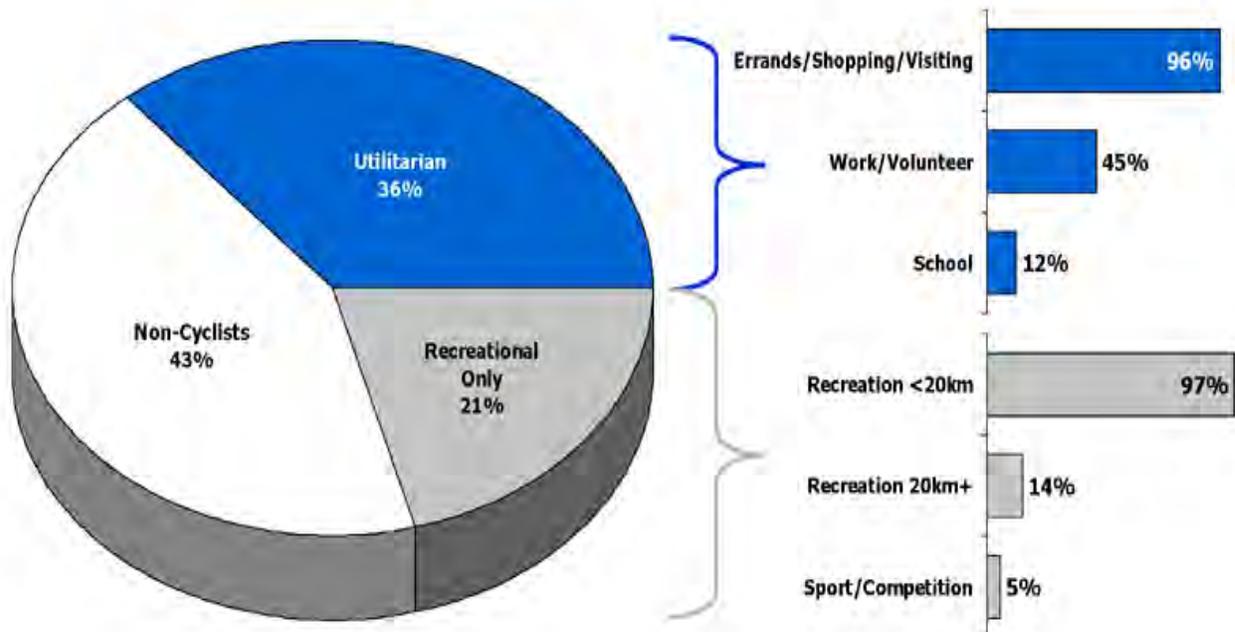
A brief summary of some of the key findings from this study are outlined below.

■ **Cycling is an Important Mode of Transportation in Ottawa**

Cycling is a valuable mode of transportation and form of recreation for City of Ottawa residents. Approximately 57 percent of residents over the age of 16 are cyclists, as illustrated in **Figures 2-1 and 2-2**.

Of the 36 percent of residents who are classified as utilitarian cyclists, 96 percent cycle for errands, to go shopping or to visit friends, 45 percent to go to work or volunteer and 12 percent to go to school.

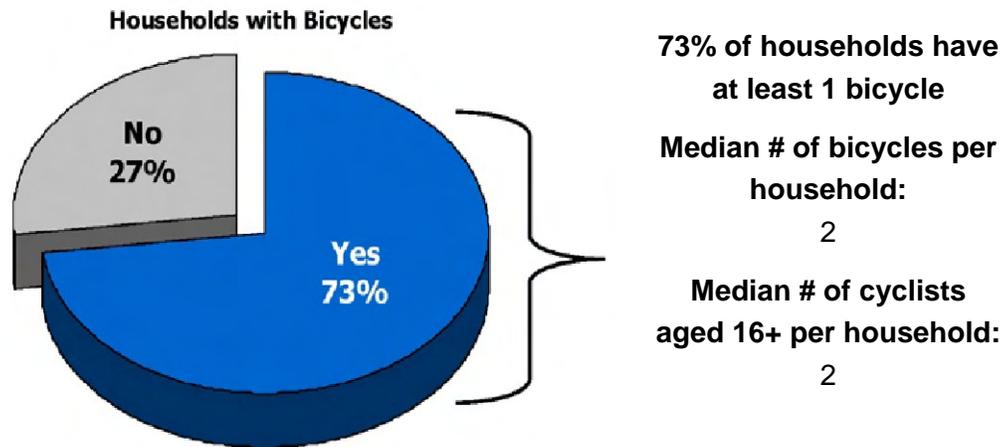
**Figure 2-1: 2003 City of Ottawa Cyclist Classification**



Source: Decima Research Inc.

As illustrated in **Figure 2-2**, the survey found that approximately 73 percent of Ottawa households own a bicycle.

**Figure 2-2: Households with Bicycles**

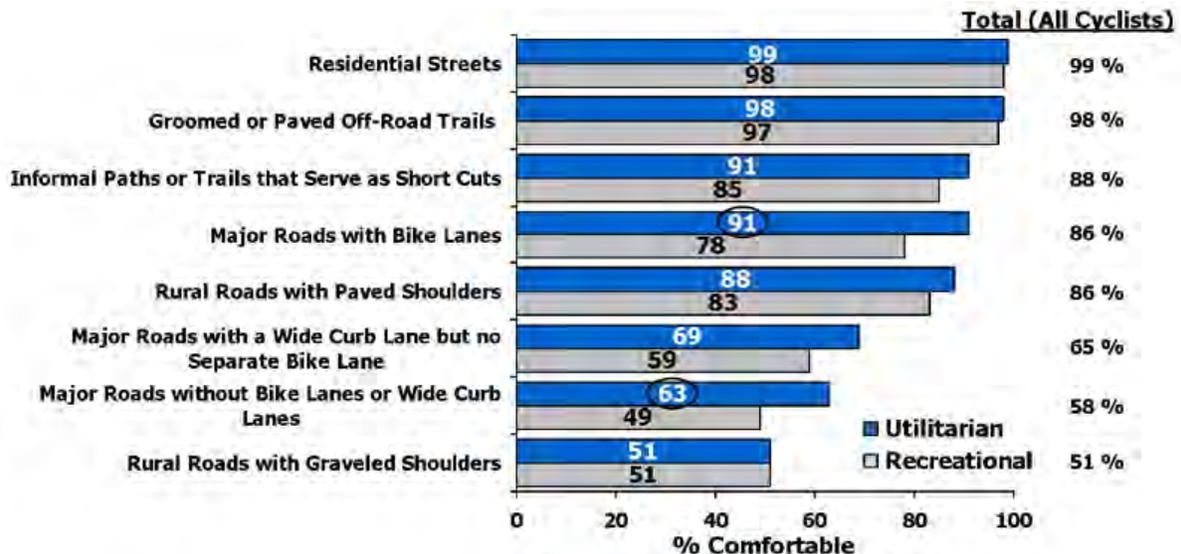


Source: Decima Research Inc.

▪ **Cycling Comfort Levels**

Cyclists are comfortable riding on off-road bike paths and roadways with bike lanes and are least comfortable riding on roadways without bike lanes. Generally, utilitarian cyclists are more comfortable than recreational cyclists on all facility types, as shown in **Figure 2-3**.

**Figure 2-3: Cycling Comfort Levels**

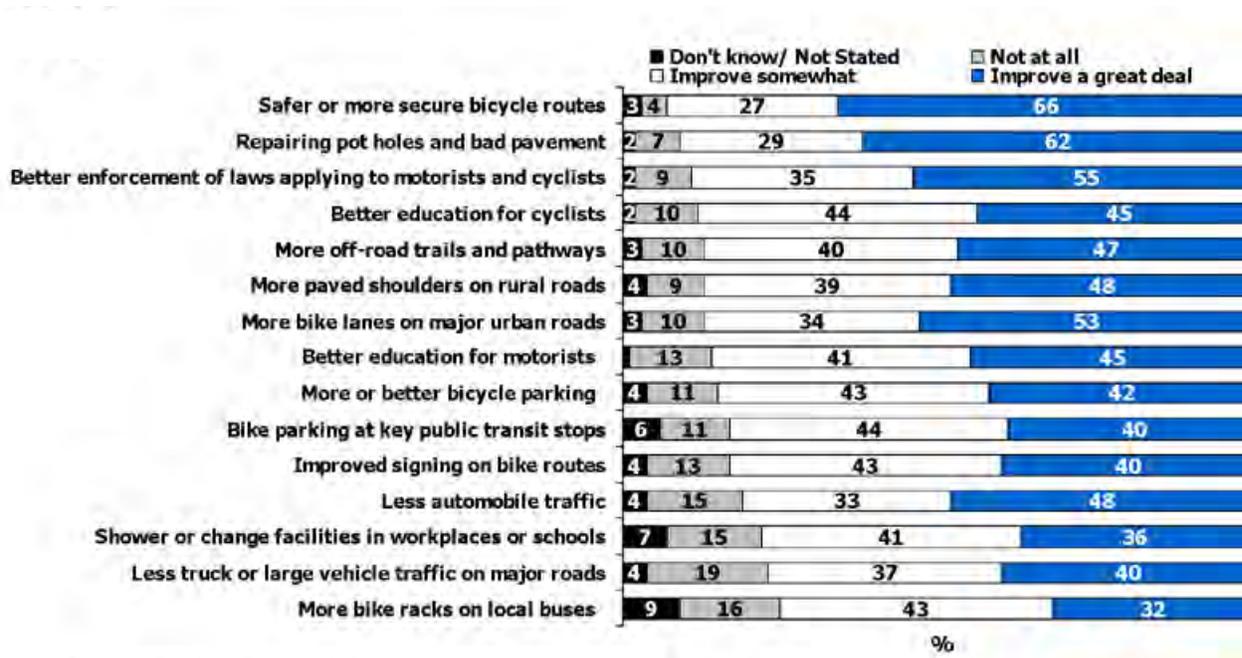


Source: Decima Research Inc.

▪ **Changes That Will Improve Cycling In Ottawa**

Of the many changes that can occur to improve cycling in Ottawa, there are four areas of improvement that would have the greatest impact on the overall quality of cycling facilities and routes in the City of Ottawa. These factors relate to the need for expanded cycling infrastructure as well as enhancements to education and law-enforcement: as shown in **Figure 2-4**, which lists the “Most Important City of Ottawa Cycling Improvements” for all respondents, regardless of whether they consider themselves a cyclist or not.

**Figure 2-4: Most Important City of Ottawa Cycling Improvements**



Source: Decima Research Inc.

These and other results from this survey provide a benchmark for cycling behaviour and attitudes in Ottawa. More details relating to results of this survey are available through the City of Ottawa.

**2.5 Transportation Demand Management (TDM)**

Transportation Demand Management (TDM) measures affect why, when, where and how people make trips, by treating travel as a consumer activity. Travellers examine factors such as cost, health benefits, convenience, speed and familiarity of different travel options when deciding on which method they

will use to travel. By influencing some of these key factors, TDM can help to change the personal travel decisions that result from them. A TDM vision could be stated as follows:

- In the future, Ottawa residents will rely less on their cars. Instead, they will make more frequent use of travel options like walking, cycling, transit and ridesharing, and of alternatives to travel like telework;
- Individuals will be able to access more of the things that matter – employment, education and personal services – through short, convenient trips; and
- Traffic congestion through a balanced TDM and Traffic Management program will be lessened / manageable, air pollution from personal transportation will be minimized, individuals will be safer in their city travels and more physically active, and employees and clients of businesses will find them easy to reach.

TDM measures can help to create this future state by:

- Making travel options more attractive;
- Building a positive public attitude towards travel options and their users;
- Providing information and incentives to help individuals make the right choices; and
- Building partnerships to leverage stakeholder interest and resources.

The City is implementing a comprehensive TDM program, involving independent action as well as partnerships with other governments, the private sector, public institutions, non-governmental organizations, and community groups. The success of TDM will depend on the City's demonstration of effective leadership, and on the implementation of outreach strategies that encourage action by others.

As stated in the City of Ottawa's Transportation Master Plan (2003), the City plan's to pursue the following TDM measures, as they relate to cycling in the City:

- Developing a comprehensive TDM strategy that will establish long-term objectives and opportunities, set priorities for short-term action, and outline a framework for monitoring progress;

**“Shifting from an emphasis on mobility to an emphasis on accessibility means creating land-use patterns that reduce the need to travel great distances across the City and encourage alternatives to car travel.”**

Source: Ottawa 20/20 Transportation Master Plan (2003)

**The City is implementing a comprehensive TDM program, involving independent action as well as partnerships with other governments, the private sector, public institutions, non-governmental organizations and community groups.**

- Maintaining long-term TDM targets and a 3-year action plan including an annual work program;
- Encouraging other governments and government agencies to support the City’s TDM program;
- Integrating TDM with public health, recreation and environmental programs;
- Using the City’s TravelWise/SageVirage identifier to enhance public support for travel options and improve public awareness of their benefits and enhancing the TravelWise program as the TDM strategy evolves;
- Helping developers reduce development costs and improving marketability through TDM, and encouraging them to include TDM-supportive programs and infrastructure such as on-site bicycle parking, shower and change facilities and preferential carpool parking;
- Working with primary and secondary schools to make walking, cycling, transit and ridesharing more attractive through Active and Safe Routes to School programs and special events like International Walk to School Day;
- Working with universities and colleges to make walking, cycling, transit, ridesharing and other options more attractive; and
- Working with festival and tourism partners to promote multimodal travel options for event attendees and visitors to Ottawa, by offering supportive information and incentives and improving options for walking, cycling and transit use.<sup>5</sup>

This Cycling Plan has been designed to complement and form part of the City’s future comprehensive TDM Strategy.

## **2.6 TravelWise**

TravelWise is the City of Ottawa’s program to tame traffic congestion and make the most of the City’s transportation infrastructure. The City of Ottawa, and its precursor, the Region of Ottawa-Carleton has used “TravelWise” or “SageVirage”, to identify the City’s Transportation Demand

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<sup>5</sup> Ottawa 20/20 Transportation Master Plan – Section 4.2 Transportation Demand Management, City of Ottawa 2003.

Management (TDM) initiatives. TravelWise works with local employers, schools, community groups and the general public to make various travel options more attractive than driving alone.

The travel options include cycling, as well as walking, in-line skating, public transit and carpooling. The TravelWise program also encourages non-travel options like telework and compressed work weeks, and shifts in travel time to outside of peak hours.



## 2.7 Key Partners

The City cannot plan, design and implement a cycling plan alone, it needs partners. The most important stakeholder is the public. Without the public's participation and widespread support of the planning and implementation processes many visions and goals established in planning documents would not be realized. With such importance placed on public support, it is imperative that the City work with community groups and other cycling clubs. This includes public advisory committees such as the Roads and Cycling Advisory Committee, and other cycling clubs and stakeholder groups such as Citizens for Safe Cycling (CfSC), the Cycle Ontario Alliance, (formerly known as Velo Ontario), Go for Green, a national Ottawa based not-for-profit organization, the Kanata-Nepean Bicycle Club and the Ottawa Bicycle Club that among other things promotes cycling and active transportation. The City should also work with other agencies such as the National Capital Commission (NCC), the Ministry of Transportation (MTO), City of Gatineau and other surrounding municipalities when implementing the Cycling Plan.

These groups should be recognized as valuable representatives of the citizens of Ottawa in terms of cycling issues within the City, as well as the surrounding area. These champions of Cycling in Ottawa are important to garner public support as well as foster the popularity of cycling in the City.

**The City cannot plan, design and implement a cycling plan alone, it needs partners.**

**Without the public's participation and widespread support of the planning and implementation processes many visions and goals established in planning documents would be not be realized.**

**The City should continue to maintain a Public Advisory Committee to specifically advise on transportation issues related to cycling, traffic-safety (including education, area and neighbourhood traffic management including traffic-calming) and other transportation-related policies and programs.**

### **2.7.1 Roads & Cycling Advisory Committee (RCAC)**

The mandate of the RCAC is to provide advice and guidance to Ottawa City Council and City Departments on issues, policies and programs. Their participation and support should be reflected in the City's commitment to a variety of travel modes that achieve an appropriate balance, which contributes to Ottawa's overall quality of life. The goal of the Committee is to give advice to provide a liveable and environmentally friendly City that is accessible and safe to commute by bicycle, motor vehicle and other methods of road transportation and where such means is an integral part of a publicly supported and balanced transportation system.<sup>6</sup>

The City should continue to maintain a Public Advisory Committee to specifically advise on transportation issues related to cycling, traffic-safety (including education, area and neighbourhood traffic management including traffic-calming) and other transportation-related policies and programs.

### **2.7.2 Advocacy Organizations and Cycling Clubs**

Advocacy Organizations and Cycling Clubs are non-profit voluntary associations of cyclists who work for better, safer, environmentally-friendly cycling in Ottawa by advocating:

- Acceptance of the responsible cyclist as a legitimate road-user;
- Education of all cyclists to improve their riding and traffic skills and also of other road-users to help them accommodate cyclist traffic as part of their normal driving skills;
- Improved engineering to facilitate cyclist traffic such as proper traffic control systems, adequate lane widths and sufficient, secure parking;
- Legislation that is effective and properly enforced; and
- Representation of cycling issues to all levels of government.

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<sup>6</sup> City of Ottawa – Roads and Cycling Advisory Committee, Mandate.

### 2.7.3 Agencies / Surrounding Municipalities

The **National Capital Commission (NCC)** is an example of an important agency that the City of Ottawa should continue working with during the implementation of the OCP. The NCC, a Crown corporation of the Government of Canada, was created in 1959 as the steward of federal lands and buildings in the National Capital Region. Its job, simply put, is to plan, develop and use these properties as a source of pride and unity for Canadians. The boulevards and monuments in Canada's Capital, the parks and heritage buildings, the national festivals — these are just some of the results of over a century of ongoing strategic effort by the NCC and its predecessors.

The Capital Pathway System, first established by the National Capital Commission in 1970, is made up of more than 170 kilometres of pathways winding through Canada's Capital Region. It is one of North America's most extensive networks designed for non-motorized recreational activities such as running, cycling, walking and in-line skating. It is estimated that more than 500,000 users make approximately 17 million visits to the Pathway each season. The NCC works closely with municipal partners to develop and maintain the Capital Pathway and in 2006 released a strategy to further expand this system.

The NCC is a key partner of the City of Ottawa and shares common objectives, particularly with regard to providing facilities for cycling in Ottawa.

The **Ministry of Transportation of Ontario (MTO)** is another provincial agency that works with other municipal and federal partners to reduce gridlock and improve transportation systems for the future. Any future transportation initiatives undertaken in the City of Ottawa by MTO should refer to this plan to ensure that any of its recommendations are not compromised.

The **City of Gatineau** is located north of Ottawa on the Quebec-side of the Ottawa River. Many people who live in Gatineau commute or attend functions and gatherings in the City of Ottawa, and vice-versa. Thus, intercity travel between these two cities, by all modes, is popular and thus, connectivity by all means of transportation should be maintained and / or improved where needed. The City of



**The NCC is a key partner of the City of Ottawa and shares common objectives, particularly with regard to providing facilities for cycling in Ottawa.**



Ministry  
of  
Transportation



**Cycling is often the fastest mode of transportation from door to door for distances up to 10 km in urban cores.**

Gatineau should refer to the OCP when future cycling initiatives are undertaken to ensure that connectivity, and some degree of consistency is provided between neighbouring systems.

The City of Ottawa should also work with other surrounding municipalities and townships on any plans they may have for on and off-road cycling facilities.

## **2.8 The Benefits of Cycling**

Bicycle transportation is a growing activity in Ottawa as well as throughout North America, due in part to the many benefits cycling offers. These benefits are highlighted in the following subsections.

### **2.8.1 Transportation Benefits**

- Transportation by bicycle is the most energy efficient mode of transportation, and generates no pollution, except in its manufacture.
- Cycling is often the fastest mode of transportation from door to door for distances up to 10 km in urban cores.<sup>7</sup>
- Ten bicycles can be parked in the space required for a single automobile.
- The addition of even a small volume of traffic to a congested road can create enormous delays for all users – in fact, increasing traffic by 5% can reduce speeds by up to 25%. For this reason, shifting a little traffic off busy roads can create surprisingly large time savings for individuals as well as for time-sensitive commercial vehicles.

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<sup>7</sup> U.S. National Bicycle and Walking Study, 1994.

### **2.8.2 Recreation, Health and Fitness Benefits**

- Cycling contributes to personal health by enhancing fitness and providing an enjoyable, convenient, and affordable means of exercise and recreation. The most effective fitness routines are moderate in intensity, individualized and incorporated into our daily activities. Cycling and walking can both accomplish this, and at the same time provide mobility.
- About two-thirds of Canadians are physically inactive, resulting in about \$2.1 billion of direct health care costs in Canada. Increased physical activity, such as walking and cycling, can reduce the risk of coronary heart disease and the cost of medical care, decrease workplace absenteeism, and maintain the independence of older adults.
- Cycling benefits one's health regardless of the age at which cycling is taken up.

### **2.8.3 Environmental Benefits**

Cycling can provide many environmental benefits, some of which include the following:

- Short distance motor-vehicle trips are the least fuel-efficient and generate the most pollution per kilometre. These trips have the greatest potential for being replaced by cycling and walking.
- Reducing auto trips will mitigate ozone depletion, the greenhouse effect, ground-level air pollution, photochemical smog, acid rain and noise pollution.
- Road construction, maintenance and usage lead to air and water pollution. Climate change is another problem that can be mitigated by encouraging drivers to use other modes, or to travel outside rush hours.

### 2.8.4 Economic Benefits

Cycling provides access and transportation to segments of the population who would not otherwise be able to travel independently. These segments include:

**Cycling provides access and transportation to segments of the population who would not otherwise be able to travel independently.**

- Those who cannot or choose not to own a motor vehicle; and/or
- Those who cannot or choose not to use public transportation.

Riding a bike instead of driving a car on short trips can save up to 18 to 24 cents per kilometre, which could in turn result in thousands of dollars saved per person per year.

A study published by *Go for Green* in March of 2004 establishes the Business Case for Active Transportation and The Economic Benefits of Walking and Cycling.<sup>8</sup>

These benefits include a reduction:

**Riding a bike instead of driving a car on short trips can save up to 18 to 24 cents per kilometre, which could in turn result in thousands of dollars saved per person per year.**

- In road construction, repair and maintenance costs;
- In costs due to greenhouse gas emissions;
- In health care costs due to increased physical activity and reduced respiratory and cardiac disease;
- In fuel, repair and maintenance costs to users;
- Of costs due to increased road safety;
- In external costs due to traffic congestion;
- In parking subsidies;
- Of costs due to air pollution;
- Of costs due to water pollution;
- Of sick days and injuries in the workplace;

And an increase in:

- Economic impact of bicycle tourism;
- Economic impact of bicycle sales and manufacturing;

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<sup>8</sup> The Business Case for Active Transportation, *Go for Green*, Better Environmentally Sound Transportation – BEST, March 2004.

- Property values along greenways and trails; and
- Productivity in the workplace.

Key benefits to cycling and investing in a cycling plan are described in more detail in Chapter 6.0, Section 6.6.2 – Why Should the City Make the Investment.

## 2.9 Moving Forward

According to the aforementioned *Go for Green* Study, “The current economic benefits are enough to justify increased government expenditures on active transportation in Canada. The projected benefits of doubling the mode share of active transportation make the case even more compelling.”<sup>9</sup>

Ottawa is clearly well positioned to become one of the most cycling friendly cities in North America. A set of policies in both the City’s Official Plan and Transportation Master Plan are in place that clearly demonstrates Council’s commitment to improving conditions for cycling in Ottawa. The public attitude survey completed by Decima Research Inc. in 2003/2004 indicates key areas where improvements can be made to increase the frequency of cycling trips in the future. Key partners are in place to work with the City. What is needed now is a comprehensive and practical plan as well as design guidelines and Council’s funding commitment of both. The Ottawa Cycling Plan, the Design Guidelines and General Policies in Appendices I and II provide this guidance and form the basis from which the City can “move forward” to achieve its cycling goals.

**“The current economic benefits are enough to justify increased government expenditures on active transportation in Canada. The projected benefits of doubling the mode share of active transportation make the case even more compelling.”**

**Ottawa is clearly well positioned to become one of the most cycling friendly cities in North America.**

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<sup>9</sup> The Business Case for Active Transportation, *Go for Green*, Better Environmentally Sound Transportation – BEST, March 2004.

### **3.0 The Proposed Network**

## 3.0 The Proposed Network

Central to the proposed Ottawa Cycling Plan (OCP) is the expansion of the cycling network in both the urban and rural areas of the City of Ottawa. This chapter explains why a network is needed and identifies the types of bikeway facilities envisioned for the network. The chapter also details the steps through which the proposed network was developed and then presents the recommended network in a series of plans.

The OCP's cycling network is planned as an integrated system of on-road and off-road facilities that support the vision, goals and objectives of the OCP, outlined in Chapter 1. The network is proposed as a two-tiered system that consists of a "spine" and more local "community" routes and facilities. This two-tiered network concept is described in more detail in Section 3.2.

### 3.1 Why a Network?

The City of Ottawa has experienced significant success in providing cycling facilities as opportunities have arisen in the past. However, without a network plan to guide implementation, many of the facilities, particularly on-road segments, have been implemented in a piecemeal approach and therefore do not necessarily provide ideal connections. The lack of a connected and easily navigable cycling network has been a major barrier to past City efforts to increase the number of cycling person-trips as well as the percentage of people who choose to cycle compared to other modes, particularly the automobile.

A comprehensive city-wide cycling network is therefore recommended for Ottawa to achieve the following key objectives:

- Make cycling more convenient and safer by removing barriers to cycling in the City;
- Encourage more people to cycle more often by providing them with connections to where they want to go; and
- Support efforts to achieve a greener and healthier City by encouraging residents to choose cycling as part of a fitness regime and to reduce greenhouse gas emissions

**The network has been developed as a two-tiered system that consists of a "spine" and more local "community" routes and facilities.**

**...without a network plan to guide implementation, many of the facilities, particularly on-road segments, have been implemented in a piecemeal approach and therefore do not provide ideal connections.**

through reducing our dependence on the automobile for travel, especially short distance trips.

A continuous network of cycling facilities is needed in Ottawa to overcome barriers and create links among communities within the City, while at the same time promoting connections to surrounding communities. Creating a seamless, clearly marked and signed network, featuring linkages to both on and off-road systems in the City is a prerequisite to increasing the City's cycling modal share.

### 3.2 The Network Concept

The central goal of the Ottawa Cycling Plan is to encourage more people to cycle more often, particularly for utilitarian (commuting) purposes. The goal set out in Ottawa's Transportation Master Plan is to increase the cycling modal share to 3% by the year 2021. To help achieve this goal, a hierarchy of cycling facility types was developed to appeal to a wide range of skill levels and includes off-road pathways and signed-only cycling routes on quiet streets for inexperienced or leisure cyclists, to bicycle lanes and paved shoulders on arterial and higher volume collector roads for more experienced cyclists.

It is expected that inexperienced cyclists will gain the skill and confidence they need on quieter routes as they gradually make the transition to bicycle lanes on busier roads. Over time, they may become confident enough to ride year round on roads with higher traffic volumes without cycling facilities, and at least some will adopt cycling as their preferred mode of transportation.

The proposed network hierarchy for the OCP consists of two systems:

1. The primary "Spine" system; and
2. The secondary "Community" system.

The details of each system are discussed in the following sections.

#### 3.2.1 The Primary "Spine" System

The Spine system consists of cycling routes designed to provide direct links between major nodes throughout the City.

**It is expected that inexperienced cyclists would gain the skill and confidence they need on quieter routes as they gradually make the transition to bicycle lanes on busier roads. Over time, they may become confident enough to ride year round on roads with higher traffic volumes without cycling facilities, and at least some will adopt cycling as their preferred mode of transportation.**



These nodes should include commercial, employment, institutional, residential and tourist destinations and rural communities, and will serve as the “backbone” of the Ottawa Cycling Network. Spine cycling routes are intended to serve frequent utilitarian (commuter) and recreational cyclists, although occasional utilitarian and recreational cyclists can and should be encouraged to use these routes as well.

The proposed Spine system will consist primarily of on-road bike lanes, paved shoulder bikeways and some linear off-road multi-use pathways. The bikeway facilities encompassing the Spine network would be located mainly on arterial roads and higher volume collector roads to serve as a “higher-order” cycling network geared towards more experienced and confident cyclists. The Spine network will also have segments of signed-only and wide curb lanes cycling facilities.

### **3.2.2 The Secondary “Community” System**

The secondary Community system consists of cycling routes that feed into the Spine system. Community routes will be designed to serve both utilitarian and recreational cyclists. Routes along this system may be less direct than the Spine system routes but will typically take advantage of quieter streets (less traffic), while providing links to local destinations such as schools, community centres, residential areas, local stores, commercial nodes, parks and recreational areas. The Community system also provides an alternative to the Spine system for longer-distance or primarily recreational cyclists who simply prefer a quieter cycling environment.

The proposed Community system consists primarily of signed-only routes on local residential streets and wide shared-use lanes on collector roads as well as off-road multi-use pathways. However, bike lanes and paved shoulders may comprise segments of the Community system as well.

### **3.3 Network Development Approach**

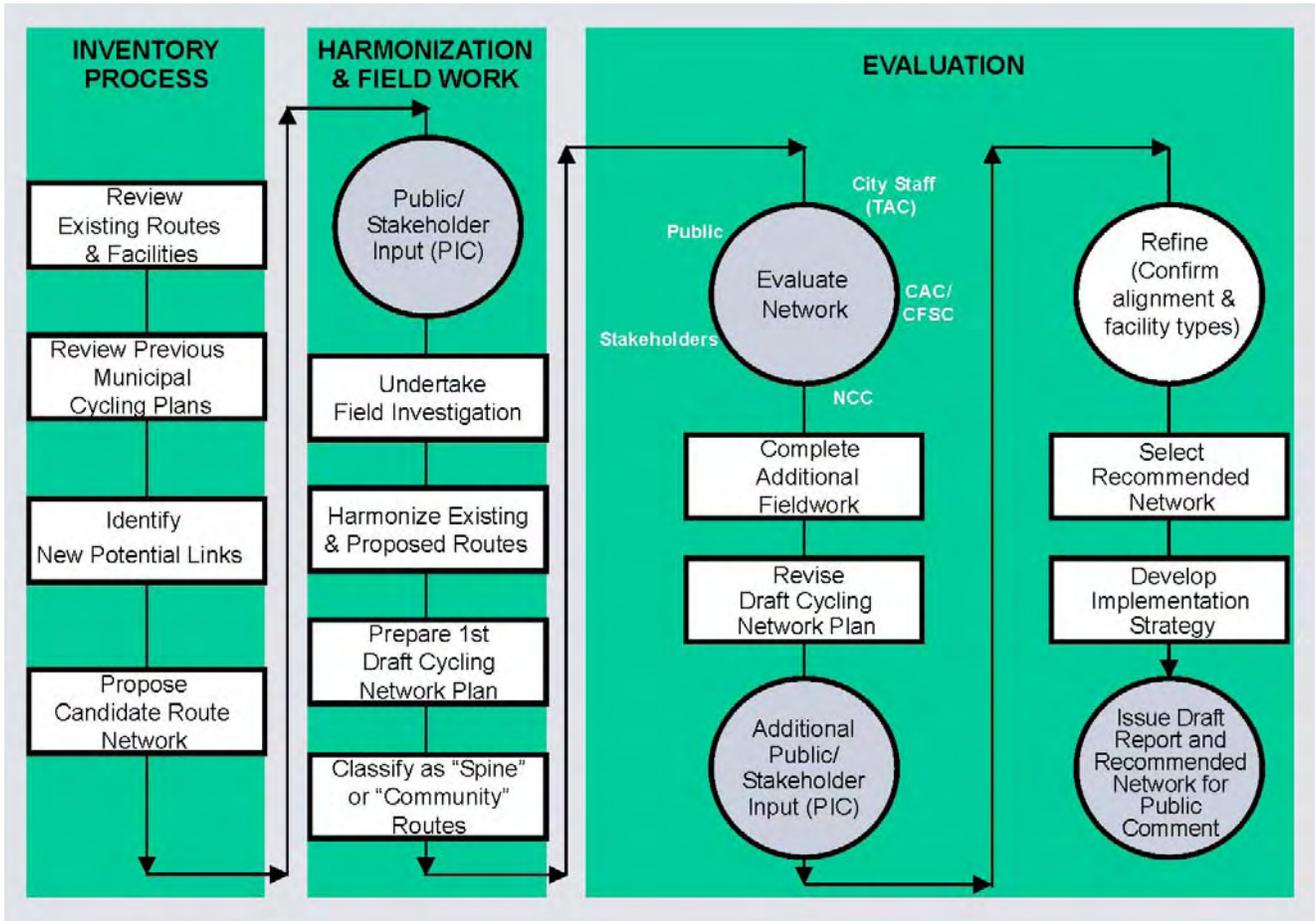
The approach to developing the recommended bikeway network plan identified later in this chapter involved a number of iterative steps. Once the route selection principles and associated criteria were reviewed and refined by the OCP Technical Advisory Committee (TAC), and from input

**The Spine system will consist of cycling routes designed to provide direct links between major nodes throughout the City. These nodes should include commercial, employment, institutional, residential and tourist destinations and rural communities, and will serve as the “backbone” of the Ottawa Cycling Network.**

**The secondary Community system will consist of cycling routes that feed into the Spine system. Community routes will be designed to serve both utilitarian and recreational cyclists.**

received through public and stakeholder consultation, the following network development phases were undertaken. **Figure 3-1** illustrates the network development process adopted for this study.

**Figure 3-1: Network Development Process Chart**



**3.3.1 Inventory of Existing Conditions**

The first phase in developing the network plan involved preparing an inventory of existing cycling facilities in the City. This was crucial in order to understand where and what types of cycling facilities currently exist in Ottawa.

The inventory was undertaken by first reviewing Ottawa’s current Cycling Map and past cycling plans completed by all former municipalities of the former Region including the 1994 Ottawa-Carleton Cycling Transportation Network and Comprehensive Cycling Plan (1995).



Cycling policy information for each of the former municipalities in the Region of Ottawa-Carlton was assembled. These were then harmonized to reflect the newly amalgamated City and were used as input for the development of the Ottawa Cycling Plan.

All the information available regarding existing or previously planned cycling facilities was then compiled and digitally mapped to establish an existing base network. **Figures 3-2a, 3-2b and 3-2c** identify the inventory of existing cycling facilities and major pathways in the City of Ottawa, its urban area and downtown area, respectively. This inventory was prepared based on information provided by City staff and field observations for the on-road component. Existing off-road segments were identified through information provided by City staff.

**The first key phase in developing the network plan involved preparing an inventory of existing cycling facilities in the City.**

### **3.3.2 Route Selection**

The route selection process used for the development of the Ottawa Cycling Network was based on a set of principles from which qualitative and quantitative criteria were derived and then used to make decisions on the location of appropriate routes and the preferred facility type.

The following is the list of guiding principles used to evaluate the existing network and recommend new routes:

- **Safe:** The system should be designed to minimize risk to users.
- **Connected:** All cycling routes should be connected to form an overall cycling network. With input from City staff, the cycling network should connect key gateways throughout the City through a “Spine” of on and off-road facilities.
- **Diverse:** The cycling network should provide a diverse on and off-road cycling experience.
- **Visible:** The cycling network should be a visible component of the transportation system.
- **Accessible:** Cycling routes should be easily accessible from local communities and also provide access to major destinations throughout the City.
- **Attractive:** Cycling routes should take advantage of attractive and scenic areas, views and vistas.

The fact that cyclists have the right to use most municipal and provincial roadways leads to an important principle of roadway design that “every road is a cycling road”.



Utilitarian Cycling

- **Accommodating:** New and existing rights-of-way should be designed to accommodate cyclists.
- **Integrated:** The cycling network should be integrated with other modes of transportation, particularly public transit. Routes should be selected to provide access to transit nodes.
- **Broad Based:** The network should appeal to most cycling abilities and interests. This implies the design of a variety of route types.
- **Supportive:** Support services and facilities such as bicycle parking should be available along cycling routes and destinations. Routes should be selected that provide opportunities to develop supporting facilities.
- **Distributed:** The density of the proposed network will be higher in the urban areas of the City. In urban areas, network facilities should be no more than a 5 minute bike ride or 1 to 2 kilometres from the next nearest facility that serves as part of the Spine Network. In rural areas, network facilities should form a grid of north-south and east-west facilities typically no more than a 5 to 10 minute bike ride or 2 to 5 kilometres apart. In the downtown area of the City facility types should be located at a density comparable to the existing arterial and collector road network.
- **Bicycle-Friendly:** The fact that cyclists have the right to use most municipal and provincial roadways leads to an important principle of roadway design that “every road is a cycling road”. The City of Ottawa, therefore, should make an effort to review and adopt where feasible, bicycle-friendly guidelines for all streets, whether a road is designated as part of the cycling network or not.

In addition to the application of the above noted principles, a number of route selection criteria were considered in the review of candidate routes and the selection of those routes that comprise the proposed network. These criteria are outlined in **Table 3.1**.

**OTTAWA CYCLING PLAN**

**Figure 3-2a  
Existing Facilities**

**Legend**

- Existing NCC-Owned Capital Pathway
- Existing Bicycle Lane
- Existing Paved Shoulder
- Existing Shared Use Lane (Signed Route)
- Existing Shared Use Lane (Signed Route)
- Existing City-Owned Pathway
- Major Public Parks & Open Space
- Lakes & Rivers
- Provincial Highway
- City of Ottawa

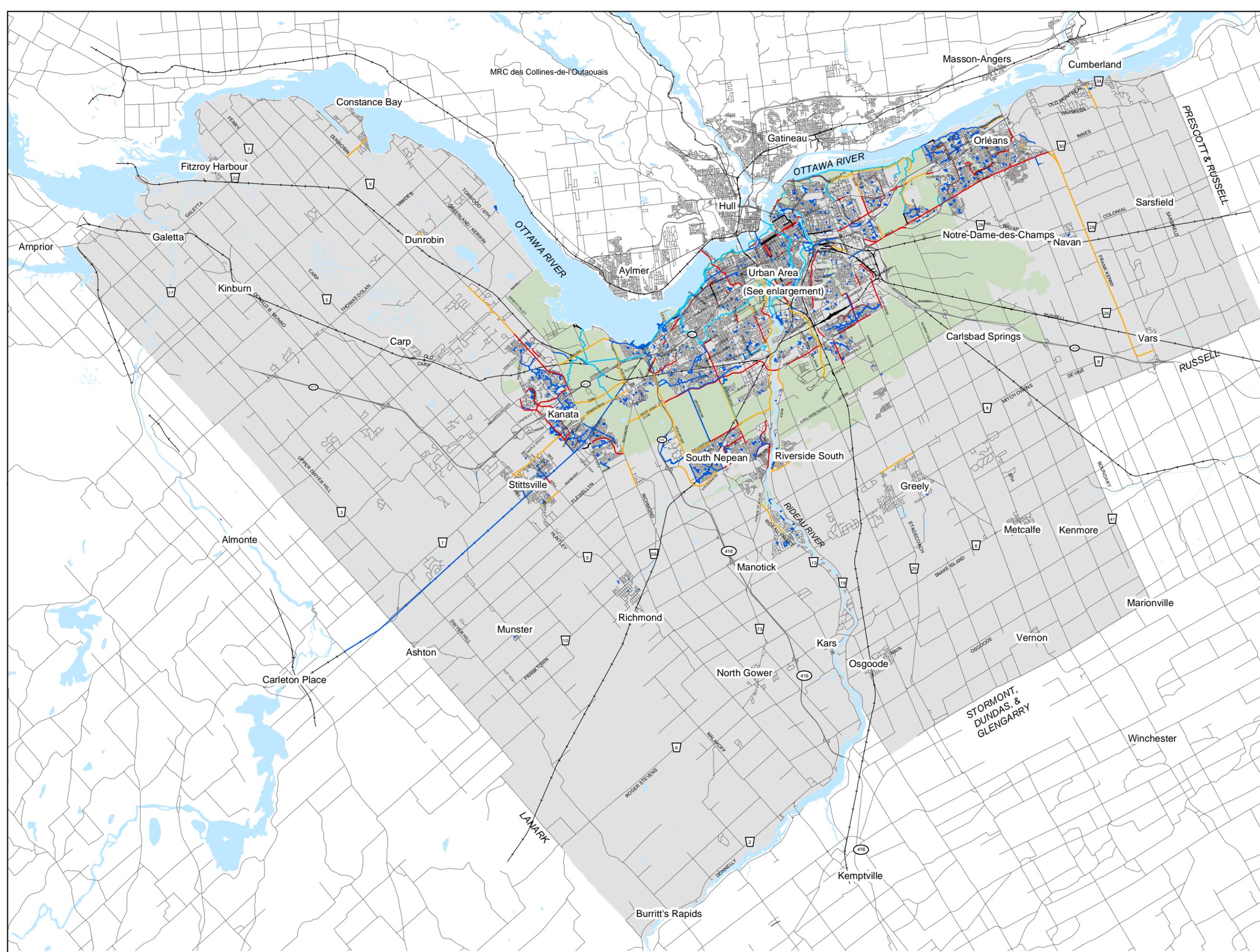
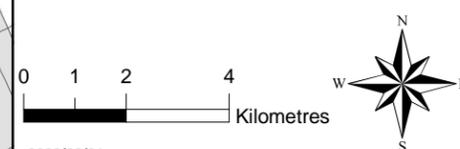
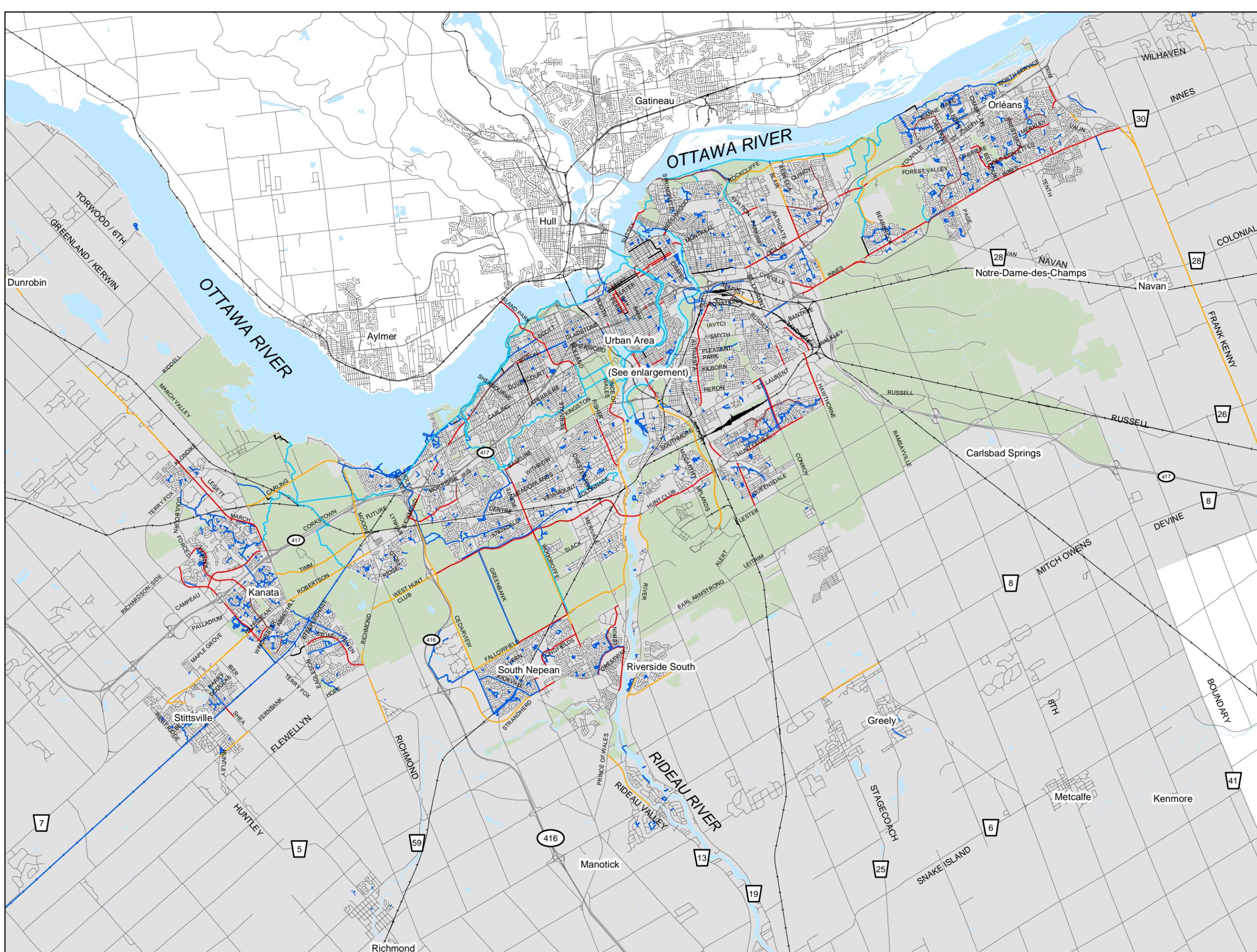


Figure 3-2b  
Existing Facilities

Legend

- Existing NCC-Owned Capital Pathway
- Existing Bicycle Lane
- Existing Paved Shoulder
- Existing Shared Use Lane (Signed Route)
- Existing Shared Use Lane (Signed Route)
- Existing City-Owned Pathway
- Major Public Parks & Open Space
- Lakes & Rivers
- Provincial Highway
- City of Ottawa



2008/02/06

Prepared by:

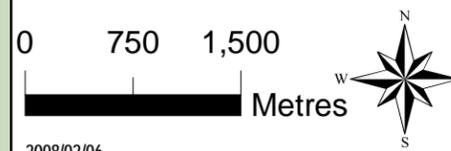
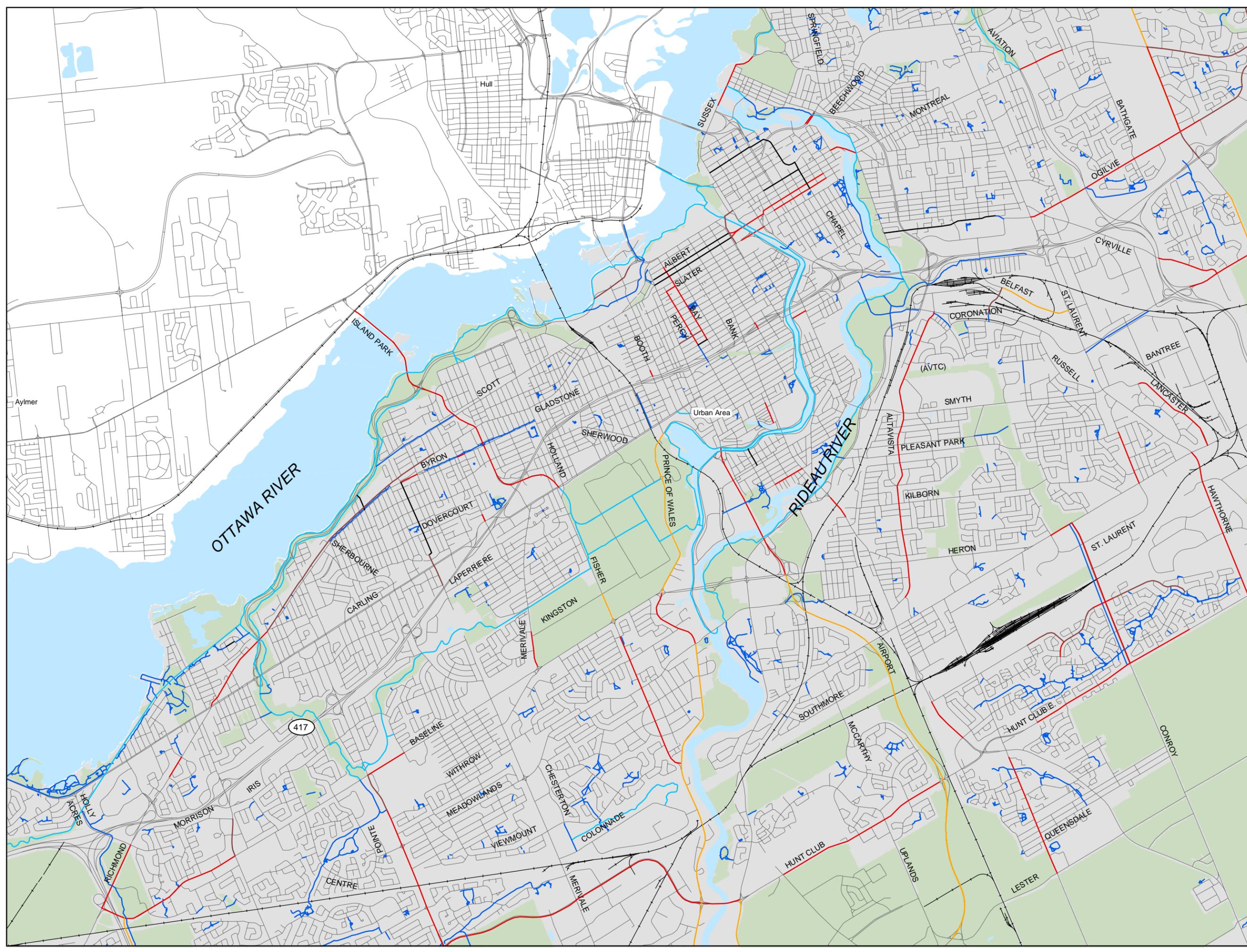


In Association with:  
Nancy Smith  
David Hunt

**OTTAWA CYCLING PLAN**

**Figure 3-2c  
Existing Facilities**

- Legend**
- Existing NCC-Owned Capital Pathway
  - Existing Bicycle Lane
  - Existing Paved Shoulder
  - Existing Shared Use Lane (Signed Route)
  - Existing Shared Use Lane (Signed Route)
  - Existing City-Owned Pathway
  - Major Public Parks & Open Space
  - Lakes & Rivers
  - Provincial Highway
  - City of Ottawa

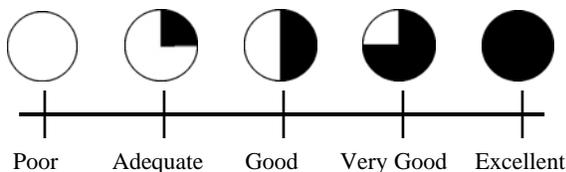


**Table 3.1: Route Selection Evaluation Criteria**

FACTOR	EVALUATION CRITERIA	ROUTE ASSESSMENT	
		Route A	Route B
Safety	<ul style="list-style-type: none"> <li>Are there numerous mid-block or railway track crossings?</li> <li>Is there a high volume of automobiles, trucks and transit vehicles?</li> <li>Is there sufficient right-of-way width to accommodate path connections?</li> <li>Does the route provide a safe crossing of major barriers?</li> <li>Are there poor sight-lines?</li> <li>What is the posted speed limit of the route, if applicable?</li> <li>Can the route accommodate the preferred facility type?</li> </ul>		
Connectivity/ Access	<ul style="list-style-type: none"> <li>Does the route provide a vital connection to existing routes and paths?</li> <li>Does the route provide direct access to major destinations and route connect major nodes throughout the City?</li> <li>Does the route connect to municipal networks, supporting services and facilities?</li> </ul>		
Convenience	<ul style="list-style-type: none"> <li>Is the route impeded by numerous stop signs?</li> <li>Is the route impeded by numerous closely spaced traffic control signals?</li> <li>Is the route part of the Spine network?</li> <li>Does the route provide a direct path to the destination?</li> </ul>		
Attractiveness	<ul style="list-style-type: none"> <li>Does the route provide access to Ottawa’s scenic routes, vistas and destinations?</li> <li>Is the route highly visible?</li> <li>Does the route provide diversity of experience?</li> </ul>		
Cost	<ul style="list-style-type: none"> <li>Is the route the most cost-effective solution?</li> <li>Is there the ability to reduce costs by combining route development with existing road works?</li> </ul>		
Route Alignment	<ul style="list-style-type: none"> <li>Is the location suitable with respect to adjoining land uses and environmental considerations?</li> <li>How can existing barriers be overcome?</li> <li>Is the road right-of-way width sufficient to accommodate cycling facilities, or does the roadway require widening?</li> </ul>		
<b>DECISION</b>			
		Route Recommended	Route Not Recommended

**Legend**

Route Selection Evaluation



= High Weighting Decision

= Low Weighting Decision

As illustrated in Table 3.1, a weighting value was assigned to each criteria. The proposed weighting (represented by a large or small circle) reflects the level of importance given to each criteria relative to the others. For example safety was viewed as having greater importance in selecting a route relative to cost. This simple evaluation approach was used as a decision-making tool in the field to assist the team as they investigated candidate routes for inclusion in the draft network plan.

Each candidate route was evaluated through a four-step process:

1. *Travel all or segments of each candidate route* (ground-proof) by cycling it, or by driving it in a motor vehicle;
2. *Assess each route* using the selection criteria, as well as the results of the ground-proofing combined with the technical expertise of the study team plus the public input;
3. *Accept or reject* each candidate route based on Steps 1 and 2; and
4. *Determine an appropriate cycling facility type* for each accepted route based on the results of Steps 1 through 3.

In summary, route selection was generally based on the experience of the team, subjective decisions made in the field regarding the application of the route selection criteria as well as quantitative information such as traffic volume, road and right-of-way width, distance from key destinations and from the next nearest proposed route. Potential routes were screened using this approach and those routes that in the opinion of the team, were less desirable compared to a parallel route were eliminated from further consideration.

At the time of implementation of each node, the detailed feasibility study may conclude that the recommended route is not feasible (see Chapter 6.0). If this is the case, parallel routes should be re-assessed.

### 3.4 Proposed Network Facility Types

The proposed cycling network for the Ottawa Cycling Plan consists of the following four facility types, each having their own set of minimum design parameters that should guide their implementation. Recommended design guidelines for each of these facility types are provided in Appendix I: Planning and



Utilitarian Cycling in Ottawa



Recreational Cycling in Ottawa

Design Guidelines. All proposed cycling routes will consist of one of these cycling facility types. However, the same facility type may not be consistent along a continuous cycling route due to changing road geometry, motor vehicle traffic-speeds or volumes. Descriptions of the cycling facility types proposed for the OCP cycling network are described in the following sub-sections. It should be noted that not all of the existing on and off-road multi-use paths are part of the recommended cycling plan.

### 3.4.1 Signed-Only Routes

A Signed-Only Route is an on-road bicycle route denoted strictly with signage, with no other physical changes to the roadway geometry. Users share the pavement with motor vehicles. There are no special lane designations.

In urban sections and particularly on multi-lane roads or where traffic volumes exceed the recommended threshold for this type of facility and where a bike lane is not feasible, a wide shared-use curb lane is often considered. In rural sections, an edge line and paved shoulder (as much width as can be physically provided) is preferred, especially on horizontal curves where sight lines for motorists are less than desirable. Edge lines are not recommended on urban roads with curbs, due to the risk of cyclists striking the curb and “bouncing” back into the motor vehicle travel lane, potentially colliding with a motorist.

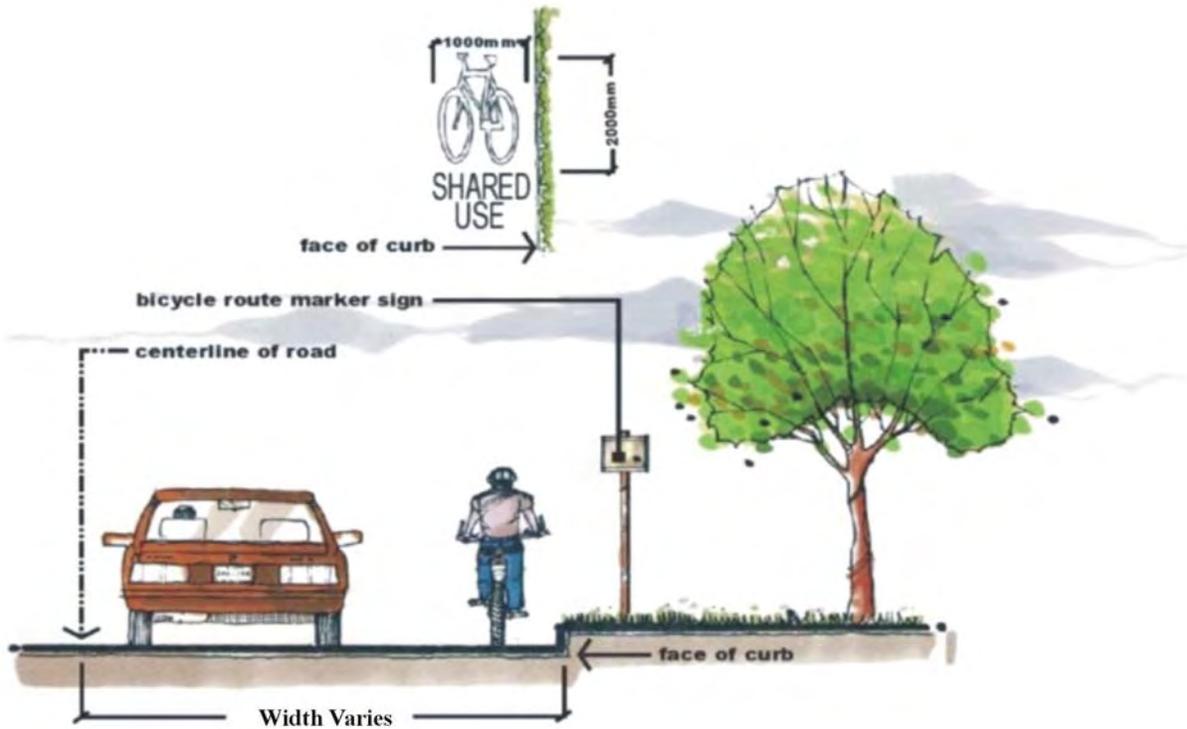
Signed-Only cycling routes can be located on roads with standard curb lane widths as well as wide curb lane widths. In this situation, the travel lane is shared by motorists and cyclists.

**A Signed-Only Route is an on-road bicycle route denoted strictly with signage, with no other physical changes to the roadway geometry.**

**Signed-Only cycling routes can be located on roads with standard curb lane widths as well as wide curb lane widths.**



Signed-Only Cycling Route, Clementine Boulevard



Typical Signed-Only Route along Wide Curb Lane

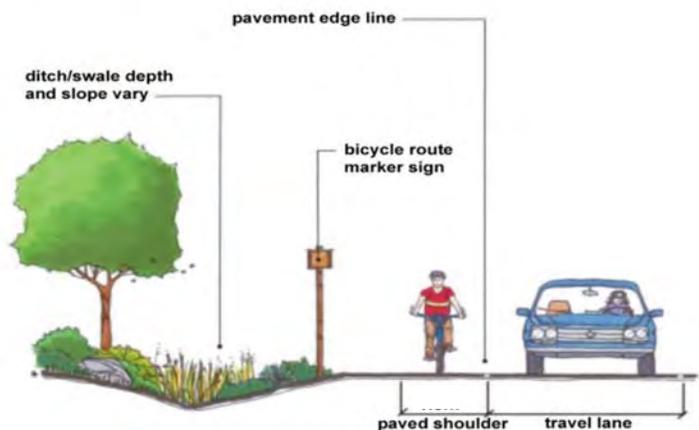
**Paved shoulders are the paved portion of roads with rural cross-sections (no curb) adjacent to the regular traffic lanes and can serve as designated cycling facilities.**

### 3.4.2 Paved Shoulders

Paved shoulders are the paved portion of roads with rural cross-sections (no curb) adjacent to the regular traffic lanes and can serve as designated cycling facilities. Paved shoulders are usually delineated by an edge line, which separates the non-travelled portion of the road from the motor vehicle travel lane.



Paved Shoulder Bikeway



Paved Shoulder

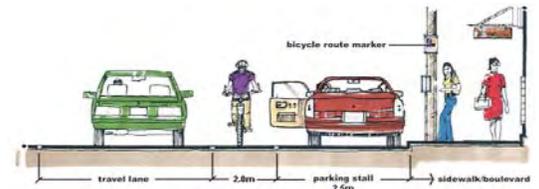
**3.4.3 Bike Lanes**

A bike lane is defined as a facility located in the travelled portion of the street or roadway and is designed for one-way cyclist traffic. Bike lanes are defined on the road through pavement markings and signing, and are typically provided on urban streets. Bike lanes are recommended for parts of the Spine system of the Ottawa Cycling Network; however, they will also be used for portions of the Community system as well when certain conditions are met. Bike lanes should be constructed on main segments of the network expected to experience higher cyclist and / or motor vehicle volumes and offer the most direct connections.

In some cases where there is not enough roadway space for a separate bike lane the City might consider a combined bus and bike lane provided the frequency of bus volumes is not excessive.

For routes that are served by bike lanes, it is expected that pedestrians will be accommodated on sidewalks and off-road pathways and in-line skaters will be accommodated on off-road pathways only. This can be accomplished, when needed, through the installation of appropriate signing and through enforcement by the police along on-road cycling routes.

**A bike lane is defined as a facility located in the travelled portion of the street or roadway and is designed for one-way cyclist traffic.**



Preferred Bike Lane Width Adjacent to On-Street Parking

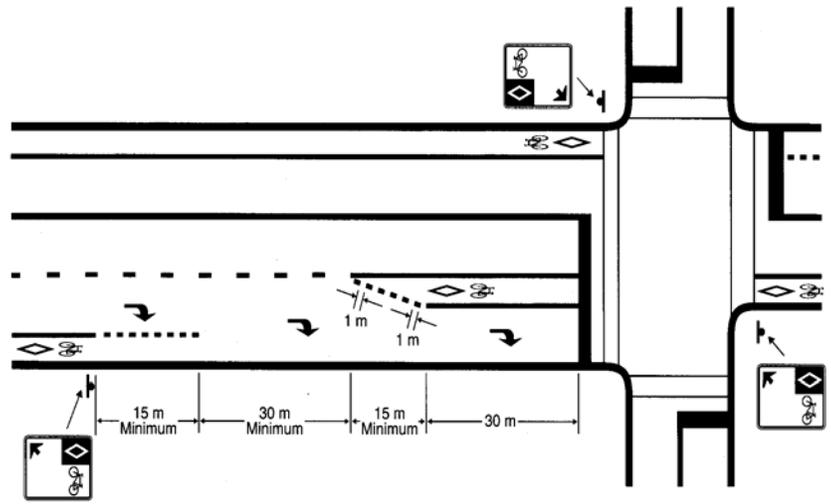
**3.4.4 Bicycle Priority at Intersections**

The application of the above noted on-road bicycle facility types at and through intersections may be combined with bicycle priority measures. At intersections where there is heavy right-turning traffic, and existing or anticipated high through cycling demand, consideration should be given to providing “Bike Pockets”. These have already been used successfully in other cities as well as the City of Ottawa. A “Bike Pocket” is a discontinuous dedicated space on the travelled portion of the roadway located between a thru-traffic motor vehicle travel lane and an exclusive right turn lane or right-turn channel. They are meant to assist cyclists with proper positioning when adjacent to a right-turn lane or channel. If sufficient roadway width is available, a bike pocket should be provided if right-turning motor vehicle volumes are considered high and the cycling route is part of the spine of the network. More detailed specifications for



Typical Bike Lane with Bike Pocket at Intersection.

“Bike Pockets” are provided in **Appendix I: Planning and Design Guidelines**.



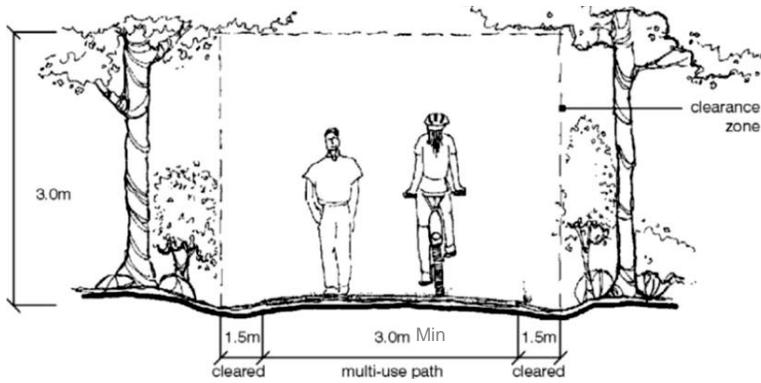
Bike Pocket

**3.4.5 Multi-Use Paths**

A Multi-Use Path is a facility that is completely separate from the travelled portion of a roadway, although it may take the form of a boulevard path in a public road right-of-way or greenway / abandoned rail corridor. Ottawa currently has an extensive network of multi-use paths, a number of which are under the jurisdiction of the NCC. These pathways are typically designed to encourage the widest range of users including pedestrians, cyclists, in-line skaters, runners and skateboarders where path surfaces permit such activities. Pathways located in parks typically serve primarily recreational cyclists, although there are notable exceptions. These can include pathways along valley lands, river and canal corridors, active or abandoned rail lines, hydro corridors and other linear routes that serve the needs of both recreational and utilitarian cyclists.



Multi-Use Pathway and Grade Separation in Ottawa.



Multi-Use Path (Pathway)

A Multi-Use Path is a facility that is completely separate from the travelled portion of a roadway, although it may take the form of a boulevard trail in a public road right-of-way or greenway / abandoned rail corridor.

### 3.5 Proposed Cycling Network

The proposed cycling network has been developed utilizing the City’s Geographic Information System (GIS) database. In addition to providing the City with a valuable asset management tool, which is discussed in more detail in Chapter 6, the GIS software can be used to turn on and off different attributes and then display and print them in a traditional map format. **Figure 3-3** illustrates how some of the various attributes and map layers can be viewed and also demonstrates that the Cycling Network Plan is the result of a number of layers of information that have been compiled and developed in a particular sequence through the network development process.

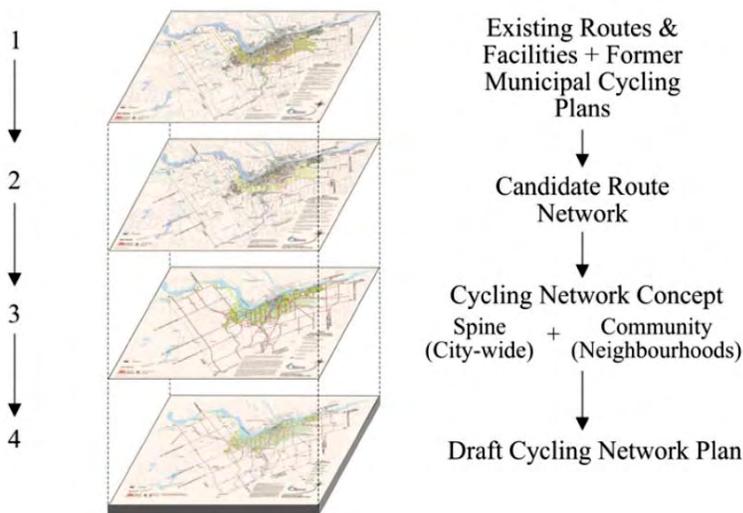


Figure 3.3: Network Development Process Chart

The Ottawa Cycling Network, including the recommended route alignments and hierarchy in terms of Spine or Community system (two tiers) are illustrated in **Figures 3-4a, 3-4b and 3-4c**. When completed, the proposed network will contain just over 2,500 kilometers of designated cycling facilities, which includes approximately 1,890 km of on-road facilities and 615 km of off-road cycling routes. **Table 3.2** identifies the number of kilometers for both existing and planned cycling routes by facility type.

Of the total 1,890 km of proposed on-road cycling facilities, 1,130 km would consist of a combination of on-road bike lanes or paved shoulders and the remaining 760 km would be a combination of wide curb lanes and signed-only routes, which would only require the addition of bicycle route signing.

**Table 3.2: Proposed Length of Bikeway Network by Facility Type**

Facility Type	Distance (km) <sup>1</sup>		
	Existing	Proposed	Total
On-Road Bike Lanes	119.0	134.3	253.3
On-Road Paved Shoulder	122.8	756.7	879.5
On-Road Wide Curb Lane	28.7	96.9	125.6
On-Road Signed-Only Route	12.1	621.9	634.0
Off-Road Pathway	151.1	296.8	447.9
Off-Road Capital Pathway	107.1	60.7	167.8
<b>TOTAL</b>	<b>540.8</b>	<b>1967.3</b>	<b>2508.1</b>

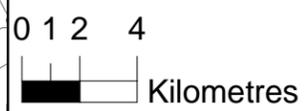
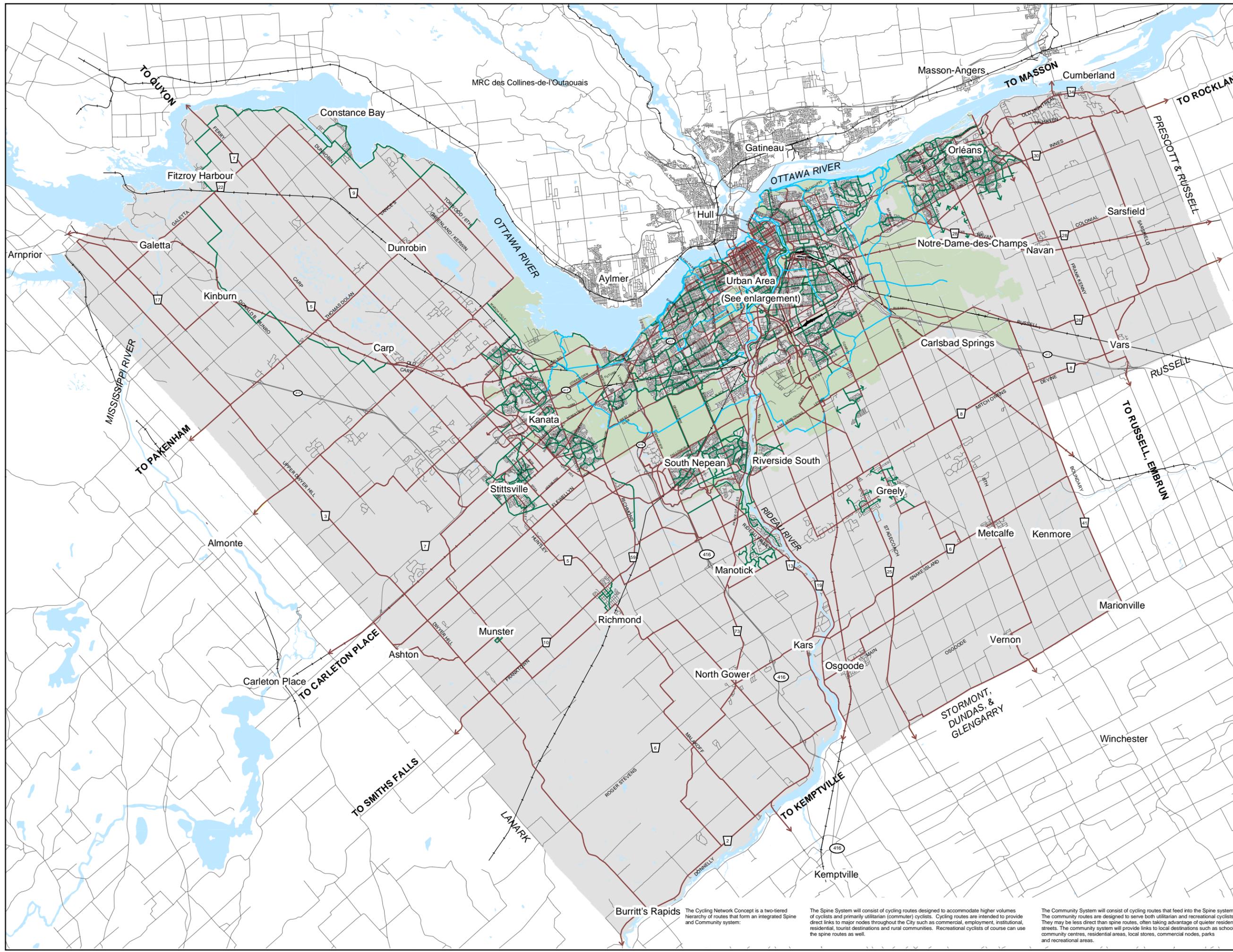
<sup>1</sup> For on-road facilities, distance includes length of facility on both sides of the roadway.

As indicated in Chapter 1, Section 1.1, the City currently has approximately 6,000 km of existing roads under its jurisdiction. Ottawa also owns and operates approximately 1,500 km of sidewalks located on an estimated 15% of the roads currently under its jurisdiction. In addition, the City has 300 km of multi-use pathways and approximately 280 km of on-road cycling facilities. If Ottawa is to encourage more people to cycle more often it needs a more balanced transportation system. The City must also accept that cycling,

**OTTAWA CYCLING PLAN**  
**Figure 3-4a**  
**Network Concept**

**Legend**

- Spine or City-wide Cycling Route
- Community Cycling Route
- Cycling Route on NCC-Owned Capital Pathway
- Major Public Parks & Open Space
- Lakes & Rivers
- Provincial Highway
- City of Ottawa



2008/02/06

Prepared by:



In Association with:



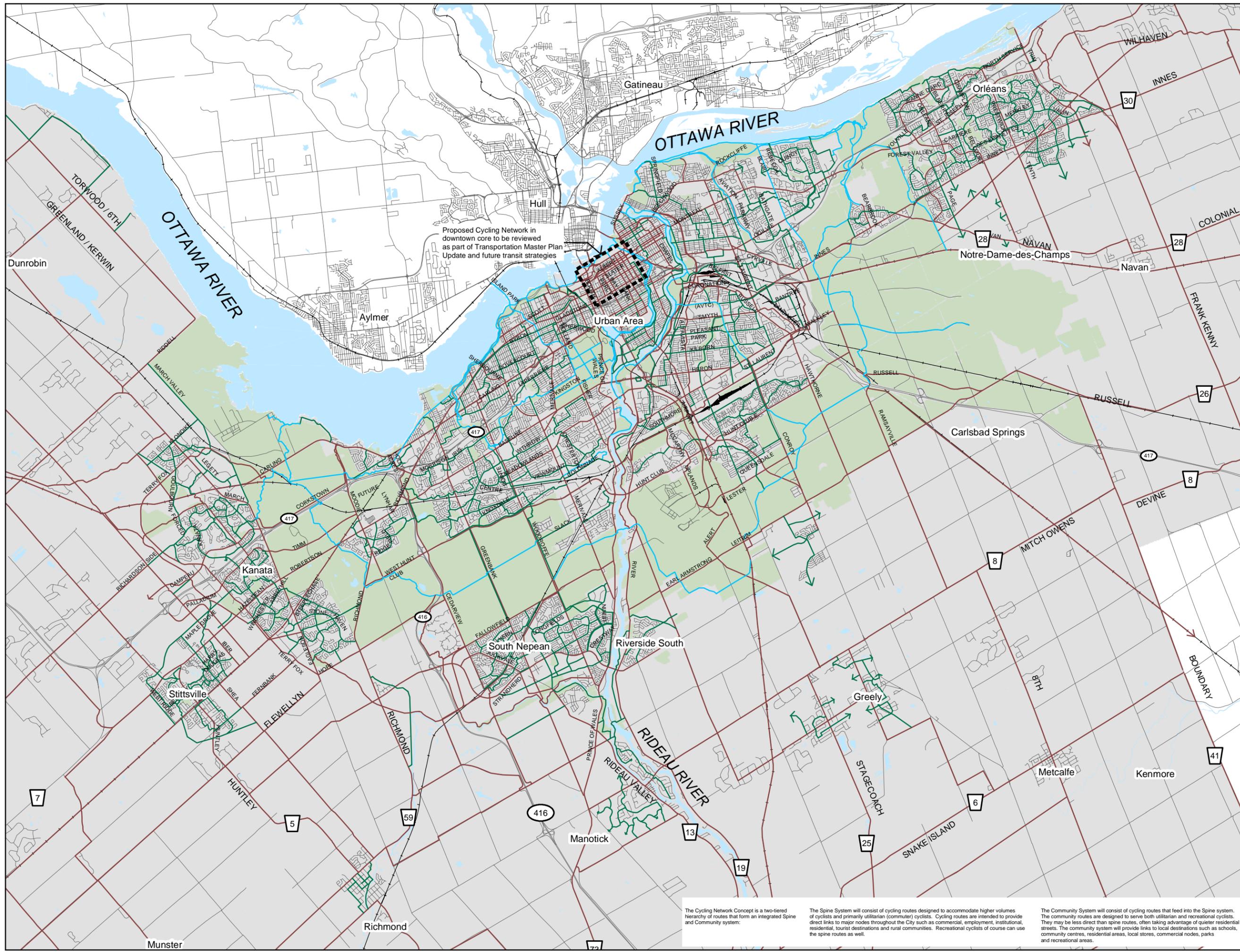
The Cycling Network Concept is a two-tiered hierarchy of routes that form an integrated Spine and Community system:

The Spine System will consist of cycling routes designed to accommodate higher volumes of cyclists and primarily utilitarian (commuter) cyclists. Cycling routes are intended to provide direct links to major nodes throughout the City such as commercial, employment, institutional, residential, tourist destinations and rural communities. Recreational cyclists of course can use the spine routes as well.

The Community System will consist of cycling routes that feed into the Spine system. The community routes are designed to serve both utilitarian and recreational cyclists. They may be less direct than spine routes, often taking advantage of quieter residential streets. The community system will provide links to local destinations such as schools, community centres, residential areas, local stores, commercial nodes, parks and recreational areas.

**OTTAWA CYCLING PLAN**  
**Figure 3-4b**  
**Network Concept**

- Legend**
- Spine or City-wide Cycling Route
  - Community Cycling Route
  - Cycling Route on NCC-Owned Capital Pathway
  - Major Public Parks & Open Space
  - Lakes & Rivers
  - Provincial Highway
  - City of Ottawa

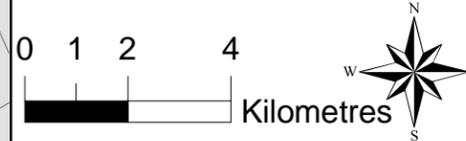


Proposed Cycling Network in downtown core to be reviewed as part of Transportation Master Plan Update and future transit strategies

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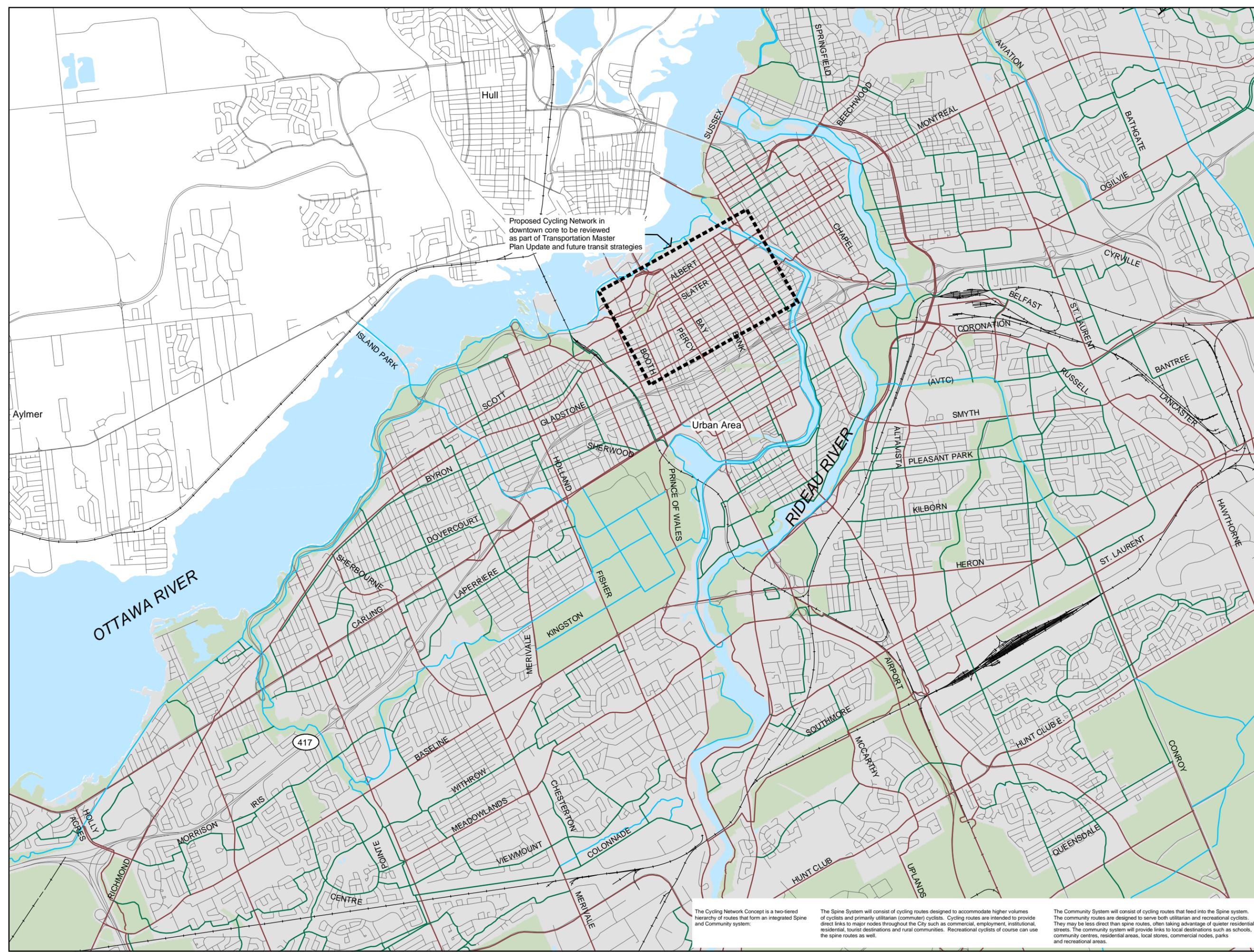
Prepared by:



In Association with:

**OTTAWA CYCLING PLAN**  
**Figure 3-4c**  
**Network Concept**

- Legend**
- Spine or City-wide Cycling Route
  - Community Cycling Route
  - Cycling Route on NCC-Owned Capital Pathway
  - Major Public Parks & Open Space
  - Lakes & Rivers
  - 417 Provincial Highway
  - City of Ottawa

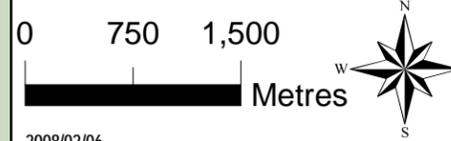


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Prepared by:



like walking, is an important means of reducing automobile use, potentially greater than walking, considering travel distances.

**Figures 3-5a, 3-5b and 3-5c** illustrate the facility types proposed for each segment of the recommended Ottawa Cycling Network.

**Appendix A** contains detailed information on the total length of facilities by type and the total estimated cost based on unit prices assumed in costing the network.

A recommended schedule for implementing the cycling network as part of a ten-year implementation plan (2008-2018) and longer term strategy (2018-2028) is provided in **Chapter 6: Implementation**. Also provided in the implementation chapter are the estimated ten-year costs associated with implementing the proposed network, as well as other components of the Ottawa Cycling Plan.

***Technical Recommendations:***

- 3-1: That the City of Ottawa adopt in principle the proposed cycling network plan illustrated in Figure 3-4 (a, b, c), and the corresponding plan of facility types proposed in Figure 3-5 (a, b, c).*
- 3-2: That the entire Ottawa Cycling Plan, including the network plan, be reviewed and updated at least every five years, and between formal review periods that individual network route changes, additions or deletions be considered when opportunities arise in accordance with the Official Plan and Transportation Master Plan (2003).*
- 3-3: That City staff consider the Planning and Design Guidelines of the OCP in Appendix I when implementing designated on and off-road cycling facilities for the cycling network.*

### 3.6 OCP Policy Recommendations

The following recommendations have been identified to provide policy direction for the development of the cycling network proposed in the OCP.

The City of Ottawa will:

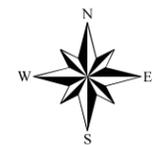
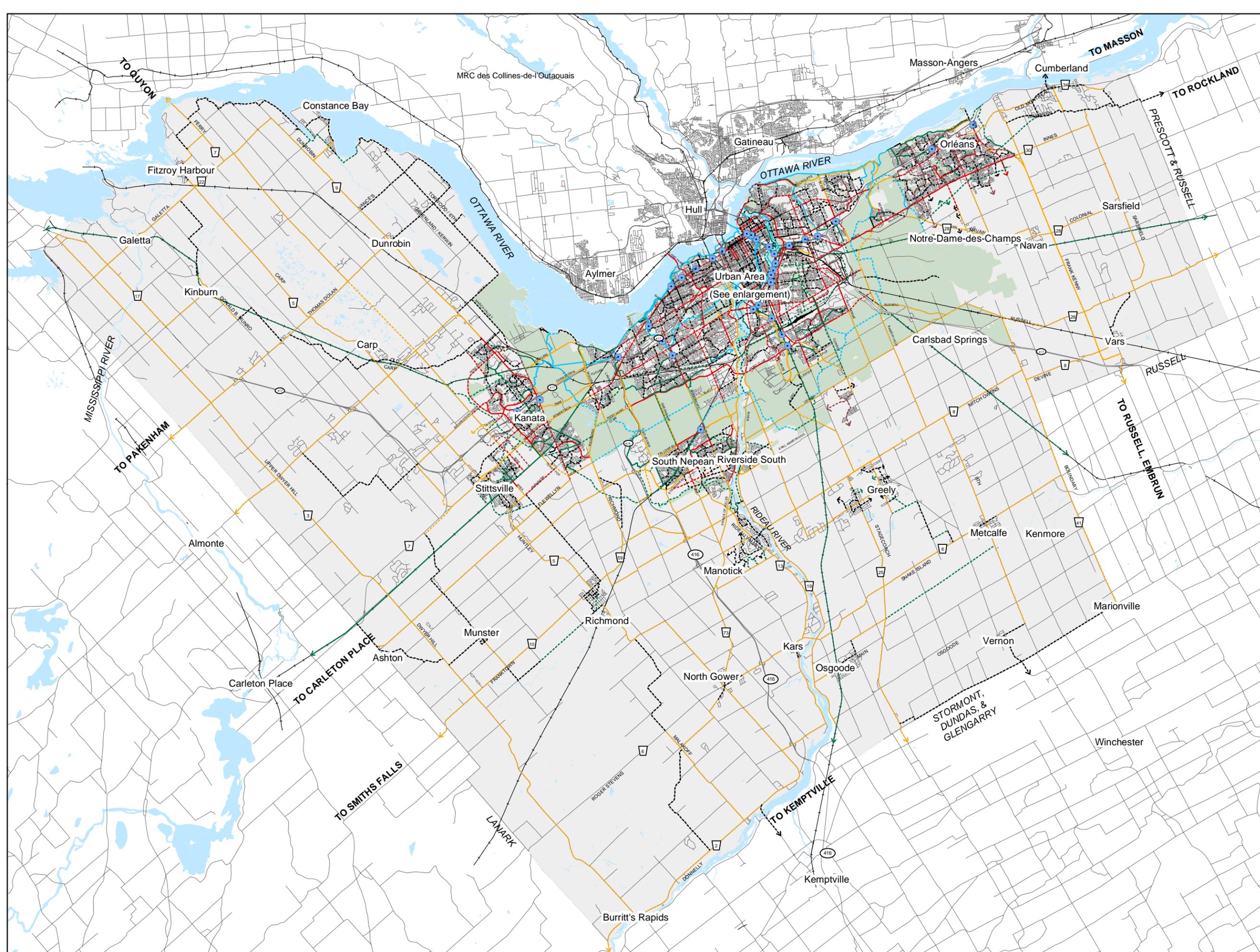
- 3-a: Recognize that all City roads and lanes except limited access Provincial and City Highways and limited access Transit way roadways are available to cyclists, and that a bicycle be recognized as a vehicle, as defined in the Highway Traffic Act, and which can operate on public roadways with the same rights and responsibilities as motor vehicles, except where specifically prohibited.
- 3-b: Protect and develop the bicycle network as shown on the Ottawa Cycling Plan network, which includes on-road routes and off-road multi-use pathways, both of which are used for utilitarian and recreational trip purposes. Efforts will be made, where feasible, to improve and expand upon this network and add missing links through opportunities offered by unopened road allowances, hydro rights-of-way, existing or abandoned rail corridors, open greenspace development and future roadway improvements.
- 3-c: Ensure that amendments to the network plan are not required for route revisions, provided that continuity and functionality of the network is maintained in the same general location.
- 3-d: Ensure that the performance of the bicycle network is monitored through service indicators and targets to assess and evaluate cycling facilities such as, ten year cycling network targets, five year implementation plans, annual work plans and a peak hour City wide 2021 modal share of 3%.
- 3-e: Ensure that cycling is an essential component of a multimodal transportation network by incorporating considerations for cyclists within an integrated land use and transportation planning and decision making process.

**OTTAWA CYCLING PLAN**

**Figure 3-5a  
Network Facility Types**

**Legend**

- Existing NCC-Owned Capital Pathway
- Planned NCC-Owned Capital Pathway
- Existing Bicycle Lane
- Proposed Bicycle Lane
- Existing Paved Shoulder
- Proposed Paved Shoulder
- Existing Shared Use Lane (Signed Route)
- Proposed Shared Use Lane (Signed Route)
- Existing Shared Use Lane (Signed Route)
- Proposed Shared Use Lane (Signed Route)
- Existing Off-Road Pathway
- Proposed Off-Road Pathway
- Major Public Parks & Open Space
- Lakes & Rivers
- Provincial Highway
- City of Ottawa
- Existing Rapid Transit Station



2008/02/06

Prepared by:



In Association with:  
Nancy Smith  
David Hunt

Figure 3-5b  
Network Facility Types

- Legend**
- Existing NCC-Owned Capital Pathway
  - Planned NCC-Owned Capital Pathway
  - Existing Bicycle Lane
  - Proposed Bicycle Lane
  - Existing Paved Shoulder
  - Proposed Paved Shoulder
  - Existing Shared Use Lane (Signed Route)
  - Proposed Shared Use Lane (Signed Route)
  - Existing Shared Use Lane (Signed Route)
  - Proposed Shared Use Lane (Signed Route)
  - Existing Off-Road Pathway
  - Proposed Off-Road Pathway
  - Major Public Parks & Open Space
  - Lakes & Rivers
  - Provincial Highway
  - City of Ottawa
  - Existing Rapid Transit Station



2008/02/06

Prepared by:  
 In Association with:  
 Nancy Smith  
 David Hunt

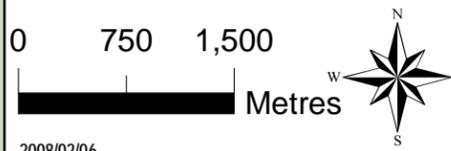
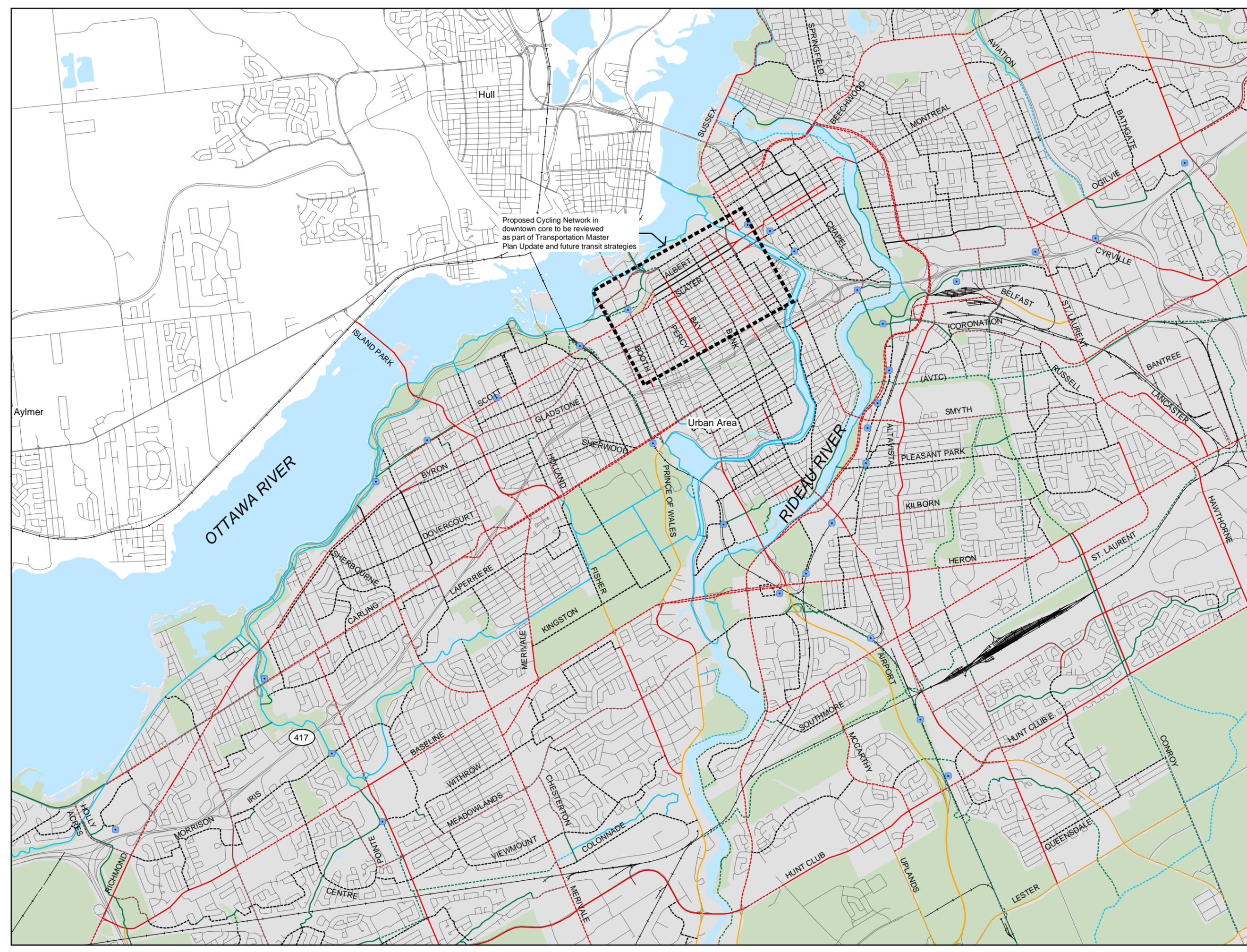
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**OTTAWA CYCLING PLAN**

**Figure 3-5c  
Network Facility Types**

- Legend**
- Existing NCC-Owned Capital Pathway
  - - - Planned NCC-Owned Capital Pathway
  - Existing Bicycle Lane
  - - - Proposed Bicycle Lane
  - Existing Paved Shoulder
  - - - Proposed Paved Shoulder
  - Existing Shared Use Lane (Signed Route)
  - - - Proposed Shared Use Lane (Signed Route)
  - Existing Shared Use Lane (Signed Route)
  - - - Proposed Shared Use Lane (Signed Route)
  - Existing Off-Road Pathway
  - - - Proposed Off-Road Pathway
  - Major Public Parks & Open Space
  - Lakes & Rivers
  - 417 Provincial Highway
  - City of Ottawa
  - Existing Rapid Transit Station

Proposed Cycling Network in downtown core to be reviewed as part of Transportation Master Plan Update and future transit strategies



- 3-f: Consider where feasible that the design, maintenance and operations of cycling facilities follows recognized and approved guidelines to maximize road user (including cyclists) safety, security, accessibility, convenience and enjoyment. Cycling facility design should also incorporate compatibility with other modes and accommodate a wide range of ages, abilities, and levels of fitness.
- 3-g: Ensure that transportation operational measures undertaken as part of system management are identified and implemented to support safe and convenient cycling. These measures may include, but not limited to:
- Exemptions from turn or entry prohibitions, where appropriate;
  - Contra-flow cycling lanes on one way streets;
  - Vehicle detection equipment at intersections with traffic signals;
  - Management of parking, loading zones and other curb side uses to minimize disruption of cyclists; and
- 3-h: Ensure that any network modifications are reflected through regular updates of the Ottawa Cycling map.

## 4.0 Making Ottawa More Cycling Friendly

## 4.0 Making Ottawa More Cycling Friendly

One of the four cornerstones or principles of the Ottawa Cycling Plan is to make Ottawa more cycling friendly for both residents and visitors to the City. This involves much more than implementing a designated on and off-road cycling network. It requires that all City streets be designed and maintained in a way that takes into account the needs of cyclists, as well as other road users. It means providing bike parking facilities, integrating cycling and transit modes, and providing showers, change rooms and lockers for commuters at work. This chapter of the plan identifies key objectives and recommendations to make Ottawa more cycling friendly. Some of the recommendations outlined in this chapter are also included as guidelines in Appendix I: Planning and Design Guidelines. The Design Guidelines build upon some of the recommendations outlined in this chapter and provide more technical details regarding cycling infrastructure.

### 4.1 Bicycle Friendly Streets

An important objective of the plan is to establish the principle that all streets, with the exception of the 400 series provincial highways, designated City highways and OC Transpo Transitway roads should be designed and maintained in such a way that takes into account cyclists and the factors that affect their comfort and sense of security.

Since bicycles are recognized as vehicles under the Highway Traffic Act of Ontario they should be afforded the same consideration as motor vehicles on the City's street system. In addition, the characteristics that make bicycles so environmentally friendly and practical for short trips also make cyclists more vulnerable to collisions and injuries, particularly when sharing the road with motor vehicles. A bicycle's small size requires very little space to operate or park. They are efficient because they are lightweight, and their narrow tires have very little contact with the road surface. As a result, bicycles are more affected than motor vehicles by pavement conditions, high winds, poor visibility, the speed of traffic and the width of the curb lane.

**One of the four cornerstones or principles of the Ottawa Cycling Plan is to make Ottawa more cycling friendly for both residents and visitors to the City.**



Children are cyclists too!

**Since bicycles are recognized as vehicles under the Highway Traffic Act of Ontario they should be afforded the same consideration as motor vehicles on the City's street system.**



Cycling on a Multi-Use Pathway

**“Pedestrians, bicyclists and other vulnerable road users require specific consideration in traffic design and management, particularly from a road safety viewpoint.”<sup>2</sup>**

It is recommended that the City develop and implement a city-wide cycling network over the next 20 years, as outlined in Chapters 3 and 6 of the Ottawa Cycling Plan. This network will be comprised of facilities that are specifically designed to encourage cycling and enhance the conditions for safer cycling. While the cycling network will go a long way towards improving the cycling environment in Ottawa, the City’s efforts should not be focused solely on these network cycling routes. With the exception of Provincial and City highways and Transitway roads, cyclists use all the streets in the City, including arterial, collector and local roads.

This effort to make streets more bicycle friendly is consistent with the transportation vision set out in the City of Ottawa’s Transportation Master Plan (TMP). One of the key features of this vision from the TMP is to provide “traffic engineering and street design that encourage walking and cycling.”<sup>1</sup>

In order to further encourage and promote cycling use in the City, all roads must be made as safe and comfortable for cyclists as possible. The Ottawa Cycling Plan sets out a comprehensive approach to ensure that “best practices” are both expanded and extended city-wide to support cycling on all roads where cycling is legally permitted.

#### ***4.1.1 Transportation Policies and Practices***

Cycling friendly policies and practices focus on enhancing safety for cyclists and maintaining or improving access for bicycles. The special characteristics of a bicycle must be considered to ensure that cyclists are provided with the same level of service as motorists. Where appropriate and feasible, road design should be enhanced to accommodate cyclists. This is especially important at intersections, on bridges and underpasses.

#### ***Technical Recommendation:***

<sup>1</sup> Odgen, K.W. “Safer Roads: A Guide to Road Safety Engineering”, Avebury Technical, Aldershot, England 1996, p.365.

<sup>2</sup> Ibid

4-1: *That where appropriate and feasible, road design should be enhanced to accommodate cyclists. This is especially important at intersections, on bridges and underpasses.*

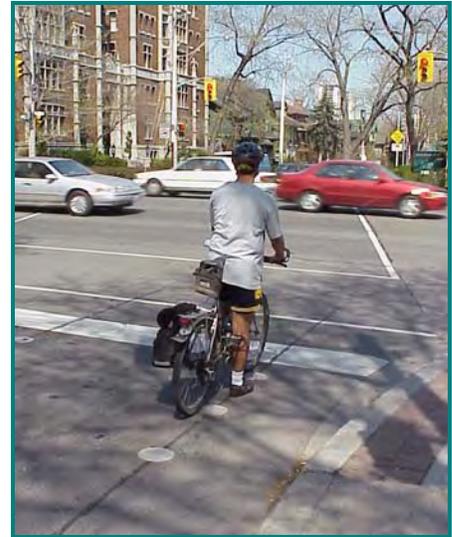
**4.1.2 Bicycle Actuated Signals**

Many intersections in Ottawa have semi-actuated traffic control signals. At these intersections, the traffic signal does not automatically alternate between green indications on the main street and the local cross street. Instead, the signals will remain green on the main street until a vehicle or a pedestrian arrives at the cross street. The presence of a vehicle is detected on the cross street by a detector loop embedded in the pavement.

A feature that assists traffic signal actuation by cyclists in the City of Ottawa is the application of three small yellow dots. These have been applied to roadways to inform cyclists where to place their bicycle so it can be detected by a sensor loop. This method is also practiced in the City of Toronto where three white dots are used.

Based on experiences in both Ottawa and Toronto, it is clear that a majority of the cycling public are unaware of the purpose of the three “dots”, or even that they must be present within the zone of detection in order to change the signal. Unlike the detection of a motor vehicle, which is a passive system for the driver, the success of a bicycle actuating the signal depends on the cyclist not only knowing that there is a detection system, but also how to use it. Even though the sensitivity of the detectors may be adjusted, the effectiveness of the detectors is limited if the cyclist is not properly located in the “actuation zone”.

A detailed review of the effectiveness of loop detectors for bicycles is required to determine where improvements can be made. This might include the use of more distinct pavement markings, such as that illustrated in **Figure 4-1** or at least an improved promotion of the three dots. Alternative methods of detection should also be investigated as part of this review. Options that have been successfully implemented in other jurisdictions include passive technologies such as video detectors or bicycle push buttons so that cyclists can actuate the signal from their normal cycling position on the roadway.



Example of Three “dot” Application

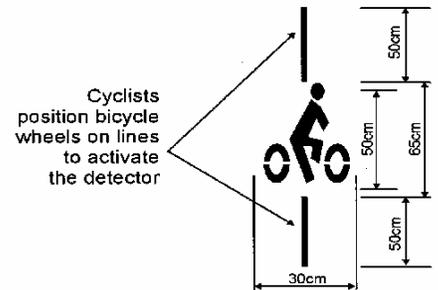


Figure 4-1: Example of Detector Loop Pavement Markings

The Transportation Association of Canada (TAC) has recently developed traffic signal guidelines for bicycles (Project #226). The purpose of this project is to develop a guideline for the safe accommodation of bicycles at signalized intersections. The expected outcome is an update to the Highway Traffic Act and acceptance of an exclusive “Bike Signal”, similar to that used in Quebec, the United States and throughout Europe. **Figure 4-2** illustrates a Bicycle Signal head that TAC is currently assessing as a potential national standard.



Figure 4-2: Example of a Bicycle Signal, Currently Being Assessed by TAC (2004)

#### **Technical Recommendations:**

- 4-2: *That the City continue to consider bicycles in the timing of traffic signals and in the selection, sensitivity and placement of vehicle detection devices wherever there is bicycle traffic. Bicycle signals should be considered at locations where conditions warrant.*
- 4-3: *That pavement markings be continued at all semi-actuated intersections to help direct cyclists to the actuation zone and to position themselves properly in the lane, where conditions warrant.*

#### **4.1.3 Exempting Bicycles from Some Traffic Regulations**

As vehicles under the Highway Traffic Act, cyclists also have the same responsibilities as other road users. This is generally a reasonable and effective philosophy, but there are special circumstances when it is not appropriate to apply the same rules to bicycles. For example, turn and entry restrictions at intersections are generally put in place as a traffic measure to discourage non-local motor vehicle traffic from travelling through residential neighbourhoods. Since the overall objective is to reduce the negative effects of motor vehicles on the neighbourhood, these restrictions need not apply to bicycles. In fact, it is important to maintain bicycle access to these quiet local streets.

The City of Ottawa currently does enact or amend by-laws to restrict motor vehicle access on some local streets but permit bicycle access. This application should be continued and future revisions to these kinds of restrictions should be made on a case-by-case basis, for example, as a result of a request from the public. In addition, bicycle exemptions should be provided at the time of implementation of any new restrictions where it is determined they are appropriate.

**Technical Recommendation:**

4-4: *That the city continue to review existing and proposed turn and entry restrictions at local streets and, where it is safe to do so, amend the by-laws to exempt bicycles.*

**4.1.4 Roadway Design and Operation**

When dealing with the design and operation of a roadway section, there is no single solution for making it more bicycle friendly. A designer must take into consideration the broader traffic, environmental and planning objectives for the roadway, and integrate cycling objectives within these strategies and frameworks. The intended function of a roadway generally influences the cycling measures that should be implemented.

Roads in the City of Ottawa are classified in a hierarchical manner in to five basic groups, as illustrated in **Table 4.1**.



Example of a sign restricting motor vehicle access with the exception of cyclists and buses – City of Ottawa

**When dealing with the design and operation of a roadway section, there is no single solution for making it more bicycle friendly. A designer must take into consideration the broader traffic, environmental and planning objectives for the roadway, and integrate cycling objectives within these strategies and frameworks. The intended function of a roadway generally influences the cycling measures that should be implemented.**

**Table 4.1: Classification Framework for City of Ottawa Roads**

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 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

Source: Ottawa 20/20 Transportation Master Plan, Figure 9.1- Classification Framework for City of Ottawa Roads, Page 63.

The City of Ottawa owns approximately 6,000 km of roads, arterials and collector roads accounting for approximately 1,300 and 1,700 km of the city’s road network respectively.

**As traffic levels increase on the higher order roadways, such as arterials and major collectors, they should be matched with a focus on improving the environment for cyclists.**

Generally, the higher the road classification, the speed or volume of motor vehicles on a roadway, the less comfortable the environment is for many cyclists when traveling in motor vehicle travel lanes. As traffic levels increase on the higher order roadways such as arterials and major collectors, they should be matched with a focus on improving the environment for cyclists. This may include providing a designated bike facility if the link has emerged as a potential addition to the bike network.

**...if a rural road (no curbs) is upgraded to an urban road cross-section (with curbs), then the cycling facility should also be upgraded at the same time.**

Furthermore, if a rural road (no curbs) is upgraded to an urban road cross-section (with curbs), then the cycling facility should also be upgraded at the same time. For example, a paved shoulder cycling facility on a rural road should be automatically converted to a bike lane.

**Technical Recommendation:**

4-5: *That as traffic levels increase on the higher order roadways such as arterials and major collectors, they should be matched with a focus on improving the environment for cyclists.*

**4.1.5 Local Roads and Collector Roads**

Local residential streets are generally very comfortable for cyclists and do not require any special bicycle treatments since daily traffic volumes are typically less than 2,500 vehicles per day.

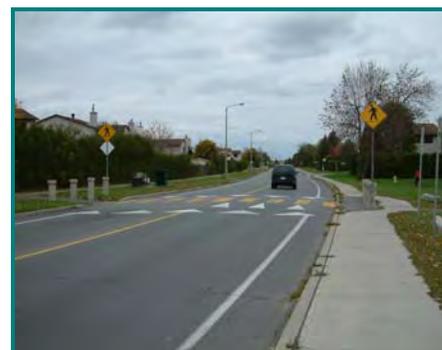
Collector roads typically have lower traffic volumes than arterials, and are generally comfortable for most adult cyclists. Designated bicycle facilities (other than signed-only route or wide shared-use / wide curb lane) are generally not required on lower volume collector roads.

Posted speed limits on local and collector roads typically range between 40 and 50 km/h. Despite these posted speed limits, some of these roads experience motor vehicle traffic operating at speeds significantly above the maximum posted speed limit, especially on wide collector roads that are straight and level for long segments. Traffic management measures are sometimes introduced on these streets to restore them to their intended function by reducing vehicle speeds, discouraging through traffic and generally improving the neighbourhood environment.

The application of traffic management measures can reduce the speed of traffic and can improve the level of comfort for pedestrians and cyclists. Efforts to reduce speeds on these streets should make them more bicycle friendly.

Traffic management can come in the form of traffic prohibitions (signing) or physical changes to the road geometry, such as the installation of speed humps, chicanes or raised medians.

The design of future physical traffic calming measures should be based on the Transportation Association of Canada (TAC) Guidelines for Neighbourhood Traffic Calming and/or current City of Ottawa guidelines. While these guidelines are



Traffic Calming Speed Humps

generally sensitive to the needs of cyclists, some measures are more “bicycle friendly” than others. Speed humps for example, are very comfortable for cyclists and are appropriate for signed bicycle routes. Other measures, such as road narrowings and pinch points, can be less comfortable for cyclists. Care must be exercised in all traffic management projects to consider cyclist safety and access.

In the downtown areas of the City, designating local streets for one-way operation has been used in the past as part of traffic management strategies. Depending on the location, these strategies can be inconvenient for local residents and can also be a barrier to cycling. Providing safe and convenient bicycle access on downtown neighbourhood streets is very important. In many European cities, two-way bicycle traffic is permitted on most local one-way streets.

In Ontario, two-way bicycle traffic is only permitted on streets with one-way motor-vehicle traffic through the provision of a contra-flow bike lane. A Contra-flow bicycle lane allows cyclists to travel against the flow of regular motor vehicle traffic in the designated bike lane. Contra-flow bicycle lanes are increasingly being used in other jurisdictions to provide two-way bicycle access on streets with one-way motor-vehicle traffic. The Highway Traffic Act, in particular Section 154 (i) (c), permits a municipality to designate a Contra-flow bike lane. This section states:

- (c) any lane may be designated for slowly moving traffic, traffic moving in a particular direction or classes or types of vehicles and despite section 141, where a lane is so designated and official signs indicating the designation are erected, every driver shall obey the instructions on the official signs.  
R.S.O. 1999, c. H.8, s. 154 (1).

Although the Ministry of Transportation (MTO) does not have an official sign to designate Contra-flow bike lanes, the Transportation Association of Canada's (TAC) Bikeway Traffic Control Guidelines (1998) does recommend a signing strategy to implement a Contra-flow bicycle lane. **Figure 4-3** illustrates TAC's recommended guideline.

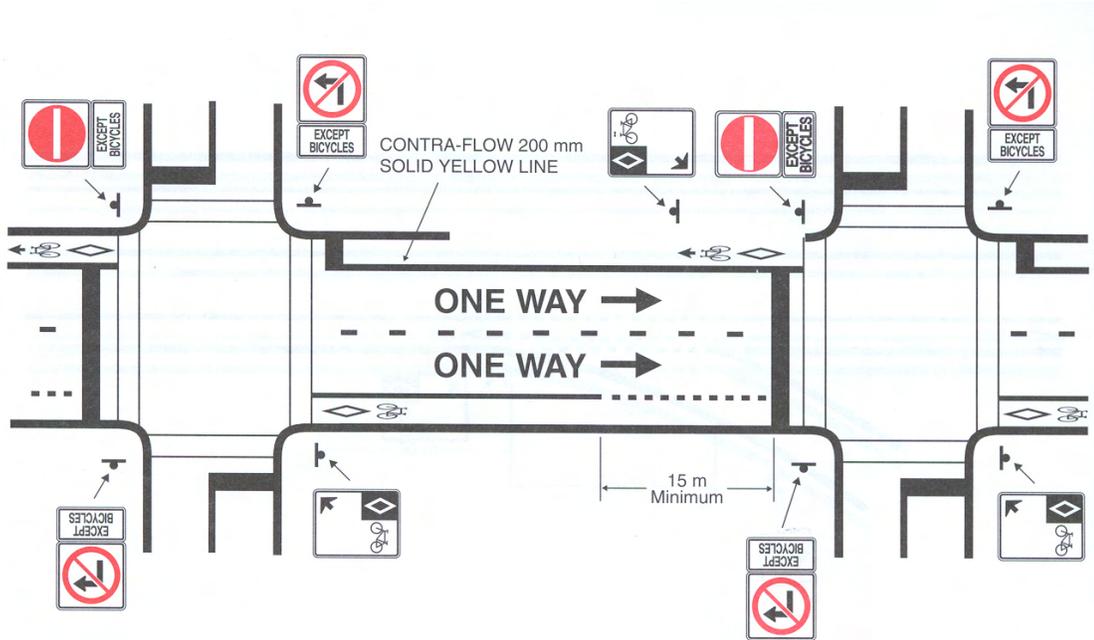


Figure 4-3: Contra-flow Bike lanes

It is recommended that until MTO develops a regulatory sign to designate Contra-flow bike lanes, that the TAC guideline be applied by the City of Ottawa for all existing and proposed Contra-flow bike lanes.

**Technical Recommendations:**

- 4-6: *That the City consider cycling safety and access in all new traffic management projects.*
- 4-7: *That the City investigate and implement solutions for allowing two-way bicycle access (Contra-flow) on one-way local streets that experience a low volume of motor vehicle traffic and provide an important connecting link for cyclists.*

**4.1.6 Major Collector and Arterial Roads**

Major collector roads typically have higher traffic volumes and speed limits of 50 to 60 km/h. Most cyclists do not feel comfortable cycling on arterial roads without bike lanes or wide curb lanes due to the higher traffic speeds and volumes on these roads. As the speed differential between a car and bike increases, level of comfort for cyclists generally decreases. However, arterial roads also provide the most



Downtown Ottawa Arterial Road

**... roads particularly in the City's core, can not accommodate bike lanes but experience high volumes and low speeds during peak hours. This can result in an environment where cyclists are comfortable riding with traffic because of the low speeds.**

direct route to most major destinations, which makes them a desirable option for cyclists. As part of the development of the bikeway network, most arterial roads were assessed for their compatibility for bike lanes within the existing roadway width. Many minor arterial roads were found to be ideal candidates for bike lanes and have been included in the bikeway network. Some of these roads, particularly in the City's core, cannot accommodate bike lanes but experience high volumes and low speeds during peak hours. This can result in an environment where cyclists are comfortable riding with traffic because of the low speeds.

Arterial roads typically have traffic volumes in excess of 20,000 vehicles per day and speed limits of 50 to 60 km/h. While these roadways are the most challenging for cyclists, they also present a tremendous opportunity for improvement. In order to maintain the traffic service levels on these major arterial roads, reallocation of the roadway space to provide bicycle facilities can be difficult. There are some sections that can be restriped to provide bike lanes while maintaining a suitable cross section for motor vehicles. In many cases however, a widening of the roadway would be required to provide bike lanes. A lane width between 3.5 m and 4.0 m gives cyclists and drivers more space to share the curb or outside lane. For arterial roads where parking is permitted in the curb lane in off-peak hours, a lane width ranging between 4.0 m and 4.3 m also provides more space for cyclists to ride well away from parked cars, and avoid doors being opened into their path.

Roadway reconstruction/rehabilitation projects provide good opportunities to improve the cycling environment. Depending on the available road right-of-way width, minor widenings may be possible to achieve wider curb lanes or possibly bike lanes. A policy for providing wide curb lanes or bike lanes on arterial roadways as part of road reconstruction projects should be considered for all roads on the cycling network, along with any other opportunities to provide wider curb lane widths for cyclists.

**Technical Recommendations:**

- 4-8: *That during road resurfacing projects on arterial roadways, the City provides wide curb lanes or bicycle lanes (e.g. pavement markings), on the cycling network, where feasible.*
- 4-9: *That during road reconstruction projects (e.g. road widening) on arterial roadways, the City provides bicycle lanes or wide curb lanes, on the cycling network, where feasible.*

**4.1.7 Bridges and Underpasses**

Bridges and underpasses are an important area where improvements to accommodate cyclists and pedestrians must be considered. These structures provide the crossing points of major barriers for cyclists (rivers, rail corridors and expressways). By their nature and typical design, these structures tend to be less bicycle friendly than a typical roadway section. Underpasses often have abutment walls in close proximity to the curb area, and higher crosswinds and higher traffic speeds are more prevalent on bridges. These conditions require more space in the curb area than the average roadway for cyclists to feel comfortable. As a general principle, these structures should have bike lanes even if they are not part of the cycling network.

The “Ontario Bridge Design Code, OHBDC” has been superseded by the “Canadian Highway Bridge Design Code” (CHBDC) designated as CAN/CSA-S6-00, which was published by the Canadian Standards Association and went into effect on June 1, 2002. The design of new structures or the modifications of existing bridges are now required to comply with the standards of the Canadian Highway Bridge Design Code. These include:

- Roadway and sidewalk widths, curb widths and heights, together with all other geometrical requirements not specified in the Code, shall comply with the standards of the Regulatory Authority, or in their absence, with the TAC Geometric Design Guide for Canadian Roads; and
- Sidewalks and cycle paths shall be separated from traffic lanes by a barrier or guiderail, by a curb having a face height of at least 150 mm and a face slope not flatter than



Bridge underpass

one horizontal to three vertical. Sidewalks and cycle paths not so separated shall be designed as part of the roadway.<sup>2</sup>

The CHBDC, however, does not prescribe structure clearances and cross section dimensions, nor does it specify appropriate widths for cycling facilities on bridges. Therefore, the CHBDC defers to provincial guidelines in the province of Ontario; these are the Geometric Design Standards for Ontario Highways (Section D.7, 2002 revision) and Ontario's Bikeways Planning and Design Guidelines (1996).

MTO's Bikeways Planning and Design Guidelines state the following:

- To allow cyclists to cross an existing bridge safely, the structure may require alterations to provide adequate width for all bridge users. A bikeway can be routed across the bridge in one of three ways:
- Creating a bike lane or shoulder bikeway on the travelled way;
- Reserving a sidewalk for cyclists only, or for shared use with pedestrians if there is adequate width; or
- Widening the roadway to permit shared use of the right lane by motor vehicles and bicycles.<sup>3</sup>

Side clearances greater than or equal to 1.5 m in width are sufficient for bicycle lanes. Where this width is not available for a bicycle lane, restriping should be considered to gain as much additional space in the curb lane as possible. However, side clearances less than 1.2 m in width should not be considered for on-road cycling facilities as these would create sub-standard bike lanes which cyclists should not be encouraged to use. Under these circumstances, cyclists should ride in the motor-vehicle travel lane.

<sup>2</sup> CAN/CSA-S6-00 Canadian Highway Bridge Design Code, Section 1.6.2.1.

<sup>3</sup> Ontario Bikeways Planning and Design Guidelines, Ministry of Transportation Ontario, March 1996.



Arterial roadway bridge

**A detailed review of all bridges and underpasses is recommended to determine where bicycle friendly features can be implemented.**

The construction / rehabilitation of all underpasses should include the improvement of lighting and drainage. Existing lighting in underpasses can be very poor in the curb area where cyclists ride. Not only does the cyclist have difficulty seeing pavement irregularities in their path, low lighting levels also make it more difficult for drivers to see cyclists. Increasing the visibility for cyclists, especially if bike lanes or wide curb lanes cannot be achieved, will improve comfort for both cyclists and drivers. Drainage in underpasses is also an issue for cyclists. Poor drainage causes ponding in the curb area, which may force a cyclist to swerve into the travel lane and in the path of motor vehicles to avoid these areas. Future bridge and underpass reviews should determine where bicycle friendly features can be implemented.

Staircases also provide the crossing points of major barriers for cyclists. However they pose a problem as cyclists must carry their bicycles up or down. A solution is to build concave ramps along the staircases. The ramps should be built on both sides of a staircase to avoid conflicts between cyclists going up or down. The ramp width should be a minimum of 150mm, and preferably 350mm.

***Technical Recommendation:***

*4-10: That the City incorporate bicycle friendly features in bridge and underpass projects, including bicycle ramps on stairs, as part of the annual capital works and rehabilitation programs.*

**4.1.8 Road Maintenance and Repair Programs**

As noted previously, the characteristics of the bicycle including its lightweight, narrow tires, make it more susceptible to irregularities in roadway conditions than motor vehicles. Deterioration of the roadway surface such as potholes or cracking and debris in the curb area increases the potential for cyclist injury. Continued and improved maintenance of the roadway surface is essential to ensuring a high level of comfort and safety for all road users, including cyclists.



Bicycle Ramps on stairs



All potholes and other road deficiencies should be identified to warn all road users

### **Pavement Repair**

The roadway edge is often the first part of the roadway that experiences pavement cracking or break-up. This is also the area that is most travelled by cyclists. When significant deterioration occurs, repairs of this nature should not be deferred until a general resurfacing of the roadway.

The current practice for identifying these locations for repair relies mostly on requests from the public and City road asset audits. A cycling-specific road-repair reporting program, dealing exclusively with cycling related roadway issues will become increasingly important as the cycling network is expanded and as the cycling modal share continues to grow throughout the City.

#### **Technical Recommendation:**

*4-11 That the City's road maintenance and pavement repair reporting system and annual budget specifically include the needs of cyclists.*

### **Street Cleaning**

The “sweeping” action of passing motor vehicles tends to push debris from the travel lanes to the edge of the pavement. Since this is the area typically utilized by cyclists, they are most likely to encounter and be affected by deposited debris.

From the end of winter until mid-May, the City of Ottawa conducts an annual “street-sweeping-blitz” removing debris and sand that has accumulated on local streets and sidewalks during the winter months. As a minimum, this practice should continue, with priority given to streets that form part of the Ottawa Cycling Network.

During winter months, roads are scheduled for clearing based on roadway function. Higher order roads in the urban area that experience higher vehicle traffic volumes and provide major transportation links are given top priority and are maintained as near as possible to bare pavement condition. The next level of priority is given to collector roadways, and then services are provided to lower volume local roadways.



Regular maintenance of cycling facilities is important at key points in a year

Primary “Spine” segments of the Ottawa cycling network in the majority of cases are located on major arterial roads, which should already be receiving top priority for snow removal. Therefore, these roads should continue to receive top priority for snow removal and clearing, especially if they have designated cycling facilities that comprise part of the Spine network.

It is important that snow and ice be cleared or removed in a manner so that City roads are safe and passable and the hazards caused by debris, snow and ice accumulation on the road surface are minimized. This includes adjacent shoulders and bicycle lanes on roadways that are designated as City cycling routes.

Consideration should also be given to increasing the priority for snow clearing on local collector roads that make up segments of the “Spine” cycling network.

The road maintenance scheduling program should be reviewed with the objective of identifying and prioritizing primary “Spine” road segments that serve the cycling network.

***Technical Recommendation:***

*4-12: That the road maintenance scheduling program recognize and prioritize primary “Spine” segments of the cycling network and prioritize these streets for snow removal and year-round cleaning.*

**4.1.9 Accommodating Cyclists in Construction Zones**

During construction / rehabilitation of a roadway, the environment through the construction zone typically features rough pavement, narrow or restricted lanes and heavy machinery. This environment can be particularly uncomfortable for a cyclist. Therefore, it is important to maintain safe and convenient access for bicycles through construction zones especially on roadways that have high bicycle volumes or one designated as part of the “Spine” of the cycling network.



Example of cyclists riding through a construction zone

**Appropriate signing is also important in providing information to cyclists and drivers to ensure that the proper right-of-way for both user types is clearly defined.**

As a general principle, if access is maintained for motor vehicles in construction zones, then access should also be maintained for bicycles and pedestrians. Ideally, the contractor should provide a temporary facility for cyclists if space is available within the road allowance. While this is not always possible, alternatives to accommodate cyclists should always be considered. If the phasing of construction requires that access to the roadway is closed to vehicular and bicycle traffic at any time, a well-signed detour route should be provided. Separate detour routes may be appropriate for motorists and cyclists, depending on the location.

Temporary road conditions through a construction zone that are compatible with motor vehicle use may not be compatible with bicycle use. For example, steel plates and timber decking are typically used to cover excavations in the roadway. Steel plates should be coated with a non-slip surface, and timber decking should be placed at right angles to the direction of travel to prevent a bicycle wheel from entering the cracks or gaps of deck boards. The edges of any road cuts, whether for resurfacing or a utility cut, should be ramped to prevent falls by cyclists or tire punctures. This should be done immediately after the asphalt has been lifted.

Appropriate signing is also important in providing information to cyclists and drivers to ensure that the proper right-of-way for both user types is clearly defined. A review of this signing to determine both appropriate and consistent signing applications for construction projects across the City is recommended.

***Technical Recommendation:***

*4-13: That the City provide measures to reduce risks to cyclists passing through construction zones, and to ensure access for cyclists during road construction activities when practical. This should include, but not be limited to:*

- a. Construction notices posted on the City's website;*
- b. Advanced signing for construction activities;*
- c. Temporary conditions that are compatible with bicycles such as non-slip surfaces, ramped utility*

*cuts and timber decking placed at right angles to the direction of travel; and*

*d. Bicycle specific detours, where appropriate.*

## 4.2 Bicycle Parking

The provision of bicycle parking facilities is key for encouraging bicycle use. The lack of adequate or secure parking deters many people who may consider cycling from actually doing so. An important objective of this plan is to expand the supply and quality of bicycle parking facilities in the City of Ottawa.

Bicycle parking facilities should be located in a safe, secure and convenient environment, preferably near an entrance/exit of the building it services and in direct view of an attendant's booth (if one exists), or security camera. Bicycle parking facilities should also be readily accessible so that users do not have to carry their bikes to the parking location. Furthermore, weather protection should be provided wherever possible and should be located at least 7 m from an intersection to avoid conflict with pedestrian crossing movements.

Bicycle theft is clearly a major problem in cities, and even with significant improvements to bicycle security devices over the last 10 years, bike theft remains a major deterrent to many that might otherwise cycle. There is no simple solution to the problem, but one can minimize the opportunity for theft by locating parking facilities in publicly visible and secure locations. Cyclists seek parking in locations that are frequented by pedestrians, visible from neighbouring buildings or that offer some other form of security from theft and vandalism. Improving the supply and security of parking facilities for cyclists will have a significant impact on the attractiveness of cycling as a transportation mode.

Generally, optimum bicycle parking devices/facilities should:

- Enable the bicycle to be securely locked to the device without damaging the bicycle;
- Be secured so that racks cannot be removed;

**The provision of bicycle parking facilities is key for encouraging bicycle use.**



Bicycle secured to a "Ribbon" bicycle rack

**Bicycle parking facilities should be provided at major employment, commercial and transit nodes throughout the city.**



Bicycle Parking at Transitway Station – City of Ottawa

- Be located in areas that deter theft and vandalism such as in full public view where they can be viewed by passers-by, station attendants, fellow workers, etc;
- Present no hazard to pedestrians;
- Be easily accessible from the road or bicycle route;
- Be arranged so that parking and unparking manoeuvres will not damage adjacent bicycles;
- Be attractive in design;
- Be as close as possible to the cyclist's destination;
- Have appropriate security lighting, where possible;
- Be available year-round in key employment and retail nodes;
- Shelter bikes from inclement weather, where possible;
- Be located in areas that are optimal for deterring theft and vandalism;
- Easy to use without detailed instructions; and
- Be free of charge or relatively inexpensive in comparison to motor vehicle parking.

Bicycle parking facilities should be provided at major employment, commercial and transit nodes throughout the City. Bicycle parking systems can generally be grouped into three categories:

- Class 1: High Security;
- Class 2: Medium-High Security; and
- Class 3: Medium Security.

**Class 1 – High Security.** These facilities may be a protected parking area with a surveillance system or a key-access bicycle locker. They are recommended for long-term parking (work, school, transit stations, etc.) and in low-visibility locations where there is little pedestrian traffic.

**Class 2 – Medium-High Security.** This type of system permits the bicycle frame and both wheels to be locked together without requiring the cyclist to remove one of the wheels from the bicycle frame. Although it does not protect all parts of the bicycle, it does protect the essential and most

expensive components from theft. This type of facility is appropriate for office buildings, stores, educational institutions and public buildings.

**Class 3 – Medium Security.** These types of racks permit the frame and one wheel to be secured with a lock. Bicycle parking devices of this type are typically low in cost and tend to require less space per unit. They are suitable for short-term parking in busy locations.

***Technical Recommendation:***

*4-14: That the City provide medium-security bicycle parking facilities at all City of Ottawa facilities to serve as a model to other jurisdictions and the private sector.*

#### **4.2.1 Bicycle Parking Standards**

Bicycle parking facilities are much more efficient in their use of space than automobile parking lots. Cars require 17 to 30 m<sup>2</sup> per vehicle, whereas bicycles require only 1.0 to 1.7 m<sup>2</sup> per unit. Allowing space to access individual bikes, up to 10 bicycle parking spaces could be provided per auto space.

As illustrated in **Table 4.2**, the City of Ottawa zoning by-law requires the following minimum bicycle parking provisions for various land uses in the City. In addition to Table 4.2, the by-law also provides information on the location of bicycle parking. These should be maintained and enforced for all new developments in the City, especially as the cycling network is expanded.

**Table 4.2: New Bicycle Parking Spaces**

Land Use	Minimum Number of Spaces Required
a) retirement home; retirement home, converted; rooming house; rooming house, converted; rooming unit other than within a post secondary educational facility	0.25 per dwelling unit or rooming unit
b) apartment building, low rise; apartment building, mid-high rise; dwelling unit in the same building as a non-residential use; stacked dwelling	0.50 per dwelling unit
c) rooming unit or dwelling unit within a post secondary educational facility	0.75 per dwelling unit or rooming unit
d) school	1 per 100 m <sup>2</sup> of gross floor area
e) bank; convenience store; day care; office; post office; post secondary educational institution; restaurant; retail food store; retail store	1 per 250 m <sup>2</sup> of gross floor area
f) library; municipal service centre; personal service business; retail food store 8,000 m <sup>2</sup> of gross floor area or greater; retail store 8,000 m <sup>2</sup> of gross floor area or greater; service or repair shop; shopping centre	1 per 500 m <sup>2</sup> of gross floor area
g) airport; bus station; hospital; hotel; light industrial use; medical facility; technology industry; train station	1 per 1000 m <sup>2</sup> of gross floor area
h) animal hospital; storage yard; truck transport terminal; warehouse	1 per 2000 m <sup>2</sup> of gross floor area
i) all other non-residential uses	1 per 1500 m <sup>2</sup> of gross floor area

Source: City of Ottawa, Draft Urban Comprehensive Zoning By-law, Part 4 (Sec. 111)  
[http://ottawa.ca/residents/bylaw/zoning/bylaw/full\\_bylaw/pt\\_04/bike\\_prk\\_en.html](http://ottawa.ca/residents/bylaw/zoning/bylaw/full_bylaw/pt_04/bike_prk_en.html)

GFA – “Gross Floor Area” refers to the total floor area obtained by adding together the area contained within the perimeter of the exterior of the building at each floor level.

NOTE: The new City of Ottawa Draft Zoning By-law allows for the reduction of one motor vehicle parking space for every 13 square metres of gross floor area provided for shower rooms, change rooms, locker rooms and other similar facilities intended for the use of bicyclists (Part 4, Section 111 [13].) Transport Canada recommends one shower per 100 employees as a good ratio for providing showers and change room facilities in the work place.

**Technical Recommendation:**

4-15: *That the minimum bicycle parking spaces as identified in the City Comprehensive Urban Zoning By-Law / (Table 4.2 of this report) should be used for all future developments in the City of Ottawa. Owners of existing buildings should be encouraged to upgrade to meet these standards.*

**4.2.2 Long-Term Bicycle Parking Facilities – Class 1**

Long-term bicycle parking facilities should be secure so that not only the bicycle is secured, but the actual facility in which the bicycle is stored is also protected. Long-term bicycle parking facilities should be located in special designated bicycle-parking areas and should preferably provide weather protection. Long-term bicycle parking facilities can include bicycle lockers or cages, which could be provided through the provision of individual lockers or parking units located in a locked room or cage with controlled access. Lockers may either be leased on a monthly basis or coin-operated. The lockers should also provide a storage area within the facility to lock the bicycle and to hang wet or winter clothing.

Bicycle cages should be constructed from an industrial grade chain link and hooks or racks must be provided within the cage. Cages should be located within sight of a building or parking security and all elevators or visitor entrances should be well lit. Examples of locations where bicycle cages can be effective include places of employment that have a high cyclist population, residential build-up and public venues or events that are frequented by cyclists.

**Technical Recommendation:**

4-16: *That the City of Ottawa encourage the City's partners and the private sector to provide secure bicycle parking at key destinations, including all places of work with 20 or more employees and multi-unit residential buildings.*

**Long-term parking can be defined as a cyclist parking their bicycle at a location for an extended period of time, typically more than 3 hours, usually during the day while they are at work or school.**

**Short-term bicycle parking facilities are intended for cyclists who park their bicycles for generally less than 3 hours, for purposes such as shopping or running a quick errand.**

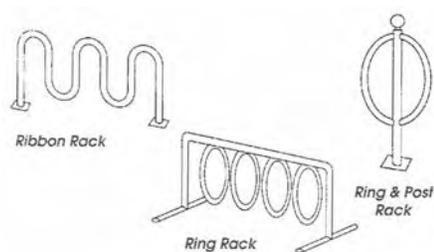


Figure 4-4: Bicycle Rack Designs Similar to Those Currently Used in Ottawa

### 4.2.3 Short-Term Bicycle Parking – Class 2 and 3

Short-term bicycle parking facilities should be conveniently located adjacent to the property which they serve and readily accessible by a cyclist of any skill level. General guidelines for the provision of short-term bicycle parking are as follows:

- Racks should be secured to the ground but must be removable by City staff for rack maintenance and if necessary for snow removal and area cleaning;
- The rack design must prevent disassembly with hand tools or being rendered inoperative through acts of vandalism;
- Racks should be designed to accommodate a U-bolt lock, allowing cyclists to lock both wheels and the frame while allowing sufficient space for a bicycle to be secured without damage;
- Parking spaces between supports within the racks should be sufficiently far apart to ensure that all spaces can be used conveniently;
- Racks should be of sufficient height to allow a bicycle to be leaned up against the rack and should support the frame of the bicycle;
- Racks should be easy to use and install; and
- Racks should be aesthetically pleasing, sturdy and easy to maintain.

Bicycle parking racks currently used by the City of Ottawa for short-term uses are illustrated in **Figure 4-4**. They include the “Ribbon Rack”, the “Ring Rack” and the “Ring and Post Rack”. Bicycle racks are typically secured to the ground but can be removed for maintenance. “Ring Racks” and “Ribbon Racks” may also be appropriate for long-term bicycle parking depending on where they are located (e.g. Transitway Station).

#### **Private Sector Bike Racks in Public Rights-of-Way**

The City of Ottawa also runs a private-public partnership for bicycle parking in the public right-of-way. The City’s current partner, Velocity-Media, places bicycle racks at various locations throughout Ottawa in the public right-of-way.

Advertisements are placed on these bicycle racks and they are usually placed at strategic locations to cater to a specific target audience market. Some racks are placed in permanent year-round locations and others are placed in temporary locations during good weather months.

This partnership presents an excellent opportunity to promote and encourage cycling in Ottawa and should be continued, if not expanded.

*4-17: That the City of Ottawa continue partnership with the private sector to install bicycle racks throughout the City in public rights-of-way as part of their strategy to enhance bike parking in the City.*

### **Modified Ring and Post Bicycle Racks**

The City of Ottawa has recently developed a modified “Ring and Post” bicycle rack that can be installed when a sidewalk is being poured, and allows the bicycle rack post to be filled with concrete for added strength. The City should continue this operation and install more of these modified “Ring and Post” bicycle racks, especially at locations where short-term bicycle-parking demand is high, as they are more durable than the designs currently in use. Typical installation guidelines for bicycle racks are described in **Section 4.2.4**. The cost for manufacturing and installing this type of rack is estimated to be in the range of \$50 to \$75 per unit. In the City of Toronto, where a similar program is in place, the unit price including installation is approximately \$50. However their program has a budget dedicated to installing 2000 racks a year which may afford the City a volume discount.

It is recommended that the City of Ottawa continue this “Ring and Post” rack program and establish a target and the necessary budget to install a minimum of 500 racks annually. This program should be reviewed with the objective of expanding it in future years.

### **Technical Recommendations:**

*4-18: That the City continue installing “Ring and Post” bicycle racks, especially at locations where bicycle-parking demand is high.*



Velocity-Media Bike Rack



Construction of a modified Ring & Post rack

4.2.4 Installation

Table 4.3 provides recommendations for the type of bicycle parking facility / rack based on security level.

Table 4.3: Recommended Application of Bicycle Parking Facilities

Bicycle Parking Security Level	Recommended Facility / Rack Type	
	Short-Term	Long-Term
Class 1: High Security	Ring Rack Ribbon Rack	Bicycle Lockers Bicycle Cages
Class 2: High / Medium Security	Ring Rack Ribbon Rack	Bicycle Lockers Bicycle Cages Ring Rack Ribbon Rack
Class 3: Medium Security	Ring and Post Ring Rack Ribbon Rack	Ring Rack Ribbon Rack

The following general guidelines should be used for the installation of bicycle parking facilities:

- Sufficient clearance between the bicycle rack and buildings, furniture, fences, etc. should be provided to accommodate the length of a bicycle (approximately 1.75 metres);
- In locations where bicycles are parked on a horizontal surface, parking spaces should have horizontal dimensions of at least 0.6 m by 1.8 m and a height of at least 1.9 m.
- In locations where bicycles are to be parked in a vertical suspended position, the parking space should have a depth of at least 0.5 m, a width of 1.5 m and a height of at least 2.0 m.

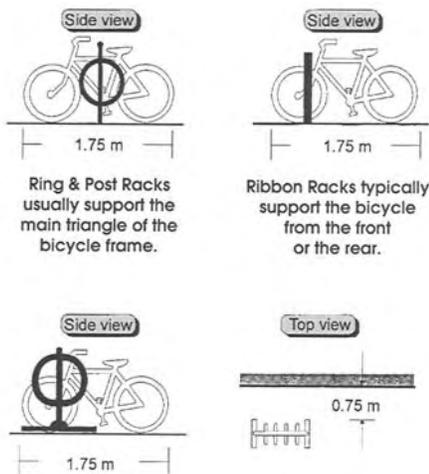


Figure 4-5: Typical Installation Procedures for Bicycle Racks

Figure 4-5 illustrates typical dimensions to be considered when installing “Ring and Post”, “Ribbon” and “Ring” bicycle racks.

**Figure 4-6** illustrates signing that is currently used to identify bicycle parking areas in the City. The continued use of these signs is recommended.

Chapter 5 in Appendix I of this report, Planning and Design Guidelines gives more specific details for the installation of bicycle parking facilities.

#### 4.2.5 “Park and Bike” Pilot Program

In an effort to further increase cycling as a feasible transportation alternative to the automobile, the promotion of a “Park and Bike” program should be initiated. Park and Bike facilities would allow a cyclist to drive their automobile to a particular lot located along a cycling route, park their automobile, and then proceed on the rest of their journey by bike.

It is recommended that this program be initiated as a pilot project at one location in the City, to be determined by City staff.

In developing this program, the following should be considered:

- A no-charge parking lot should be established at a key location, preferably on the “Spine” system of the Ottawa Cycling Network, and along the periphery of downtown Ottawa.
- As promotion and use increases, more lots may be considered.
- The “Park and Bike” parking lot should not be in close proximity or walking distance to any major commercial, retail or employment areas. This will ensure during the monitoring process that vehicles parked in the Park and Bike lot are likely cyclists, continuing their journey along the cycling network.

This pilot project should be monitored for up to two years to determine the feasibility and demand for a Park and Bike program.



*Bicycle Parking Sign  
(60 x 60 cm)*

*This sign is to inform the cyclists of the location of the bicycle parking facility.*



*Bicycle Parking Sign  
(60 x 60 cm)*

*This sign is to be used to guide the cyclists to the location of the bicycle parking facility.*

Figure 4-6: Bicycle Parking Signing

**Technical Recommendations:**

4-19: That a “Park and Bike” pilot project should be initiated by the City and monitored for up to two years.

**Combining cycling and transit trips can greatly expand the area that a cyclist can cover and in some cases, can compete with the speed and convenience of the private automobile.**

### 4.3 Cycling and Transit

Expanding the City’s past success in integrating transit and cycling trips is a specific objective of this plan. Public transportation in the City of Ottawa is provided primarily by OC Transpo, which has a fleet of over 800 buses. OC Transpo provides regular bus service across the City. This includes, a bus-rapid-transit network called the “Transitway”, which services the urban area of Ottawa and an 8 km light rail line called the O-Train, which operates from just west of the downtown core to the South Keys area. Bus service is also provided to the rural areas of the City.

The City of Ottawa has already successfully moved to encourage the integration of cycling and transit through the implementation of the “Bike & Ride” and “Rack & Roll” bike program, by providing bicycle parking at transitway and O-Train stations and by equipping major bus routes with bicycle racks from April to October.

Combining cycling and transit trips can greatly expand the area that a cyclist can cover and in some cases, can compete with the speed and convenience of the private automobile.



Bicycle Rack on OC Transpo bus

#### 4.3.1 Bike & Ride

The Bike & Ride program implemented by OC Transpo encourages and integrates cycling and public transit. Through the Bike & Ride program, bicycle-parking facilities are currently provided at 18 transitway stations and at all the O-Train stations. Most of these stations are accessible from nearby multi-use paths and local streets, which provide the opportunity for cyclists to connect to rapid transit service to the downtown core and across the City.

Programs such as Bike & Ride will assist the City in promoting and encouraging people to cycle more often for commuting purposes. Additionally, the Bike & Ride program will assist the City in achieving its goals set out in the 20/20

Transportation Master Plan to increase the cycling modal share to 3% by 2021.

### ***Technical Recommendation:***

*4-20: That the Bike & Ride project be continued to assist the City in promoting and encouraging people to cycle for commuting purposes.*

### **4.3.2 Rack & Roll**

The “Rack & Roll” program was initiated to complement OC Transpo’s Bike & Ride program. The Rack & Roll program operates from April to October each year. Main bus routes throughout the OC Transpo network are equipped with bicycle racks, with each rack capable of carrying two bicycles at a time.

Bicycle rack usage was monitored by OC Transpo on five bus routes equipped with bicycle racks between 2000 and 2004. Collectively, bicycle rack usage has increased over this four-year time period. The bicycle rack usage has doubled on weekdays and tripled on Saturdays and Sundays since year 2000.<sup>4</sup> **Table 4.4** summarizes the bike rack usage on the five bus routes monitored for the four-year time period.

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<sup>4</sup> Bicycle Rack Usage Summary – 2000 to 2004, Provided by the City of Ottawa.

Table 4.4 - Bike Rack Usage Summary (2000 - 2007)

Weekday													
										% Change Over 2006			
Rack Usage										July	Sept.	July	Sept.
Route	2000	2001	2002	2003	2004	2005	2006	2007		06-07	06-07		
1	---	---	---	3	1	5	4	1	2	-75%	-50%		
2	10	12	26	25	23	30	31	25	37	-19%	19%		
4	---	---	---	---	---	5	1	---	---	---	---		
7	---	---	5	5	3	1	4	2	1	-50%	-75%		
14	---	---	---	---	---	7	7	3	2	-57%	-71%		
85	---	---	5	17	12	21	20	21	17	5%	-15%		
95	76	147	175	246	178	219	237	206	182	-13%	-23%		
96	---	---	---	---	---	64	48	33	18	-31%	-63%		
97	55	72	83	132	99	67	71	53	33	-25%	-15%		
99/101	---	---	---	---	---	---	3	17	6	467%	100%		
118	---	---	---	5	9	14	35	19	10	-46%	-71%		
145	---	---	---	---	---	---	---	3	0	---	---		
180	---	---	---	---	2	1	1	---	---	---	---		
<b>Total</b>	<b>141</b>	<b>231</b>	<b>304</b>	<b>433</b>	<b>327</b>	<b>434</b>	<b>462</b>	<b>383</b>	<b>308</b>	<b>-17%</b>	<b>-33%</b>		

Saturday													
										% Change Over 2006			
Rack Usage										July	Sept.	July	Sept.
Route	2000	2001	2002	2003	2004	2005	2006	2007		06-07	06-07		
1	---	---	---	1	3	2	1	3	0	200%	-100%		
2	10	14	14	29	13	28	18	34	19	89%	6%		
4	---	---	---	---	---	3	1	1	0	0%	-100%		
7	---	---	3	7	4	7	2	5	3	150%	50%		
14	---	---	---	---	---	11	7	1	5	-86%	-29%		
85	---	---	9	11	27	18	20	12	17	-40%	-15%		
95	56	85	101	108	179	172	175	129	122	-26%	-30%		
96	---	---	---	---	---	34	29	39	33	34%	-14%		
97	37	48	82	72	103	66	52	43	41	-17%	-21%		
99/101	---	---	---	---	---	---	4	10	7	150%	75%		
118	---	---	---	5	25	23	18	18	9	0%	-50%		
145	---	---	---	---	---	---	---	2	2	---	---		
180	---	---	---	---	---	---	---	---	---	---	---		
<b>Total</b>	<b>103</b>	<b>147</b>	<b>209</b>	<b>233</b>	<b>354</b>	<b>364</b>	<b>327</b>	<b>297</b>	<b>258</b>	<b>-9%</b>	<b>-21%</b>		

Table 4.4 - Bike Rack Usage Summary (2000 - 2007)

Sunday											
Rack Usage										% Change Over 2006	
Route	2000	2001	2002	2003	2004	2005	2006	July 2007	Sept. 2007	July 06-07	Sept. 06-07
1	---	---	---	1	5	1	0	2	1	100%	100%
2	11	12	12	17	20	23	28	25	14	-11%	-50%
4	---	---	---	--	---	1	5	0	2	-100%	-60%
7	---	---	4	5	17	2	0	6	3	100%	100%
14	---	---	---	---	---	3	4	3	0	-25%	-100%
85	---	---	10	9	34	15	16	13	4	-19%	-75%
95	57	82	113	131	165	137	141	139	109	-1%	-23%
96	---	---	---	---	---	36	31	31	19	0%	-39%
97	55	67	58	93	106	56	42	40	37	-5%	-12%
99/101	---	---	---	---	---	---	---	---	0	---	---
118	---	---	---	9	5	18	19	11	3	-42%	-84%
145	---	---	---	---	---	---	---	1	1	---	---
180	---	---	---	---	---	---	---	---	---	---	---
<b>Total</b>	<b>123</b>	<b>161</b>	<b>197</b>	<b>265</b>	<b>352</b>	<b>292</b>	<b>286</b>	<b>271</b>	<b>193</b>	<b>-5%</b>	<b>-33%</b>

Bicycle Rack Usage Summary – 2000 to 2007, Provided by the City of Ottawa.

The results of the Rack & Roll usage summary clearly indicate that the integration of cycling and transit is growing in popularity. Therefore, consideration should be given to expanding the Rack & Roll program by equipping more buses with bicycle racks, and providing Rack & Roll service year-round on “Spine” routes.

At present, Rack & Roll service is only provided during non-winter months due to space limitations in OC Transpo’s bus garages. OC Transpo bus garages are at maximum capacity and there is no room for expansion to store more buses at this time. The length of a bus is increased when bicycle racks are added. Therefore, many of the buses equipped with bike racks must be stored outside of the bus garages when they are not in service, since there is no room to accommodate them all.

Due to Ottawa’s winter conditions, it is not practical to store buses outside when they are not in service. Leaving buses exposed to the elements when they are not in use can cause premature ageing. This increases the costs associated with maintenance and decreases the overall lifespan of the bus, leading to early replacement. Therefore, bike racks are currently removed in the winter in order to store the entire bus fleet indoors.

Ottawa’s TMP indicates that new bus garages are scheduled for construction to accommodate the expanded OC Transpo fleet. It is recommended that these new garage facilities be designed to accommodate the additional space required to store bicycle rack-equipped buses to store the entire bus fleet indoors during winter months. This would allow for the Rack & Roll program to be expanded and extended to year round operation on “Spine” routes.

### 4.3.3 O-Train

The City of Ottawa has established an 8 km, five station light-rail rapid transit line that opened in 2001 linking the South Keys area of Ottawa to just west of downtown core via Carleton University. The O-Train has a designated area aboard the cars to accommodate bicycles. All O-Train stations are also fully accessible for cyclists during all time periods that trains are in operation. Bicycle parking is also currently available at all of the O-Train stations.

**This is an excellent and forward thinking initiative undertaken by OC Transpo and the City of Ottawa to better integrate cycling with transit use.**



Photograph of cycling facility and a transit corridor

This is an excellent and forward thinking initiative undertaken by OC Transpo and the City of Ottawa to better integrate cycling with transit use. As the O-Train network is extended, all stations constructed should remain accessible to cyclists, and segments of the Ottawa Cycling Network should connect to O-Train stations.

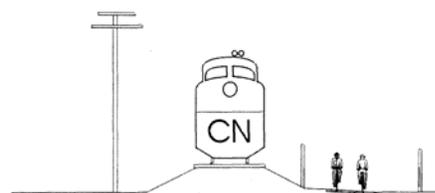
#### **Technical Recommendations:**

- 4-21: *That future extensions of the O-Train or future LRT systems remain completely accessible to cyclists with bicycles being allowed on board and bicycle parking being provided at every station.*
- 4-22: *That future transit stations should provide direct connections to the Ottawa Cycling Network.*

#### 4.3.4 Cycling Facilities in Future Transit Corridors

The City of Ottawa's TMP has identified a number of potential rapid transit service corridors throughout the city. Many of these reserved corridors include under-utilized or abandoned rail lines and hydro corridors.

The City of Ottawa should consider installing cycling facilities such as off-road pathways along these corridors as a means of establishing them as part of a connected transportation network. The cycling facilities should be maintained when the rapid transit lines are implemented. A cycling facility, such as a pathway, could be relocated to run parallel to the rapid transit facility within the corridor right-of-way. Alternatively, the rapid transit facility could be built adjacent to the pathway, but physically separated from the transit facility itself. Fences would be suitable to separate the cycling facility from the rapid transit routes. However, connections should be provided between the cycling facility and stations along the transit line.



Schematic of a cycling facility adjacent to a rail line.

Source: Rails with Trails Feasibility Study: An example from Kelowna, British Columbia. G.D. Hamilton Associates Consulting Limited, 2003

#### Technical Recommendations:

- 4-23: *That Cycling facilities such as multi-use pathways be installed along corridors reserved for future rapid transit use.*
- 4-24: *That as higher-order rapid transit facilities are installed, any existing cycling facilities such as multi-use pathways should be retained within the corridor, but must be physically separated from the rapid transit facility.*

#### 4.3.5 TravelWise

As first noted in Section 2.5, TravelWise is a program that has been initiated by the City of Ottawa to mitigate increasing traffic congestion and maximize transportation infrastructure. TravelWise is a well-developed program that works with local schools, community groups, employers and the general public to make various travel options more attractive than driving alone. Travel options promoted include walking, cycling, carpooling and transit.



The travel modes identified in the TravelWise program should continue to be promoted throughout the City with marketing campaigns such as television commercials, flyers and billboards. Billboards would be especially useful in areas that experience high motor-vehicle traffic congestion. Advertisements may also be placed at workplaces, schools, community centres and bus shelters as well, appealing to all age groups.

***Technical Recommendation:***

*4-25: That the TravelWise program be further promoted throughout the City through appropriate marketing campaigns.*

**One of the key methods of increasing the cycling modal share in the City of Ottawa is to increase the number of cyclists who cycle for commuting purposes.**

**4.4 Trip-End facilities**

One of the key methods of increasing the cycling modal share in the City of Ottawa is to increase the number of cyclists who cycle for commuting purposes. In order to increase the bike travel mode share, cyclists must be provided adequate trip-end facilities. These can include the installation of showers and lockers at workplaces and educational institutions to promote the use of the cycling network for commuting purposes. Lockers can be used to store personal belongings such as cycling accessories and a change of clothing. Businesses or institutions with employees who commute by bicycle and/or in-line skates should be encouraged to offer these facilities.

Consideration should be given to promoting and/or implementing trip-end facilities as part of efforts to apply a City-wide TDM program.

***Technical Recommendations:***

*4-26: That the City of Ottawa continue to provide trip-end facilities at all public buildings where feasible, and that the private sector be encouraged to do the same.*

*4-27: That consideration should be given to promoting and/or implementing trip-end facilities as part of efforts to apply a city-wide TDM program.*

#### **4.5 OCP Policy Recommendations**

The following policy recommendations have been identified for inclusion in the City’s Official Plan to provide policy direction to the cycling-friendly objectives outlined in this chapter.

The City of Ottawa will:

##### **Land Use Planning and Development**

4-a: Incorporate considerations for cycling in the land use planning, development and approval process to ensure that land use patterns and transportation systems support and give priority to cycling needs, such as bicycle routes, and trip-end facilities including bike parking, showers, and lockers.

##### **Construction**

4-b: Ensure that any roadway construction or reconstruction projects under its review or authority include provisions for facilities to meet the needs and safety of cyclists, minimizes impacts upon cyclists and considers opportunities for cyclists such as surface treatment and paving roadway shoulders.

##### **Cycling Plan**

4-c: Endorse the 2007 Ottawa Cycling Plan that includes goals and objectives for creating a bicycle friendly city, through an integrated cycling network plan and implementation strategy, harmonized policies and cycling education, enforcement, promotion and a monitoring program.

##### **Transit**

4-d: Continue to enhance the multimodal integration of transit with cycling by the following measures:

- Maximizing bicycle access to transit stations and platforms;
- Providing, where feasible, separate routes or multi-use pathways adjacent and across transit corridors;

- Expanding Rack & Roll programs in the long term by equipping all new buses with bicycle racks; and
- Promoting Bike & Ride by ensuring secure bicycle parking at transit stations.



Cyclists on a Pathway Bridge

### ***Parking and Trip-End Facilities***

4-e: Require the continued expansion of bicycle trip end facilities such as parking, lockers, and showers at all cycling destinations, whenever possible or practical through the following measures:

- Development of a comprehensive bicycle parking program that establishes public and private sector responsibilities and opportunities, that can be part of an overall Bicycle Parking Management Strategy;
- Require the land use planning approval process and zoning by-laws to set standards for bicycle parking that is adequate to meet demands, and produce secure, lighted, highly visible, sheltered and convenient bicycle parking locations;
- Provide leadership by example through focusing bicycle trip-end facilities on the City's parking precincts, city owned and operated buildings and rapid transit stations;
- Identify TDM measures to help developers reduce costs and land requirements by avoiding or reducing the need for large surface land area parking lots;
- Ensure that the location and design of bicycle parking minimizes any impediments with other systems such as pedestrians and emergency vehicles; and
- Develop effective strategies to help prevent bicycle theft.

### ***Exclusion, Prohibit, Lower Priority***

4-f: Ensure public safety and the integrity of the transportation system by incorporating bicycle facilities in a compatible and complementary manner.

For example, the City will continue to minimize interference with pedestrians by prohibiting cycling on sidewalks.

***Mobility and Access***

- 4-g: Improve and enhance access to bicycle facilities and destinations by supporting a broad range of cycling initiatives that improve route network infrastructure, encouragement and promotion to get more people cycling, and education and enforcement programs for safer and more knowledgeable cyclists.

***Bicycle Friendly Environment***

- 4-h: Commit to producing a bicycle friendly environment that encourages people of all ages and abilities to cycle for transportation and enjoyment purposes.

***Sustainable Transportation***

- 4-i: Recognize and support cycling as an important means to help produce a more sustainable transportation system that uses resources in a manner that is efficient and considerate of the needs of future generations.

***Quality of Life & Liveability***

- 4-j: Identify bicycling as a means to improve the liveability of a community and the overall quality of life by helping to provide a healthy, enjoyable, active lifestyle and an environment without the noise, congestion and pollution of motorized transportation.



## 5.0 Outreach

Cycling infrastructure such as bike lanes and bike racks are important components of a cycling plan. However, facilities alone will not produce and support a successful cycling community. Many of the comments received through the consultation process for the Ottawa Cycling Plan (OCP) emphasized this point. It is clear that a more comprehensive effort is needed to convince people that cycling is a feasible, safe and desirable alternative to the automobile. This effort is key to achieving targets set by the City in the TMP for increasing the number of person trips by bicycle in Ottawa.

A strategic framework is required to develop, manage and deliver cycling programming and outreach support services. The framework set out in this chapter of the plan supports the continuation and improvement of initiatives in the areas of education, encouragement and promotion, and enforcement. These important initiatives will inherently support the many benefits of cycling, including those highlighted in Chapter 2 of this plan. They will also help to achieve the cycling goals and objectives identified in Chapters 1 and 2 of this plan as well as those identified in key City documents such as the Official Plan, and Transportation Master Plan. The outreach component of the plan will also support the mandate and responsibilities of the public advisory committee that currently provides input on cycling issues (Roads and Cycling Advisory Committee [RCAC]). It requires the continued support and co-operation of municipal programs, and partnerships with volunteer groups and external agencies.

To a large degree the contents of this chapter build upon many successful and innovative programs currently in place in Ottawa and will serve to complement the expanding infrastructure base. The City of Ottawa is looked upon by other jurisdictions as a leader in providing supportive cycling programs. In order to maintain this status, the City should continue to research, consider and develop innovative support initiatives. These are described in the following sections of this chapter and should be recognized as being interrelated and mutually supportive of each other.

**Outreach is one of the four cornerstones and guiding principles of the Ottawa Cycling Plan.**

**The provision for strategic support services is critical to a successful cycling community.**

**The City of Ottawa is looked upon by other jurisdictions as a leader in providing supportive cycling programs. In order to maintain this status the City should continue to research, consider and develop innovative support initiatives.**

## 5.1 Education

Why should the City fund cycling education programming? Because there are cyclists and motorists who need to improve their respective vehicle operating skills and knowledge, and a segment of the general public incorrectly perceive cycling as an inconvenient, high-risk activity. The 2003 Ottawa Cycling Profile Survey<sup>1</sup> reported that two of the top three concerns among cyclists over the age of 16 were careless cyclists and careless or aggressive drivers. About 45% of respondents indicated that better education of cyclists and motorists would significantly improve cycling in the City.

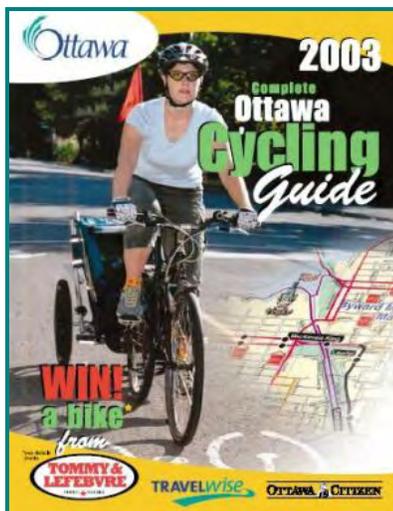
Education can have a positive influence on the behaviour and attitudes of cyclists, motorists and the general public to produce safer conditions for all concerned and provide incentives to encourage more cycling. A key objective of the OCP is to develop and enhance education programs that are targeted to existing and future cyclists.

### 5.1.1 Cycling Education Information

The City of Ottawa and its partners are currently implementing many education initiatives including some carried over from the former Region of Ottawa-Carleton and its constituent municipalities. Making cycling information readily available is a key education component that Ottawa does very well.

The City's web site provides a wide range of cycling information topics, which are provided through 14 different headings under the "cycling" moniker. The cycling component of the website can be accessed at [http://www.ottawa.ca/residents/onthemove/travelwise/cycling/index\\_en.html](http://www.ottawa.ca/residents/onthemove/travelwise/cycling/index_en.html). The website also provides references to other cycling related web sites. Many of these subjects are also available in hard copy booklets and pamphlets. Some of the cycling information provided on the City's website is listed below.

- *Complete Ottawa Cycling Guide* – a comprehensive booklet updated and published annually from 2000 to



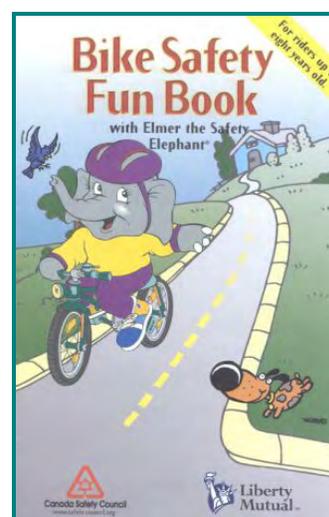
City of Ottawa 2003 Cycling Guide

<sup>1</sup> Decima Research Inc. Ottawa Cycling Profile, December 2003.

2003, distributed as a newspaper insert with information on cycling routes, safety tips, skills and training courses, parking, and many other useful suggestions;

- *Cycling 365, The Essential Guide to Becoming a Year-Round Cyclist* – a brochure published by the city outlining the benefits, techniques and equipment needed for year-round cycling;
- *You're Always Young Enough, The Essential Cycling Guide for Seniors* – providing seniors information on why they should cycle, with tips and facts that clarify cycling myths;
- *Bicycles and the Law, A Guide to Legislation, By-Laws and Regulations* – a brochure published by TravelWise summarizing all current Provincial and Municipal laws affecting cycling in Ottawa;
- *Do you make these eight common bicycling mistakes?* – Eight of the most flagrant safety and comfort mistakes are highlighted in this pamphlet such a riding with no lights at night and the wrong seat adjustment;
- *Cycling Skills* – a booklet published by the Ontario Ministry of Transportation that provides cycling safety information for teen and adult cyclists;
- *Bike Safety Fun Book with Elmer the Safety Elephant* – this pamphlet published through the Canadian Safety Council provides safety procedures for riders up to eight years old;
- *Pathways to Health* – this guide to paths and trails in selected areas of Ottawa also provides information regarding the health benefits of being physically active;
- *Gotta Get A Helmet! Don't use your Brains for Brakes!* – a leaflet giving helmet fitting tips;
- *Bruce Timmerman's Cycling Awards brochure*- published by the TravelWise program provides information about the cycling awards presented annually to an individual or organization that has made a contribution to cycling in the City of Ottawa.
- *Young Cyclist's Guide*- a booklet published by the Ontario Ministry of Transportation that provides cycling safety information for child cyclists.

**Making information readily available is a key education component that Ottawa does very well.**



Bike Safety Fun Book

**Co-ordination and partnerships are needed to share expertise and resources for cycling information.**

- *Getting around just got easier-* TravelWise information brochure published by the City of Ottawa outlining sustainable commuting options.
- *Share the Road-* a public safety brochure published by the City of Ottawa that outlines cyclists' and motorists' shared roles and responsibilities for road safety.
- *Did you know?-* this brochure published by the City of Ottawa informs cyclists about the dangers of sidewalk cycling.

This is an impressive list of informative documents, many of which are used as models in other municipalities. Many of these publications have a host of contributing partners, including CfSC, NCC, Partners in Healthy Living, Plan-it Safe Program from the Children's Hospital of Eastern Ontario, Ontario Neurotrauma Foundation, Pathway Patrol, OC Transpo, Ottawa Roads and Cycling Advisory Committee, Ministry of Transportation of Ontario, Transport Canada, Health Canada and the Canadian Safety Council as well as private sector sponsors. This underscores the importance of co-operation and the need to share expertise and resources at a time when funding is scarce. It also reflects an effective model for combining resources to deliver information to the public on a common theme.

The use of web sites managed by the City, CfSC and the NCC, and hard copy availability supports the distribution of this information. The City's TravelWise program, described in the previous chapter, is an excellent example of how the City can reach out *and* educate the public, regarding cycling as well as other travel modes. However, effectiveness is limited to those who pick up the publications or actually visit the web sites. The delivery of cycling information should be expanded to an even wider range of residents by taking advantage of a variety of other media in a multi-faceted communications strategy that has support from a stable level of funding. The cycling web sites are comprehensive, but some related web topic areas could be improved by having a more direct reference to cycling in their introductory text as well as improvements to these web sites to include cycling in subsections.

The City should work with the local media such as newspapers, cable and radio stations to provide information on cycling events and the safety programs available, plus general safety tips. The use of transit shelters to display large cycling related posters is another means to expand the potential audience. The City of Ottawa should ensure, through partnerships with the private sector, that the City is able to display effective messages promoting bicycle use and education. This includes advertisements on transit vehicles and bus shelters and the distribution of cycling information through pamphlets as well as promotion through all forms of media. Mounting poster boards on City of Ottawa vehicles is another inexpensive way of displaying cycling information. This is already being done for transportation safety messaging with boards displaying “Watch for Kids” and “Red Means Stop”. Many municipalities also distribute household information through the mail such as the blue box recycling program. These are opportunities that could be used and shared with others to achieve the widest distribution of cycling information to residents.

Information outlining the numerous benefits of cycling often forms some of the most educational material for the public. The publications previously noted in this chapter identify health, environmental, economic, and community attributes of cycling. These benefits are an important education and promotional element that should be developed and advertised both on their own and integrated within other City publications, reports and events. New opportunities to market the many benefits of cycling are being provided from increasing public and private sector interest and new research directed at environmental, health and resource issues such as global warming, active living and use of fuel taxes.

**The City of Ottawa should ensure, through partnerships with the private sector, that the City is able to display effective messages promoting bicycle use and education.**

**Technical Recommendations:**

- 5-1: *That the City of Ottawa, in conjunction with its many partners, should increase the effectiveness of cycling education information by:*
- a) *Developing and implementing a comprehensive communication strategy for the creation and distribution of cycling information that seeks to expand delivery through the use of a wide variety of media;*
  - b) *Ensuring information such as cycling skills education, is produced in a language and style appropriate for the age group being targeted, such as children and seniors;*
  - c) *Reviewing the City's web site information to ensure that direct resources are clearly provided to cyclists and non-cyclists; and*
  - d) *Continuing to research and develop education and promotional materials regarding the benefits of cycling and incorporate or reference this information in City publications, reports and events.*

**5.1.2 Funding and Delivery of Cycling Education Programs**

**... new ways must be found to develop and deliver bicycle safety education initiatives.**

Funding Cycling Education programs is an ever-increasing challenge due to limited resources and heightened public concern over safety that will result in more demands for outreach, safety and education programming. Amalgamation, resulting in the new and much larger City of Ottawa, has also spread limited staff and volunteer resources over a larger area. Therefore, new ways must be found to develop and deliver bicycle safety education initiatives.

Some municipalities have established a public / private Bicycle Safety Partnership that attempts to bring new players to the table with fresh ideas and funding sources. A number of stakeholders, such as police, educators, insurance companies, bicycle manufactures and health care professionals, with a common interest in cycling safety have

been invited to work together and pool resources and expertise to produce safety programs that would be beyond the resources of any one organization. This approach formalizes the many co-operative and co-ordinative efforts that occurred in the past between limited participants on a project specific basis.

The Road and Trail Safety Ambassador Program is an initiative that has been active in Toronto since 1977. A smaller version of this initiative was also recently introduced in Kingston, Ontario. The program in Toronto uses a number of public / private supporters, which in the past have included Human Resources Development Canada, Ministry of Transportation, Friends of the Environment Foundation, Bell Mobility, Scotchlite and Mountain Equipment Co-op, to hire and train a number of “Ambassadors” for the cycling season. The Ambassadors provide training, which covers all aspects of safe and responsible road and trail use for cyclists as well as pedestrians, in-line skaters and motorists. The Ambassadors participate in the following four approaches to increase safety in the community:

- *Community Events* – addresses community needs for road and trail safety information;
- *CAN-BIKE* – provides a set of effective cycling courses designed for all ages and skill levels;
- *O.A.S.I.S.* (Off-road, Awareness, Safety, Information, Stop) – provides an off-road and environmental awareness program; and
- *S.P.A.C.E.* (Safety, Prevention, Awareness, Courtesy, Education) – offers a selective traffic education program for all road users.

A 1998 Toronto Coroner’s Report, that made recommendations in response to an investigation regarding a cycling collision and fatality, indicated that this annual initiative is “an effective education program that should be continued and expanded.”

Another innovative approach to bicycle safety delivery is the “Bike Bus Program”.<sup>2</sup> This idea is similar to a Library

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<sup>2</sup> 2001 Toronto Bike Plan



## CAN-BIKE

**Innovative Cycling Education funding initiatives include Bicycle Safety Partnerships, the Safety Ambassador and the Bike Bus Program.**

Bookmobile, where a mobile trailer, truck or bus could be stocked with bicycles, helmets and teaching materials and staffed by CAN-BIKE instructors and / or Safety Ambassadors. It is then available for community events, bicycle rodeos, staff training sessions and could work co-operatively with School Boards for student safety courses.

In Ottawa, the NCC has a volunteer program that keeps watch over thousands of visitors to the Capital Pathway system. Volunteers from the City of Ottawa's Pathway Patrol and the Ville de Gatineau's Velo-patrouille help ensure that people using pathways have fun and stay safe. They also serve as information officers. This program has grown significantly since its inception to over 100 volunteers. In addition, through a public and private sector partnership between the NCC and Rogers Wireless, cellular phones programmed to call 911 are made available free of charge to pathway users.

***Technical Recommendations:***

*5-2: That the City of Ottawa should maintain and enhance its commitment to bicycle safety programs through the following measures:*

- a) Investigate entrepreneurial approaches for the generation of support revenue and to facilitate an atmosphere where new ideas can be generated through consideration of a Bicycle Safety Partnership;*
- b) Consider delivery programs such as the Bicycle Safety Ambassadors and Bike Bus initiatives; and*
- c) Develop public-private sector relationships to provide services that enhance the safety of cycling facilities and cyclists.*

**The reduction of cycling injuries and fatalities is a worthy and important goal of education initiatives.**

**5.1.3 Focused Safety Campaign**

The reduction of cycling injuries and fatalities is a worthy and important goal of education initiatives. According to a study conducted by the Canadian Institute of Health Information, cycling puts more people in the hospital than any other summer activity in Ontario.<sup>3</sup> Most people do not appreciate

<sup>3</sup> Cycling Most Risky Summer Fun, Toronto Star, August 12, 2004



that many of these cycling injuries are preventable. Dr. Jim Cairns, Ontario's deputy chief coroner and an avid cyclist believes it is a matter of education of cyclists on how to ride properly and the education of the public that a cyclist riding properly is entitled to ride on the road.

Children are a specific concern, with the Ontario Trauma Registry reporting that the 5 to 14 age group is most likely to incur injuries while cycling. Most of these incidents occur less than six blocks from home and are the result of mid-block entry into a street, swerving into the path of a motor vehicle or another cyclist, and falls.

The 2002 Report on Ottawa Road Safety provided the following cycling statistics:

- 282 cyclists were involved in collisions (2% of all reported);
- 237 were injured and two were fatalities;
- One third of those injured were not wearing bicycle helmets;
- Half of the cyclists injured were adults between 20 and 44 years;
- 54% of Ottawa adults report wearing helmets most of the time;<sup>4</sup>
- Children aged 5 to 14 years were involved in nearly 14% of collisions;
- At the time of the collision, 52% of adults were riding safely, but this drops to 33% for the 5 to 19 age group;
- 47% of the vehicle drivers were driving properly; and
- Failure to yield the right-of-way to cyclists was blamed for 37% of the collisions.

It is clear that safety education should be a priority and that more can be done to reduce cycling collisions, injuries and fatalities. Other jurisdictions in Canada have developed programs with delivery strategies that in some cases go beyond the pamphlet stage to reduce common conflicts between cyclists and drivers. For example, like Ottawa, other

**In 2002, 282 Ottawa cyclists were involved in reported collisions, 237 were injured and 2 were fatalities.**

**It is clear that safety education should be a priority and that more can be done to reduce cycling collisions, injuries and fatalities.**

<sup>4</sup> 2001 Canadian Community Health Survey, Statistics Canada

municipalities regularly fund and undertake “campaigns” to reach out to cyclists and the general public. An example of some of these campaigns include:

- *Large truck campaign* – This initiative was in response to the 1998 Toronto Coroner’s report on the high number of truck-related cycling fatalities. This campaign allowed the public to gain first-hand experience and learn about the various blind spots on large vehicles and how to safely operate around them;
- *“Please walk your bike on sidewalks” campaign* – cyclists are encouraged to walk their bikes on sidewalks through stickers placed on post-and-ring bike stands;
- *Right turns and bikes campaign* – outlines intersection strategies for cyclists and motorist to avoid common errors;
- *Pass bikes safely campaign* – focuses on drivers giving cyclists at least one metre space when passing;
- *Bicycle helmet campaigns* – the importance of cycling helmets were emphasized at helmet-fitting kiosks and low cost helmet sale fairs; and
- *Watch for Bikes campaign* – in partnership with the Canadian Automobile Association and taxi companies clear stickers were provided for motor vehicle rear and/or side view mirrors displaying a message that reminds motorists to check for bikes before opening their vehicle doors.

**The City of Ottawa and its partners should continue to develop and implement safety oriented education programming for cycling.**

The City of Ottawa and its partners should continue to develop and implement safety oriented education programming for cycling.

***Technical Recommendation:***

*5-3: That the City of Ottawa, in consultation with its cycling partners, develop and implement or expand focused safety campaigns to address common conflict areas between cyclists, motor vehicles and pedestrians.*

### 5.1.4 Cycling Education Program (CAN-BIKE)

Cyclists in Ottawa and across Ontario benefit from the Provincial helmet legislation that requires children 17 years of age and under to wear a Canadian Standards Association (CSA) or American National Standards Institute (ANSI) approved bike helmet. Proper helmet fitting as well as other skills associated with the safe operation of a bicycle must be taught. In Ottawa, a full range of CAN-BIKE safe cycling courses are delivered by a community partner.

The CAN-BIKE cycling skills education program provides classroom and practical on-road instructions for a number of age groups and skill levels. It teaches that a bicycle is safest when operated as a vehicle on the road and provides defensive riding and collision avoidance skills that impart a greater sense of confidence and control. It is a national certified course and is the standard for Cycling Education across the country. In addition to an adult learn-to-ride course, courses are offered in a variety of public and private locations for fees that range from \$100 to about \$300 per course.

- CAN-BIKE II for teenagers and adults;
- CAN-BIKE Traffic Skills;
- CAN-BIKE Traffic Skills for Seniors;
- CAN-BIKE Cycling Freedom for Women;
- Kid's CAN-BIKE courses for ages 9 to 13; and
- CAN-BIKE Instructor Training.

The importance of these courses in improving cycling safety and enjoyment can be found in the many positive testimonials. A number of Ottawa employees who are able to use bicycles in their professions such as police, paramedics, and parking control officers are currently required to take the CAN-BIKE II course. The expansion and promotion of the CAN-BIKE courses is essential as one of the means to improve cycling safety and encourage more people to cycle in Ottawa.

**CAN-BIKE courses teach defensive riding and collision avoidance skills that result in greater confidence and control.**

**Technical Recommendations:**

- 5-4: *That the City should consider the following initiatives, in conjunction with a program delivery partner:*
- a) *Actively increase the marketing/advertising effort and funding available for CAN-BIKE courses; and*
  - b) *Expand the number and availability of CAN-BIKE courses across the City to complement efforts to increase enrolment.*

**5.1.5 Response Process to Collisions**

It is imperative that the City completes an annual review of cycling collision data and fatalities through a multi-disciplinary team composed of City staff and other agencies. This structure can provide a response process to bicycle incidents that would produce meaningful preventive measures to help avoid future incidents. The process would complement other injury prevention programs by responding to cycling collisions in a way that mitigates their contributing factors.

Three elements are critical to the success of the process. Accurate and comprehensive information from police reports, cyclists, hospitals and other sources is important to establish a meaningful set of base data. Cyclists should also be encouraged to report concerns about road safety and should be provided materials to assist cyclists involved in collisions. Secondly, the analysis of the data must be undertaken with the intent to identify improvements to infrastructure, education, enforcement or other related programs. Last, implementation of the improvements must occur with information provided to cyclists.

The multi-disciplinary team would ideally set up the process for analyzing bicycle collision data, which allows the information and results to be shared with all concerned departments and agencies. The review would also serve as an information exchange and co-operative mechanism between groups, to identify trends and cycle safety solutions.

Researchers estimate that more than 80% of bicycle crashes go unreported to police.<sup>5</sup> Yet the threat or experience of being involved in a bicycle collision can determine if an individual rides in the future, or have a significant impact on riding frequency and location. Therefore, there is a need to improve the cycling collision reporting process.

Investigating officers could extend an extra effort to collect complete information from cyclists and motorists in collisions. This would impart the serious nature of the incident to all parties and would also assist in the accurate analysis of the data.

Cyclists also need clear information and direction on what to do in a collision situation. Confusion may exist over where a cyclist should report a cycling collision, or there may be difficulty dealing with insurance companies. Cycle Watch, a non-profit group in Toronto that no longer exists, used to provide support services for bicycle collisions with a hotline, information material and referrals to legal and insurance contacts. The City should develop similar support material for bicycle collision procedures.

#### ***Technical Recommendations:***

- 5-5: *That the City continue a process to review cycling fatality and collision data on an ongoing basis and recommend improvements relating to education, enforcement and infrastructure priorities to improve bike safety.*
- 5-6: *That the City develop materials to assist cyclists involved in collisions, in consultation with Ottawa Police Services and other agencies or groups that could provide input on this topic.*

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<sup>5</sup> Stutts, J.C., and W. Hunter, 1998. Police Reporting of Pedestrians and Cyclists Treated In Hospital Emergency Rooms. Proceeds of the Transportation Research Board's 77<sup>th</sup> Annual Meeting on Pedestrian/Bicycle Safety, January 11-15, 1998.

**Researchers estimate that more than 80% of bicycle crashes go unreported to police.**

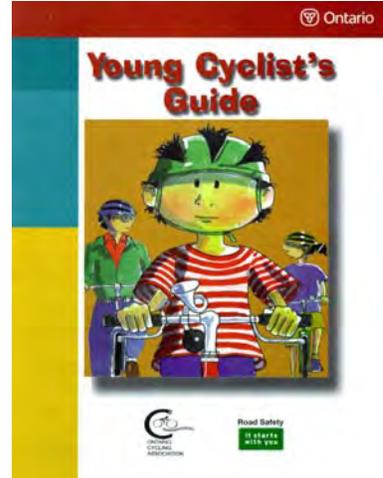
**Cyclists also need clear information and directions on what to do in a collision situation.**

### 5.1.6 Cycling and Children

The mobility needs of children are often overlooked in transportation planning. Efforts should be undertaken to encourage children to use sustainable modes of transportation, such as walking, cycling and public transit, and reduce their auto-dependency (through their parents) so they may be more inclined to do so when they are adults.

The Centre for Sustainable Transportation has studied these issues. One of the main objectives of a recent Centre for Sustainable Transportation study was to consult a number of professionals such as planners, health care providers, community and children service providers, teachers, children and youth, to help identify actions that could be taken to improve the mobility of children. A number of the challenges, barriers and actions to overcome these barriers in order to improve the mobility of children that resulted from this study are summarized in **Table 5.1**.

Efforts should be undertaken to encourage children to use sustainable modes of transportation, such as walking, cycling and public transit, and reduce their auto-dependency (through their parents) so they may be more inclined to do so when they are adults.



**Table 5.1: Challenges and Barriers to Increasing the Mobility of Children**

Barriers Identified	Actions Recommended to Overcome Barrier
<b>Challenge 1: Increase children's active transportation for the trip to school</b>	
Lack of bike paths on route to school.	Construct paths that lead to schools.
Traffic safety fears.	The Walking School Bus program helps children to learn safe behaviour and provides adult supervision for school trips.
Parents pressure school boards for more bussing so that their children will not have to walk or cycle to school.	Introduce education and public awareness programs that emphasize positive health outcomes from physical activity and reduced motorized transportation.
<b>Challenge 2: Increase active transportation for children on non-school trips</b>	
Lack of sidewalks and bicycle paths to destinations where children like to travel.	Identify destinations frequented by children and create safe routes with sidewalk and bicycle paths; consider children's travel patterns in planning processes.
Neighbourhood design, such as lack of sidewalks, indirect routes and traffic noise, is not always conducive to walking and cycling.	Give greater attention to infrastructure that supports physical activity when building new neighbourhoods and retrofitting old ones.

Source: Kids on the Move in Halton and Peel, the Centre for Sustainable Transportation, October 2003.

A number of additional recommendations from this important study include a formal education and public awareness strategy regarding children and transportation that includes:

- The key to marketing change is in the school system;
- Develop a fact sheet for planners and engineers;
- Involve parent councils in efforts to increase children's active transportation;
- Educate developers;
- Consider educating the early childhood educators;

**The City will need the co-operation and help of outside agencies, volunteer groups and individuals to achieve the positive results expected from Cycling Education, and to meet the targets set to increase the number of cyclists as per the overall goals of this plan.**

**The City should actively reach out and consult with internal and external organizations such as Ottawa Police Services, School Boards, the Ministry of Transportation of Ontario, Transport Canada, the National Capital Commission, Canada Safety Council, the Roads and Cycling Advisory Committee and others to obtain assistance in providing a safe, bicycle-friendly environment.**

- Educate planners and engineers through workshops, newsletters and presentations; and
- Develop an education package for Colleges and Universities that provide training for students.

The recommended Ottawa Cycling Network, as outlined in the OCP, as well as the plan's supporting Planning and Design Guidelines, have been developed to address the needs of child cyclists, as well as adults.

The OCP consists of a hierarchy of cycling facility types to appeal to a wide range of skill levels. As children become adults, they will graduate from the “community system” which consists of off-road pathways and signed-only cycling routes on quiet streets to the “spine system” which consists of bicycle lanes on arterial roads.

***Technical Recommendation:***

*5-7: That the City of Ottawa, in consultation with its cycling programming partners, account for cycling issues related to children. Through education and training provide children with the opportunity to graduate from the “community system” to the “spine system”, as they become adults.*

**5.1.7 Working with Others**

The City will need the co-operation and help of outside agencies, volunteer groups and individuals to achieve the positive results expected from Cycling Education, and to meet the targets set to increase the number of cyclists as per the overall goals of this plan. Preceding sections have established the need to work with partners that have similar mandates. This will help ensure consistent messages, avoid duplication and offer benefits from economies of scale.

All participants and partners are important and can bring helpful ideas and resources to the table. The City should actively reach out and consult with internal and external organizations such as Ottawa Police Services, School Boards, the Ministry of Transportation of Ontario, Transport Canada, the National Capital Commission, Canada Safety Council, the Roads and Cycling Advisory Committee and others to obtain assistance in providing a safe, bicycle-friendly environment.



### 5.1.8 Ottawa Police Services

The Ottawa Police have an active Police Bicycle Patrol which is an effective community-policing initiative with environmental, economic and role model benefits. Officers have been trained in CAN-BIKE and aid in the instruction of safe cycling at special events. Annual safety blitzes are conducted for both cyclists and motorists to enforce operating rules. The competence and expertise of these officers will be invaluable for cycling collision data collection, research and helping to set enforcement priorities.

**The Ottawa Police have an active Police Bicycle Patrol which is an effective community-policing initiative with environmental, economic and role model benefits.**

#### **Technical Recommendation:**

5-8: *That the Ottawa Police Services should look at their active role in bicycle safety by increasing the number of bicycle patrols.*

### 5.1.9 School Boards

School Boards can provide a mechanism to teach children about safe cycling as a basic life skill that is healthy and an environmentally friendly choice for mobility. Many children in Ottawa and across North America are driven to school by a parent or guardian. This is usually as a result of safety and security concerns for kids. However, students are then affected by traffic congestion near schools which can reduce the opportunity for physical activity.

**School Boards can provide a mechanism to teach children about safe cycling as a basic life skill that is healthy and environmentally friendly choice for mobility.**

School boards should provide elementary grades with cycling education that would result in cycling becoming an integral part of life at school. Examples of school board initiatives could include:

- Developing a plan to offer Kids CAN-BIKE safety courses for ages 9 to 13;
- Incorporate cycling into physical education curricula;
- Developing targeted safety material such as the need for bicycle helmets;
- Providing Parents Advisory Groups with bicycle safety training;
- Organizing a safe bike to school program; and

- Including school board participation on bike safety groups such as the Safety Partnership.

A Bike to School Program in particular has the potential to provide multiple benefits and capitalize on a number of on-going initiatives. Funding has currently been pulled from the “Walk to School” program, which identifies active and safe routes to school, as outlined in the EnviroCentre’s *It’s Really Cool to Walk to School* brochure. It is recommended that the City seek additional funding for this program so that it can be continued. Benefits, such as environmental, health, learning, and congestion relief, from this initiative could be realized from a similar Bike to School program. In addition, the cycling route network identified in Section 3.0 specifically provides route connections between neighbourhoods and schools. A “Bike to School Day” could be used to help launch this type of activity.

***Technical Recommendation:***

*5-9: That the City work with the School Boards to incorporate safe cycling as a school activity and develop a bike-to-school program.*

**5.1.10 National Capital Commission (NCC)**



**The NCC manages 170 km of multi-use paths and 50 km of scenic parkways**

The National Capital Commission is a Federal Crown Corporation whose mandate, among other things is “...to prepare plans for and assist in the development, conservation and improvement of the National Capital Region...”.<sup>6</sup> The NCC’s pathway system is an important and visible product of this mandate.

The NCC supports summertime Sunday bikedays, which allow car-free recreation cycling on NCC parkways, with free bike checks and assistance from the City’s volunteer Pathway Patrol. The NCC’s off-road multi-use pathways also form an important part of and complements the City’s bicycle network. They are often used by utilitarian cyclists to get to work and for other transportation trips. The NCC web site also provides helpful information about its cycling facilities and services.

<sup>6</sup> National Capital Act of 1958 (amended in 1988)



It is important to continue to partner and work with the NCC for expanded pathway developments, connections to the City’s proposed cycling network and to co-ordinate safety and education initiatives.

**Technical Recommendation:**

5-10: *That the City continue to consult and work with the National Capital Commission as a key partner on all matters related to bicycle safety education on multi-use pathways.*

5.11: *That the City continue to develop positive relationships with not-for profit organizations as part of an important strategy for delivering safe cycling educational programs in the City of Ottawa.*

**5.1.11 Ministry of Transportation**

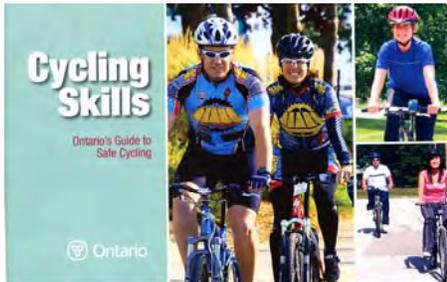
The Ministry of Transportation of Ontario (MTO) was the custodian of the Province’s former Bicycle Policy (1992- no longer in effect) as well as the Ontario Bikeways Planning and Design Guidelines (1996). MTO also administers the Highway Traffic Act (HTA), which legally identifies the bicycle as a vehicle, with cyclists having the same rights and duties on the road as motorists. The Provincial government, therefore, has great influence over the present status and future potential for cycling in the province.

The Ministry was urged by a 1998 Coroner’s report to take the lead role in improving bicycle safety and encouraging greater use of bicycles. The establishment of an “expert review process” involving municipal and other stakeholders was proposed to recommend changes to the HTA and Municipal By-Laws to make them consistent, understandable and easier to enforce with respect to cycling. In addition, it was recommended that MTO provide additional cycling safety information and content in all driver-training handbooks. Driver examiners should also have practical training in safe cycling CAN-BIKE courses.

The Ministry should take the leadership role in facilitating the communication of information on cycling issues throughout the province. In order to reassume this role, the Ministry needs to revisit its 1992 Bicycle Policy and update it as

**It is important to continue to partner and work with the NCC for expanded pathway developments, connections to the City’s proposed cycling network and to co-ordinate safety and education initiatives.**

**The establishment of an “expert review process” involving municipal and other stakeholders was proposed to recommend changes to the HTA and Municipal By-Laws to make them consistent, understandable and easier to enforce with respect to cycling.**



MTO Cycling Skills Booklet

necessary to clarify its role to municipalities. Current and up to date policies, facility designs and safety information would all assist towards a standardized approach that municipalities in the province could use as a guide. Municipalities who do not have the resources to do their own research would benefit from obtaining this information. A good example already being taken by the Ministry is the recently updated *Cycling Skills* booklet for teen and adult cyclists, which had input from cycling advocacy groups.

Traffic laws that apply to bicycles also apply to e-bikes. This means that e-bikes are not permitted to travel where bicycles are not allowed, such as controlled-access highways and municipal roads and sidewalks where by-laws do not permit bicycles. E-bikes must have a bell and front and rear lights when you ride between one-half hour before sunset and one-half hour after sunset. Operators of e-bikes are not required to hold a driver's license, to have the e-bike registered or plated or to have motor vehicle insurance.

#### ***Technical Recommendations:***

*5-12: That the City should formally request that the Ministry of Transportation of Ontario take a lead role in developing and implementing bicycle safety initiatives by:*

- a) Updating the 1992 Bicycle Policy Review and 1996 Bikeway Planning and Design Guidelines;*
- b) Making changes to the Highway Traffic Act following input from an expert review panel and to update and formalize HTA regulations as they affect cycling and cyclists in Ontario;*
- c) Continuing to update and improve cycling content in all transportation related publications, including driver-training courses;*
- d) Including cycling safety material in training programs for driver examiners, police recruits, fleet/transit operators and other officials;*



Electric Bike photo from MTO Cycling Skills Booklet



- e) *Funding bicycle safety and promotion programs at the Provincial and Municipal level to assist municipalities in their efforts to promote cycling and educate all road users with the objective of reducing cycling collisions;*
- f) *Participating in municipal Bicycle Safety Partnerships and other co-operative groups to provide expertise and resources to help reduce cycle injuries and fatalities; and*
- g) *Making the Cycling Skills Handbook available to the public, to be provided throughout the City at all Client Service Centres.*

#### **5.1.12 Public Advisory Committees and Cycling Advocacy Organizations**

It is important that cycling representatives continue to have a strong voice within the municipal government through a committee structure system. This provides a community outreach mechanism to various cycling interests and an opportunity to work together within the system to identify issues and resolve problems.

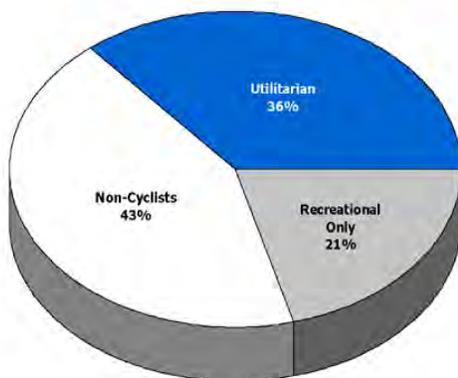
Currently, the Roads and Cycling Advisory Committee (RCAC) provides this role in Ottawa. The RCAC reports to the Transportation Committee and City Council and provides citizens with a forum and direct connection to influence municipal decision-makers on road cycling and other matters. Such a Committee can offer a range of cycling expertise and city representation to advise on issues, policies and programs related to all forms of transportation, including cycling.

#### ***Technical Recommendation:***

- 5-13: *That the City of Ottawa continue to maintain and support a strong cycling representation through an Advisory Committee and that it report to Council annually.*

**It is important that cycling representatives continue to have a strong voice within the municipal government through the committee structure system.**

**This objective of the OCP is aimed at changing attitudes and behaviours that result in an increase in the number of people of all ages that cycle and the frequency of cycling trips.**



City of Ottawa Cyclist Classification  
Source: City of Ottawa 2003 Cyclist Profile Survey, Decima Research for the City of Ottawa.

**In a recent survey, Ottawa was ranked first among large North American cities for people who bike to work.**



## 5.2 Encouragement and Promotion

The City of Ottawa's 2003 Transportation Master Plan has set a cycling target for 2021 that would increase the modal share in the afternoon peak hour from 1.7% to 3%, and triple the number of cycling person-trips from the year 2001. The OCP assumes this same target as its primary goal. Facilities and education programs will help give individuals the confidence they need to cycle more. However, what is also needed to gain new cyclists and have existing cyclists bike more often is a strong and focused range of programs aimed at encouraging and promoting cycling as well as a supporting marketing strategy. This objective of the OCP is aimed at changing attitudes and behaviours that result in an increase in the number of people of all ages that cycle, and the frequency of cycling trips.

The 2003 Cycling Profile Survey showed that Ottawa has a high level of bicycle ownership (72% of households) with 6 in 10 (57%) residents over the age of 16 considering themselves cyclists. A high percentage of cyclists aged 16 or older (36%) are classified as utilitarian cyclists, and 21% are recreational-only cyclists. In a recent survey, Ottawa was ranked first among large North American cities for people who bike to work.<sup>7</sup> The targets of any promotion initiatives would be to get the 43% of non-cyclists to cycle, and to motivate the 21% of recreational only cyclists to cycle for utilitarian trips.

The City and its cycling partners have implemented important encouragement initiatives to motivate more people to cycle more often. The list of educational materials and safety programs in Section 5.1 all have promotional elements that should encourage an increase in the number of people who consider themselves cyclists.

The City's TravelWise program is an effective program that works with employers to encourage improved options for sustainable modes of transportation, including cycling. Information is widely available from printed material and the web site. In addition, support and feedback for information and concerns is provided from Ottawa's 24-hour call centre

<sup>7</sup> Market Opinion Research Commuter Study, 2004

and the NCC's maintenance and 24 hour emergency numbers. These programs are necessary and must be maintained and enhanced when possible. A strong marketing program aimed at changing attitudes and behaviour is needed to produce more cyclists

### 5.2.1 Cycling Maps

Cycling maps are another important form of promotional material that is essential to informing individuals of travel choices and the opportunities for cycling. Ottawa has a number of maps available, including the *Ottawa Cycling Map* last updated in 2006. This map identifies suggested cycling routes on major and minor roads with bike lanes or paved shoulders, paved and unpaved off-road routes plus parking facilities, Capital Pathways and the Trans Canada Trail.

The NCC has the *Explore the Recreational Pathways of Canada's Capital Region* map that highlights the off-road multi-use paths. The *Transit Map* from OC Transpo provides information and locations available for Bike and Ride and Rack and Roll services. The Pathways to Health Program produces a booklet called *Your Guide to Area Paths and Trails*, that details locations and features along off-road trails in Ottawa. Both the *Ottawa Cycling Map* and the NCC *Recreation Pathways* map are currently available to the public for a suggested fee.

#### **Technical Recommendation:**

5-14: *That the City of Ottawa, with assistance from its partners, should update the new Ottawa Cycling Map every two years.*

### 5.2.2 Recognition: Awards and Special Events

Ottawa supports annual awards and events to celebrate outstanding cycling accomplishments and provides opportunities and incentives to encourage more people to cycle. The Bruce Timmermans Cycling Awards, administered by the TravelWise program, gives two annual awards (one to an individual and the other to an organization) to recognize outstanding contributions in the encouragement of cycling. A cycling-friendly designation is also offered to businesses,



City of Ottawa cycling map

**Events and promotional programs help to enthuse existing and potential cyclists to travel using bikes and to use bicycles more often.**

**“...we are also preparing the City’s first comprehensive Cycling Plan. The plan will establish goals, objectives and strategies to ensure Ottawa is and remains a cycling friendly city that promotes the health and wellness benefits of cycling.**

**We are already reaping the benefits of cycling by encouraging City employees to deliver services by bike wherever possible. Police and parking control officers use bikes to patrol downtown; paramedics cycle to reach people who experience medical emergencies at large special events; and over the spring and summer months, students working for Solid Waste Services fan out over neighbourhoods to do surveys, distribute brochures and make citizens aware of proper waste disposal and recycling practices.”**

–Bob Chiarelli  
Former Mayor, City of Ottawa

organizations and other enterprises in the form of a decal that can be prominently displayed.

Promotional cycling events include the very popular NCC’s Sunday Bikedays on Ottawa Parkways, the week-long National Capital Commuter Challenge (including Bike to Work Day), which coincides with Environment Week in early June, and numerous fundraising tours such as:

- Le Tour Nortel Networks in May;
- Rideau Lakes Cycle Tour in June;
- Multiple Sclerosis Bike Tour in August; and
- Cycle for Autism in September.

Several bike clubs and organizations also offer special bike tours such as the Rideau Lakes Cycle Tour in June, which is put on by the Ottawa Bicycle Club.

Montreal and Toronto have such events in their Tour de l’Île de Montreal and Ride for Heart, which attract over 40,000 and 12,000 cyclists respectively. The Toronto Ride for Heart is a fund raising event for the Heart and Stroke Foundation (\$2.1 million in 2004) and is put on as the grand finale to that City’s Bike Week in early June each year. Parts of the Gardiner Expressway and Don Valley Parkway are closed to allow cyclists the unique opportunity to ride from 25 km to 75 km on these roadways that otherwise restrict cycling. Similarly, Ottawa’s Le Tour Nortel Networks is held annually in support of the Children’s Hospital of Eastern Ontario (CHEO), which matches Toronto’s fundraising ability on a per capita basis. Ottawa should build upon their success of conducting mass ride events preferably as part of a unique Ottawa event such as the tulip festival or Canada Day celebrations that would not conflict with other major mass rides.

The dissemination of information about the list of cycling events and programs available is important for the overall effectiveness of these endeavours. A one-window approach that identifies these activities and other programs on an annual basis is key. The City’s web site, TravelWise Program could be used for this purpose.

Cycling is predominately viewed as a warm weather activity. Therefore, it is important to promote the expansion of cycling



to off-season time periods and provide year round activities. Early spring, late fall and winter cycling events and promotional items will attract cyclists to these often unpopular seasons and demonstrate the feasibility and fun that bicycling can provide on a year-round basis. The *Cycling 365* brochure is an excellent promotional tool example of a publication promoting year round cycling.

### **Technical Recommendations:**

*5-15: That the City of Ottawa, in conjunction with other groups and agencies, undertake the following initiatives to encourage and promote cycling events and programs:*

- a) In conjunction with partners undertake development and implementation of a mass promotional ride event similar to Montreal's Tour de l'Île;*
- b) Undertake off-season cycling events and programs to demonstrate the feasibility and enjoyment of year-round cycling;*
- c) Produce and distribute a calendar of cycling events and programs for the entire year that would act as a guidebook to key cycling activities; and*
- d) Continuing the Bruce Timmermans Cycling Awards and consider expanding their applications to a broader number of workplace categories and increasing the profile of the annual awards ceremony.*

### **5.2.3 Leadership By Example**

Employers across the city should be motivated to encourage and support cycling among their employees. Enlarging the utilitarian cycling base will be a key component to reaching future cycling targets and should complement transit use as well. The City cannot do this alone, but it can show leadership, set an example and be a role model for others to follow.

**Employers across the city should be motivated to encourage and support cycling among their employees. Enlarging the utilitarian cycling base will be a key component to reaching future cycling targets and should complement transit use as well. The City cannot do this alone, but it can show leadership, set an example and be a role model for others to follow.**

A Pollution Probe Survey in 2001 provided information on the number of employers in the United States and Canada that have included bicycle-support initiatives and programs to encourage more employees to ride their bicycles to work and decrease the use of single-occupancy motor vehicles for work related trips.<sup>8</sup> Initiatives included bike racks, showers, lockers, cycling subsidies and transportation allowances. The Calvert Group in Bethesda, Maryland for example, will buy an employee who wishes to bike to work a bicycle (up to \$350 once every three years). As well as fighting congestion, these programs reduced expenses, increased workplace morale and were considered a valuable employee recruiting and retention tool.

Currently, the City of Ottawa provides supportive cycling measures in the form of trip end facilities such as parking, showers and lockers at some workplaces and CAN-BIKE courses for some employees. A more comprehensive approach should be adopted that would ensure a more complete application of support facilities to encourage City employees to cycle. Some of these measures might include:

**A more comprehensive approach should be adopted that would ensure a more complete application of support facilities to encourage City employees to cycle.**

- Offer a pool of bicycles available for use by City staff on business trips, rather than motor vehicles;
- Encourage the private sector to partner with the City to develop a Bikeshare program. This program is convenient and economical for anyone who makes frequent trips around the City. Members of Bikeshare can borrow a bike for up to three days. Bikeshare hubs are connected by an online database, which allows members to use any one of the numerous destinations or pick up points;
- Provide a form of compensation to City staff who use their own bikes on city business, similar to the compensation offered staff for the use of their motor vehicles (similar to the policy of the former Region of Ottawa-Carleton, which reimbursed employees the equivalent of return bus fare when they cycled for business);

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<sup>8</sup> Pollution Probe, North American Workplace-based Trip Reduction Programs, November 2001.

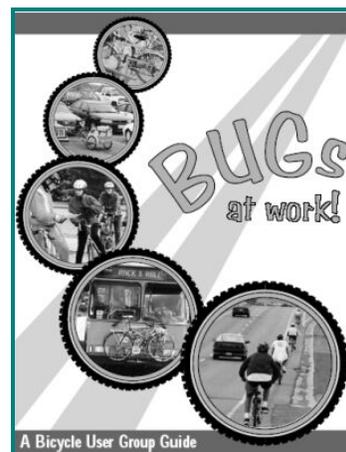
- Create an incentive program and develop contests for employees who cycle to work, perhaps based around car-free commute days;
- Organize a bicycle mentoring program that allows employees who want to cycle to work to find a colleague with whom they can ride with;
- Make CAN-BIKE courses available to staff on City time to maximize safe cycling skills when commuting to work and using a bicycle for City business;
- Ensure bicycle access to all city owned buildings by conducting an inventory of trip end facilities available to date at City buildings, then create a prioritized schedule to install expanded or new facilities; and
- Incorporate trip end facilities within building lease negotiations.

The Federal Government, as a major employer and stakeholder in the City, should also take an expanded leadership role with regard to encouraging cycling as a mode of transportation. The NCC, a Federal Crown Corporation, has been a leader in the development of the very successful Capital Pathways system. However, more can be done in other Federal Departments and Agencies. By way of example, in November of 2004, Public Works and Government Services Canada (PWGSC) announced all PWGSC employees in the National Capital Region could participate in the Transit Pass Program. This program provides employees with a 15% discount on a monthly transit pass through a payroll deduction program. The Federal Government could develop a comparable program for cyclists. They could provide secure indoor bike parking as well as shower and change room facilities at all Federal buildings in the National Capital Region and promote their use through sponsored “commute to work by bike” days.

#### ***Technical Recommendations:***

*5-16: That the City should lead by example and, where appropriate, should take a comprehensive role in encouraging and supporting cycling by City staff. For example, the City should develop a plan for providing trip end facilities such as secure parking, showers and lockers at all City of Ottawa work places.*

**The Federal Government, as a major employer and stakeholder in the City, should also take an expanded leadership role with regard to encouraging cycling as a mode of transportation.**



Bicycle Users Group manual

**Bicycle User Groups, or BUGs as they are more commonly known, are another promotional initiative to support and encourage utilitarian cycling at workplaces across the City.**

#### **5.2.4 Bike User Groups (BUGs)**

Bicycle User Groups, or BUGs as they are more commonly known, are another promotional initiative to support and encourage utilitarian cycling at workplaces across the City. It is one of the best ways to improve workplace facilities for cyclists.

A BUG manual, *BUGs at Work, A Bicycle User Group Guide* was published in 2002 by five supporting sponsors including the City of Ottawa’s TravelWise Program and CfSC. This guide is available on the CfSC web site and serves as an excellent resource to facilitate commuting by bike.

In Ottawa it is estimated only a few “BUGS” currently exist, with Nortel’s “NorBUG” probably the best known. Efforts should be made to increase the number of BUGs. These useful work place groups could be developed and organized to provide a network that would link one BUG to another.

These groups and the City could share ideas to increase cycling trips. Opportunities would be available for partnership to support common problem resolution and to share resources such as those relating to the provision of trip end facilities.

The proposed Bicycle Users Group Network could eventually be established and linked through a web based directory for formally registered BUGs, with communications provided through a bulletin board or “chat” network as well as print and personal communications. This City-sponsored program could be phased in over a number of years after completing research and development of the concept, implementation and finally launching the network.

#### ***Technical Recommendations:***

*5-17: That the City of Ottawa should encourage employers to promote and support cycling by such measures as:*

- a) Developing a plan to increase the number of Bicycle User Groups and a BUGS network to link one group to another; and*
- b) Providing advice and assistance to workplaces on developing a plan for the provision of cycling trip*

*end facilities such as secure parking, showers and lockers.*

### **5.3 Enforcement**

The area of enforcement is a key ingredient to cycling safety with the principal objective of reducing incidents causing property damage, injury and death. Fifty-four percent of the public in Ottawa feel that better enforcement of laws applying to motorists and cyclists would improve cycling a great deal.<sup>9</sup> It is important to note that enforcement should be applied to all road and pathway users, not only cyclists.

The Ottawa Police Services provides bike patrols, trained in CAN-BIKE courses, that serve as an excellent community policing resource and provides role models for the community. In the past, the police have conducted a Selective Traffic Enforcement Program, as part of the City's Integrated Road Safety Program, in which sidewalk cycling was targeted as a specific driving offence. Similar safety blitzes have been implemented in the past, but this program is part of a monthly plan to apply year-round selective enforcement to problem areas.

As noted earlier in Section 5.1.5 (see *Response Process to Collisions* and *Working with Others*) Ottawa Police Service enforcement expertise is crucial for both law enforcement and the collection of accurate cycling collision data. They also provide expertise in the identification of safety and enforcement priorities and the development of assistance materials for cyclists involved in collisions. It is important that police officers receive instruction in the proper training of cyclists and cyclists' rights and understand operating characteristics of bicycles to better identify causal factors when investigating cycling collisions.

#### **5.3.1 Cycling Enforcement in Ottawa**

A bicycle is a vehicle under the Ontario Highway Traffic Act (HTA). This means that cyclists have the same rights and responsibilities to obey all traffic laws as other road users. Cyclists charged for disobeying traffic laws will be subject to

**54% of the public in Ottawa feel that better enforcement would improve cycling a great deal.**

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<sup>9</sup> City of Ottawa 2003 Cyclists Profile Survey, Decima Research Inc.

a minimum set fine and a Victim Surcharge fine of \$20.00 for most offences (please note set fines below are subject to change).

**The following are key sections of the HTA concerning cyclists:**

**HTA 144/136- Traffic signals and signs-** stop for red lights and stop signs and comply with all other signs. Set fine: \$85.00

**HTA 153- One ways streets-** ride in the designated direction on one-way streets. Set fine: \$85.00

**HTA 147- Slow moving traffic travel on rights side-** any vehicle moving slower than the normal traffic speed should drive in the right-hand lane, or as close as practicable to the right edge of the road except when preparing to turn left or when passing another vehicle. For cyclists, you must ride far enough out from the curb to maintain a straight line, clear of sewer grates, debris, potholes, and parked car doors. You may occupy any part of a lane when your safety warrants it. Never compromise your safety for the convenience of a motorist behind you. Set fine: \$85.00

**HTA- Signalling a turn-** before turning, look behind you and signal your turn. Cyclists can use their right arm to signal and right turn. Set fine: \$85.00

**HTA- 140/144(29)- Crosswalks-** stop for pedestrians at crosswalks and walk your bike when crossing at crosswalk. Set fine: \$85.00

**HTA 175 (12)- Stopped school buses-** stop for stopped school buses when the upper alternative red lights are flashing and the stop arm is out. Set fine: \$400.00

**HTA 62 (17)- Lights-** a bike must have a white front light and a red rear light or reflector if you ride between ½ hour before sunset and ½ hour after sunset and white reflective tape on the front forks and red reflective tape on the rear forks. Set fine: \$20.00

**HTA 75 (5)- Bell-** a bike must have a bell or a horn in a good working order. Set fine: \$85.00

**HTA 64 (3)- Brakes-** a bike must have at least one brake system on the rear wheel. When you put on the brakes, you should be able to skid on dry, level pavement. Set fine: \$85.00

**HTA 218- Identification-** Cyclists must stop and identify themselves when required to stop by police for breaking traffic laws. The police officer will ask you for your correct name and address. Set fine: \$85.00

**HTA Reg. 630- Expressways-** Bicycles are prohibited on expressway/freeway highways such as the 400 series, the QEW, Ottawa Queensway and on road where “No Bicycle” signs are posted. Set fine: \$85.00

**HTA 178 (2)- Passengers-** passengers are not allowed on a bicycle designed for one person. Set fine: \$85.00

**HTA 178 (1)- Attaching to a vehicle-** you are not permitted to attach yourself to the outside of another vehicle or streetcar for the purpose of “hitching a ride”. Set fine: \$85.00

**HTA 104- Helmets-** Every cyclist under the age of 18 must wear an approved bicycle helmet. Parents or guardians shall not knowingly permit cyclists under sixteen to ride without a helmet. Set fine: \$60.00

**HTA 179- Dismounted bicyclist-** Cyclists are required to ride on the right-hand side of the road. If you are walking your bike on a highway where there are no sidewalks, you are considered a pedestrian and you should walk on the left-hand side of the road facing traffic. If it is not safe for you to cross the road to face traffic, you may walk your bike on the right-hand side of the road. Set fine: \$35.00

The following are not considered bicycles and are subject to different rules for use: Limited-speed motorcycles, Motor-assisted bicycles (mopeds), Low-speed vehicles, Electric and motorized scooters (go-peds), pocket bikes and Segway Human/Personal Transporter. For more information on the rules of use for these types of vehicles please visit [www.mto.gov.on.ca](http://www.mto.gov.on.ca).

**Technical Recommendations:**

5-18 *That the Ottawa Police Service should continue to work with other City staff and cycling interest groups to improve cycling safety and reduce collisions. For example, continue targeting cyclists who disobey the law as part of the Integrated Road Safety Program*

**5.4 Bicycle Tourism**

Tourism is a huge economic engine in which cycling can play an important contributing role. The Ottawa Tourism and Convention Authority reports that there were 6.1 million visitors to Ottawa in 2002, accounting for \$1.2 billion in spending. The number of cycling tourists is not known. It is estimated that of the 6.1 million visitors, approximately one-third come for pleasure, with a portion engaging in sports or outdoor activities that may include cycling. The addition of cycling use and touring to the current information collected from visitors is needed to assess the importance of cycling to tourists who visit Ottawa.

The many positive benefits of cycling make this activity ideal to be marketed as a tourism commodity. The appeal covers sports enthusiasts who may follow bicycle racing events as well as local recreational and visiting tourists who are looking for a casual or robust outdoor activity. The bicycle fits within the Ontario Green Tourist movement that promotes environmentally sound tourism and aligns well with the concept of sustainable tourism, which is a growing trend in the industry. The concept is based on the combination of ecological, economic, ethical and social equality for local communities and was adopted in the Charter for Sustainable Tourism at the World Conference on Sustainable Tourism, Spain, 1995.

**In the United States, \$3.1 billion is spent on cycling annually.**

There is ample proof that cycling can attract tourists and provide an economic return on investments. Cycling is a major recreational activity in the United States, where people spend \$3.1 billion on cycling every year.<sup>10</sup> Many jurisdictions actively market their cycling infrastructure and services as part of a tourism package including Toronto, Vancouver,

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<sup>10</sup> Mountain Bike, 2000

Niagara Region and Quebec as well as numerous American States such as Vermont, Maine and Wisconsin.

Velo Quebec has a tour group as part of their organization that actively promotes cycling tourism in that Province. A May 10, 2004 press release from Velo Quebec underlined the Quebec government's commitment to the La Route Verte, which is nearing its 4,300 km planned length. Expenditures of \$7.5 million have been announced from that Province to support expansion and maintenance of this bicycle network in 2004/05. In 1988, it was estimated that \$88.5 million would be required to complete the network.<sup>11</sup> The economic spin-offs of \$95 million per year are generated from the LaRoute Verte Cycling Network, including \$15 million in provincial taxes.

Similarly, the Regional Municipality of Niagara and its tourism arm (the Niagara Economic Development Corporation), incorporates cycling into its tourism strategy. Cycling is seen as a popular and marketable activity that offers a pleasant way to see and experience the Region's attractions. It is also a means of enticing the "day-tripper" to spend additional time and money, which may include an overnight stay in the area.

The 2003 Regional Niagara Bikeways Master Plan provides a 20-year blueprint to support cycling at a cost of \$70 million. It concludes that cycling tourism is and will continue to be a significant contributor to the Niagara Region economy. Direct expenditures from cycling tourists in Niagara Region were approximately \$164 million in 2002, or 12% of the total tourism expenditures. This is projected to grow to \$237 million or 13% of the total tourism expenditures over the next 20 years. The spin-offs created by these direct expenditures are significant. A total of 4,900 direct and indirect jobs in that Region in 2002 were due to the expenditures of cycling tourists. In 20 years, this number is projected to increase to approximately 7,000. The *Regional Niagara Bicycling Map 2003 / 2004*, represents an initiative that combines cycling services and information with tourist attractions as a means of promoting cycling tourism.

**Economic spin-offs of \$95 million per year are generated from Quebec's La Route Verte cycling network.**

**Direct expenditures from cycling tourists in Niagara provided \$164 million in 2002.**

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<sup>11</sup> La Route Verte Newsletter, June 1998

**Marketing Ottawa as a cycling destination will complement the policies and strategic directions of Ottawa’s 20/20 Economic Strategy 2003 Report that recommends “Promote Ottawa to the World” through its unique assets, quality of life and tourism.**

Marketing Ottawa as a cycling destination will complement the policies and strategic directions of Ottawa’s *20/20 Economic Strategy 2003* Report that recommends “Promote Ottawa to the World” through its unique assets, quality of life and tourism. Ottawa will need to actively promote cycling tourism as other communities in Ontario and North America will be competing for a portion of this market share.

It will be important to “create” bicycle tourists and guide them to routes that will ensure a positive experience, good referrals and return visits. Ottawa, as Canada’s Capital, is unique among Canadian cities with many scenic, cultural and historic attractions and events that can help form the basis of any cycling tourism marketing effort. Numerous Ottawa cycling events are already in existence to attract cyclists as previously mentioned. Implementing the “mass ride” event recommendation (such as the Ride for Heart event or Montreal’s Tour de l’Île de Montreal) would provide a focus for an “event” marketing plan that would leverage visits to other tourist attractions in Ottawa.

The target audience for cyclists is also varied with recreational cycling, mountain biking, and overnight tours. The marketing plan must reach out to different types of cyclists that have different skills.

Partnerships will also be critical in formulating a successful cycling tourism program. The private sector must participate in the form of cycling tour operators, accommodation and service providers to help provide expertise and funding for a complete package of services for visiting cyclists.

**Partnerships will also be critical in formulating a successful cycling tourism program.**

It will also be important to ensure bicycle friendly connections with all modes of intercity travel to allow cycling tourists to bring their bicycles into the region. This will mean working with other groups and agencies to develop integrated bike route connections with the Trans Canada Trail, Velo Ontario’s Bicycling Route and Quebec’s La Route Verte. Good bicycle access to intercity rail, bus and air terminals, and urging supportive bike accommodation policies on these modes is also important.



A cycling tourism marketing plan therefore should:

- Compile a base data to quantify, characterize and monitor cycling tourists and to help identify appropriate marketing strategies;
- Generate interest in the many cycling opportunities in Ottawa;
- Provide information about cycling services and resources to help tourists plan Ottawa cycling vacations;
- Promote cycling throughout the Ottawa area and direct cyclists to areas where facilities, road and traffic conditions result in a positive experience;
- Obtain private sector commitments and partnerships to invest in making Ottawa a cycling tourist destination; and
- Develop good intercity cycling connections with regional bicycle routes, intercity terminals and on board accommodation for bicycles.

***Technical Recommendation:***

*5-19: That the City should work with the private sector, interest groups, agencies, governments and intercity carriers to promote bicycle tourism in Ottawa and develop the City into a primary destination for cyclists.*

### **5.5 OCP Policy Recommendations**

The following recommendations are identified to give policy direction to the above outreach support efforts as well as the technical and detailed recommendations identified in this chapter.

The City of Ottawa will provide:

#### ***Education and Training***

*5-a:* Continue to support and enhance cycling education programs and cycle skills training initiatives such as the CAN-BIKE courses that produce and create an awareness of safe cycling practices for all road and pathway users and the public.

**Partnership / Cooperation / Collaboration / Participation / Engagement**

5-b: Actively pursue a collaborative and consultative approach, with all interested and affected parties in order to engage the public, interest groups and agencies in an open participatory process that builds cooperative partnerships and helps ensure successful implementation for all bicycle supportive programs and initiatives. The City should continue to support a public advisory committee that addresses cycling issues and encourages cycling advocacy groups and organizations to continue their efforts to improve cycling in Ottawa. Similarly, continued consultation and assistance should be actively sought from the Ottawa Police Service, National Capital Commission, Ottawa School Boards and The Ministry of Transportation of Ontario.

**Co-ordination**

5-c: Co-ordinate efforts to support and enhance bicycling with all other interested and affected parties to promote efficiency by helping to avoid duplication, allowing continuity and taking advantage of economies of scale.

**Environmental Quality**

5-d: Recognize bicycling as a key component of the City's Environmental Strategy and ecosystem management approach to achieve a green and environmentally sensitive city, by offering a viable alternative to the automobile which will help produce the following benefits; reduced congestion, lower fuel and energy consumption, lower carbon emissions, improved air quality and less impact upon climate change, minimizes overall demand for land and other resources and reduces visual and noise pollution.

**Enforcement**

5-e: Request that the Ottawa Police Services improve cycling safety by increasing the effective enforcement of motorists, pedestrians and cyclists for both on-road and off-road pathway users, in compliance with

regulations of the Highway Traffic Act and Municipal By-Laws. It is also recognized and encouraged that the bicycle be used as a law enforcement tool for trained police officers who act as role models for proper cycling behaviour in the community.

### **Safety and Security**

5-f: Ensure safe and secure cycling practices and behaviour, to the greatest extent possible, by all road and recreation path users through education, cycling skills training, enforcement and adoption of acceptable bicycle facility standards and guidelines.

### **Encouragement and Promotion**

5-g: Encourage and promote cycling as a preferred mode of transportation for both utilitarian and recreation purposes through activities such as infrastructure improvements, educational programs, enforcement campaigns and promotional initiatives to get more people on bicycles.

### **Leadership Role**

5-h: Adopt a leadership by example role and be a model and showcase to other municipalities and employers, by implementing infrastructure programs that support, encourage, educate and enforce safe cycling. City employees will be encouraged to use bicycles to commute to work and for travel on city business, secure parking with showers and locker facilities will be provided at city owned and operated buildings, and employees that use bicycles will be encouraged to take an effective safe cycling course.

### **Tourism**

5-i: Work with the Ottawa Tourism and Convention Authority, the private sector and other tourism stakeholders to identify, promote and market the City as a cycling destination for tourists, visitors and vacationers, highlighting the bicycle friendly nature of the area with its many attractions, bicycle facilities and support services.

***Intercity Travel***

- 5-j: Support inter-regional cycling tourism and travel by co-ordinating with other agencies, interest groups, municipalities and the private sector for bicycle route connections beyond the City's boundaries and by supporting initiatives to have intercity passenger terminals that accommodate cyclists.



## 6.0 Implementation

The fourth cornerstone and one of the most important guiding principles of the Ottawa Cycling Plan is to implement the plan. No plan can be measured a success if it cannot be implemented. Therefore, it is crucial that a realistic and practical implementation strategy is in place to ensure that the goals and vision of the OCP can be achieved.

The OCP is comprehensive and strategic in nature. As such, it will need to be implemented efficiently through phases beginning with a recommended ten-year implementation plan and longer term strategy, with each step or action building upon previous ones. Although detailed, it is a plan designed to be flexible so that the City can adapt the plan to changes, constraints and opportunities as they arise, while still maintaining the plan's objectives.

This chapter outlines a clear and feasible strategy for implementing the recommendations of the Ottawa Cycling Plan. It sets out a process, management structure and set of steps considered necessary to implement the OCP. It provides a cost estimate for the various recommendations made in the plan, including costs for both infrastructure and programming.

### 6.1 *Ten-Year Implementation Plan and Longer Term Strategy*

The Ottawa Cycling Plan is a long-term (20 year) strategy that consists of two phases. The first, is a ten-year implementation plan outlined in this chapter, and includes network infrastructure, program initiatives and associated costs. The ten-year plan is intended to coincide with the City's Transportation Master Plan, and be updated accordingly.

The second phase, which forms the longer-term strategy, has not been costed and is presented as a concept at this time for information and as input to long-term planning initiatives by City staff. In the future when the OCP is updated (recommended every five years), elements of the long-term strategy will be reviewed and if confirmed, will be incorporated into an updated ten-year implementation plan.

**Although detailed, it is a Plan designed to be flexible so that the City can adapt to changes, constraints and opportunities as they arise, while still maintaining the Plan's objectives.**

**The Ottawa Cycling Plan is a long-term (20 year) strategy that consists of two phases. The first, is a ten-year implementation plan outlined in this chapter, and includes network infrastructure, program initiatives and associated costs. The ten-year plan is intended to coincide with the City's Transportation Master Plan, and be updated accordingly.**

**The success of the Ottawa Cycling Plan will be measured in part by the ease with which it can be implemented.**

## **6.2 Implementing the Plan**

The success of the Ottawa Cycling Plan will be measured in part by the ease with which it can be implemented. Ease of implementation can be measured by five criteria:

- A practical strategy that identifies a recommended approach, including guidelines to implement the plan, and also addresses priorities and phasing;
- The quality and clarity of the plan in terms of its vision, principles and goals that guide it, and the set of recommendations that provide the strategy to achieve the plan;
- An administrative structure responsible for implementing all components of the plan, as well as for co-ordinating multi-departmental and jurisdictional resources, including funding commitments;
- Funding by Council and the City's partners for the plan according to recommendations herein, preferably within the recommended 10-year timeframe; and
- Monitoring of the plan to assess implementation results and to serve as feedback to refine on-going implementation.

Chapters 1 through 5 of the OCP establish a concise cycling plan for Ottawa that is based on a clear vision, goals and guiding principles, as well as a set of supporting objectives and recommendations. Chapter 6 sets out the implementing actions, priorities, administrative structure, funding and monitoring elements that are recommended to successfully implement the OCP.

## **6.3 Priorities**

The implementation of the proposed Ottawa Cycling Plan identified in Chapter 3 of this report should be implemented in two phases:

- Phase 1 = Ten-year Implementation Plan (2008-2018)
- Phase 2 = Longer Term Concept (To coincide with new Official Plan / Transportation Master Plan Planning Horizon)



### 6.3.1 Network

The approach used to prioritize the proposed Cycling Network in this plan (Phase 1 or Phase 2) involved applying the network development approach set out in Chapter 3. In addition, consideration was given to the following strategic actions:

- Focus on developing a continuous route connecting major nodes throughout the urban and rural areas of the City.
- Provide facilities at important crossings of cycling barriers as soon as possible.
- Connect to existing cycling facilities.
- Focus on improved bicycle access to more residential areas.
- Schedule implementation with already planned and/or scheduled capital road and servicing projects.
- If platform width is sufficient but existing pavement width is inadequate, schedule implementation at the same time road resurfacing occurs.
- Where platform width is not sufficient to accommodate the recommended cycling facility type and implementing a signed route as an interim solution is not recommended because of roadway characteristics, the cycling route should be identified as a longer term priority tied to roadway reconstruction.
- If pavement width is adequate and implementation is related to adding edge lines to define a paved shoulder, co-ordinate implementation with the City's pavement marking program. This program should be reviewed to "fast track" City roads designated for cycling facilities.
- All City roads proposed for a cycling facility and identified in the City's current capital works program should be implemented in ten-year implementation plan (2008-2018).
- Facilities located in areas identified by City staff as growth areas have been included under ten-year implementation plan (2008-2018).
- Facilities located in corridors identified by City staff as "Transit Expansion" have initially been included in the

**Some flexibility will be necessary to implement the network component of this plan.**

longer term network concept, however may be shifted forward to coincide with transit planning and implementation.

- The majority of roads proposed as signed-only routes, whether these roads are proposed for road improvements or not, should be implemented in the ten-year implementation plan. Implementation priorities for signed-only routes should be based on connecting major nodes throughout the City and establishing continuous routes.
- Respond to opportunities. For example, a number of corridors have been identified by the City of Ottawa as future transportation corridors, some of which have been assumed for inclusion in the cycling network within the ten-year implementation plan.
- Acquiring additional land to expand a road ROW for the sole purpose of implementing a recommended cycling facility is not necessarily the best and most efficient use of public funds, but may be the only option if no other alternative emerges.

**Figures 6-1a, 6-1b and 6-1c** depict existing facilities as well as proposed ten-year implementation plan (Phase 1: 2008 to 2018) and long term (Phase 2: 2018-2028) implementation priorities for the Ottawa Cycling Network for the entire City, the urban area and downtown core, respectively. Each of the phases is distinguished according to an assigned colour. The ultimate network (following build-out) is represented by the combination of the three colours. For additional information regarding recommended facility type and segment length, refer to Figures 3-5a, 3-5b and 3-5c.

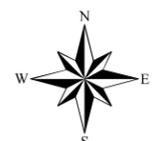
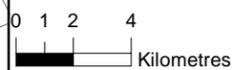
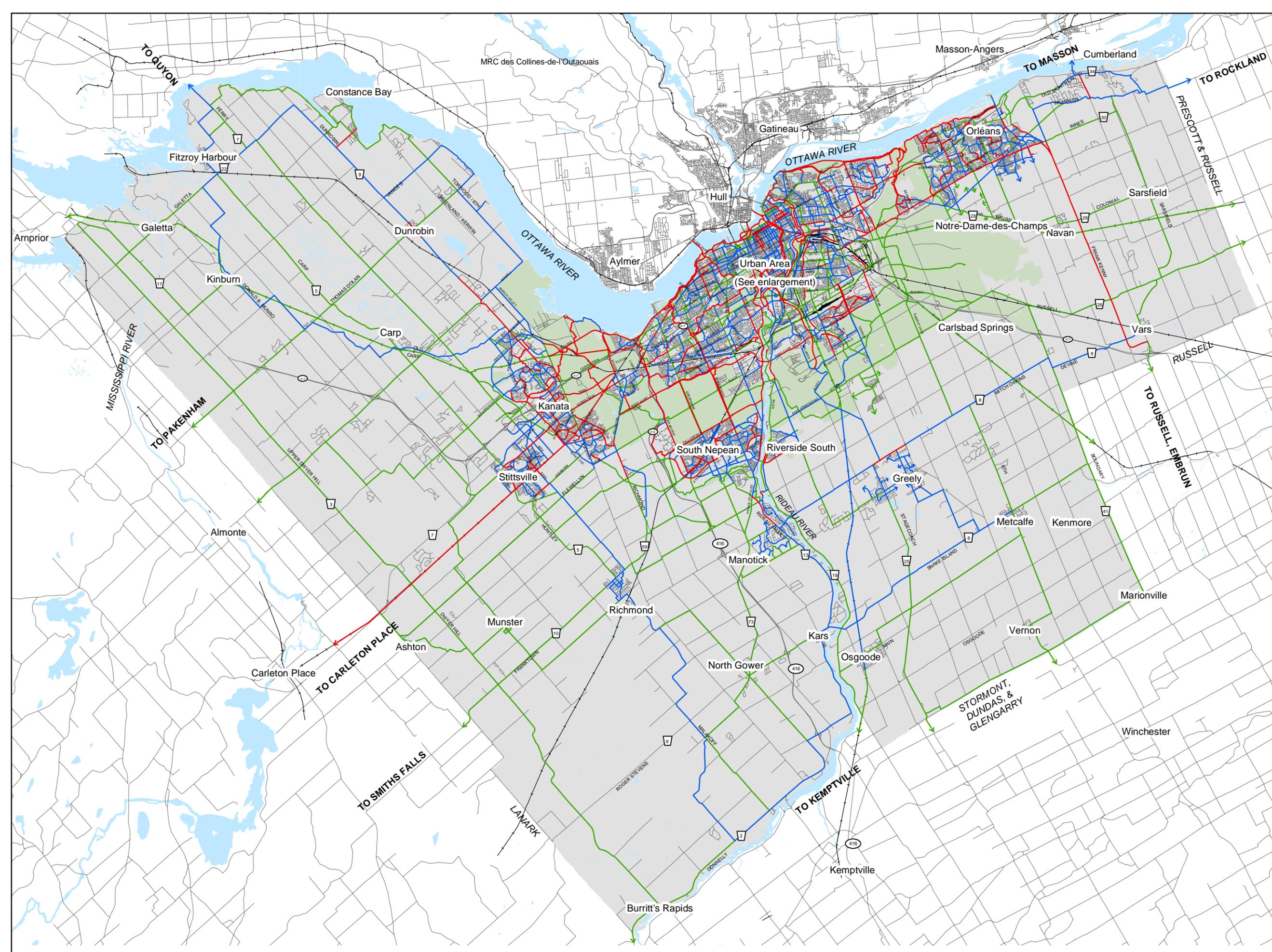
Some flexibility will be necessary to implement the network component of this plan. For example, a number of route segments and related facility types proposed for implementation in ten-year implementation plan may prove not to be feasible because of other City priorities or other circumstances. However, an interim solution may be possible.

Opportunities may also occur in the shorter term to implement specific projects identified in the longer term, which may result in shifting some projects to an earlier timeframe.

**OTTAWA CYCLING PLAN**

**Figure 6-1a  
Implementation Plan**

- Legend**
- \* Existing Routes
  - \* Short Term (2008 - 2018)
  - \* Long Term (2018 - 2028)
  - Municipal Parks & Open Space
  - Lakes & Rivers
  - 417 Provincial Highway
  - City of Ottawa
- \* refer to Figures 3-5a, 3-5b, 3-5c for Facility Types and Route Segmentation.



2008/02/06

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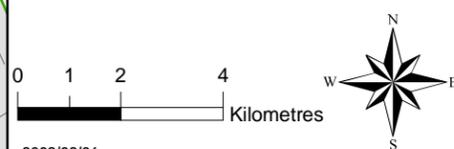
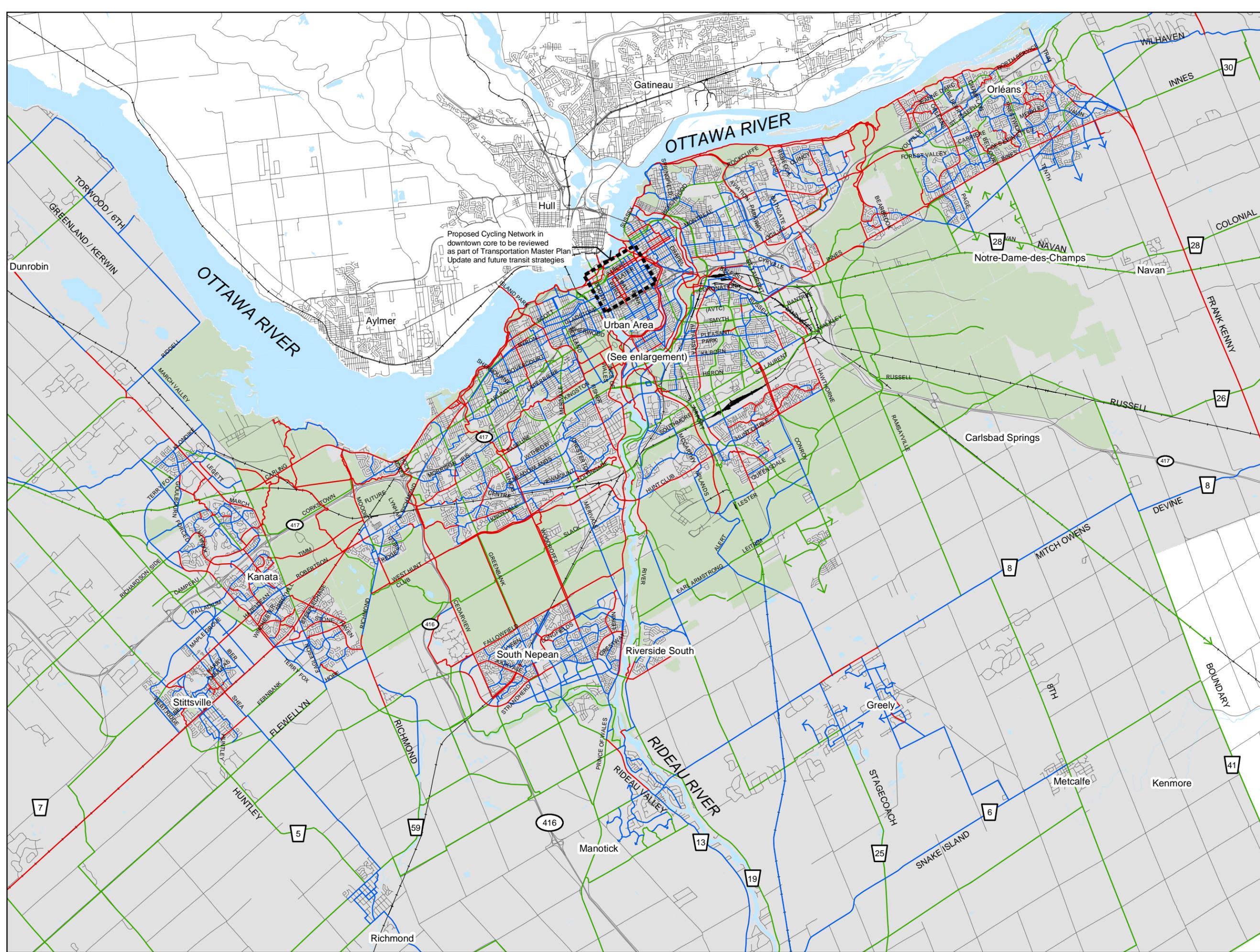


In Association with:  
Nancy Smith  
David Hunt

**OTTAWA CYCLING PLAN**  
**Figure 6-1b**  
**Implementation Plan**

**Legend**

- \* Existing Routes
  - \* Short Term (2008 - 2018)
  - \* Long Term (2018 - 2028)
  - Municipal Parks & Open Space
  - Lakes & Rivers
  - 417 Provincial Highway
  - City of Ottawa
- \* refer to Figures 3-5a, 3-5b, 3-5c for Facility Types and Route Segmentation.



2008/02/06

Prepared by:

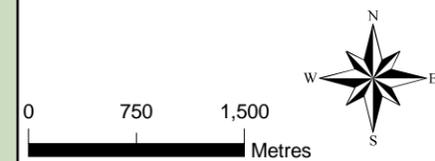
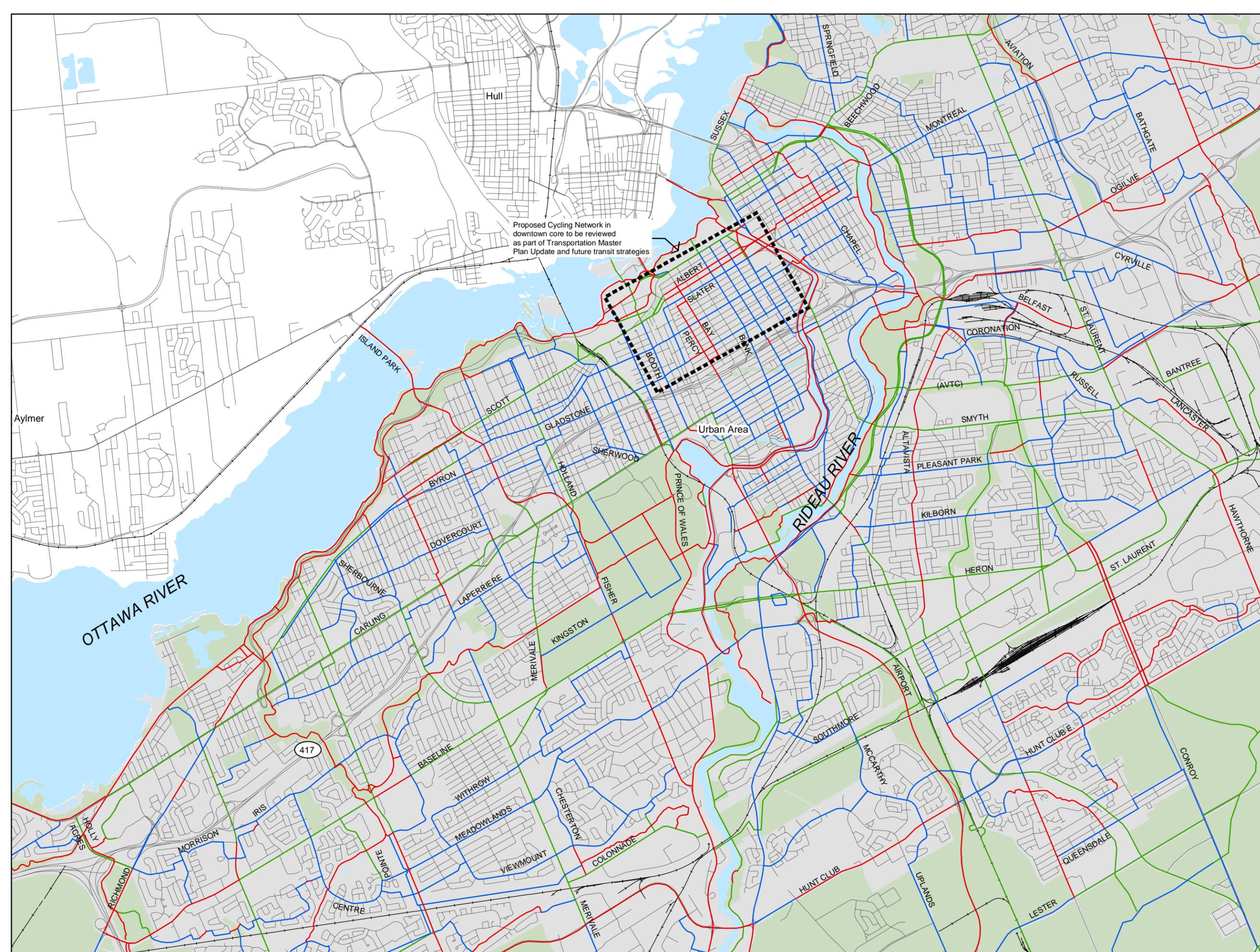


In Association with:  
 Nancy Smith  
 David Hunt

**OTTAWA CYCLING PLAN**  
**Figure 6-1c**  
**Implementation Plan**

**Legend**

- \* Existing Routes
  - \* Short Term (2008 - 2018)
  - \* Long Term (2018 - 2028)
  - Municipal Parks & Open Space
  - Lakes & Rivers
  - Provincial Highway
  - City of Ottawa
- \* refer to Figures 3-5a, 3-5b, 3-5c for Facility Types and Route Segmentation.



For some road segments identified as part of the cycling network, the current roadway characteristics, such as the average annual daily traffic volume (AADT) and commercial vehicle percentage (see Appendix I - Planning and Design Guidelines, Section 3.5 Retrofitting City Roads, Tables 3.4 or 3.5) may not exceed the maximum threshold for a signed-only route for at least 7 to 10 years. In these situations, a great opportunity exists for the City of Ottawa to provide more of the cycling network sooner, and at a moderate cost through the installation of signing only. In time, as these same roads are reconstructed or resurfaced, the City would then upgrade the signed-only route to the desired cycling facility type.

In addition, when any road in the City is resurfaced or reconstructed, and this road has an existing network cycling facility, consideration should be given to improving the cycling facility. For example, if an arterial road on the network with existing wide curb lanes is reconstructed there may be an opportunity to provide formal bike lanes in place of the shared-use / wide curb lane.

**Table 6.1** summarizes the number of kilometres of existing and new cycling routes proposed for implementation in both Phase I (2008-2018) and Phase II (2018-2028) by facility type. When completed, the Ottawa Cycling Network will consist of **2,500 km** of on and off-road cycling routes.

**.....when any road in the City is resurfaced or reconstructed, and this road has an existing network cycling facility, consideration should be given to improving the cycling facility.**

Table 6.1: Proposed Length of Bikeway Network by Facility Type

Facility Type	Distance (km)			
	Existing	Proposed		
		Phase 1	Phase 2	Total
Bike Lanes <sup>(1)</sup>	119.0	81.6	52.7	253.3
Paved Shoulders	122.8	165.7	591.0	879.5
Wide Curb Lanes on Multi-Lane Road	28.7	58.4	38.5	125.6
Wide Curb Lanes on Two Lane Road	12.1	498.8	123.1	634.0
Off-Road Pathway (City) <sup>(2)</sup>	151.1	82.6	214.2	447.9
Off-Road Pathway (NCC)	107.1	8.9	51.8	167.8
<b>TOTAL</b>	<b>540.8</b>	<b>896.0</b>	<b>1071.3</b>	<b>2508.1</b>

(1) Distances for bike lanes include total length of bike lanes on **both sides** of the road. For example, 119.0 km of existing Bike Lanes refers to 119.0 km of roads with bike lanes on both sides.

(2) Proposed to form part of network. Does not include all existing pathways.

**The formal relationships between individuals and organizations and their operational practices are important factors in determining whether a cycling initiative will proceed and be successful. Maximizing participation and removing obstacles to the flow of information between participants are two of the main objectives in managing implementation.**

### 6.3.2 Programming

The Ottawa Cycling Plan is not only an infrastructure plan. The OCP includes a comprehensive package of recommendations designed to make Ottawa more cycling friendly and to educate cyclists and non-cyclists and promote the benefits of cycling in Ottawa.

As already noted, the Ottawa Cycling Plan is designed to be flexible so it will evolve over time. New opportunities and constraints will arise that were unforeseen at the time this plan was developed. This means that implementation priorities, including those identified in Figures 6-1a, 6-1b and 6-1c will change. Therefore, it is important to monitor the implementation of the plan and to update the priorities on an annual basis or as capital works projects are scheduled. A recommended approach to administer the OCP and to monitor its implementation is provided in the following section.

**Technical Recommendations**

- 6-1: *That the Cycling Network illustrated in Figures 6-1a, 6-1b and 6-1c, and Table 6.1, recommended programming and other initiatives should be implemented in five-year phases over 10 years with progress measured and the schedule re-evaluated at the end of each 5-year period.*
- 6-2: *That when a road with an existing cycling facility is resurfaced or reconstructed, consideration should be given to providing the appropriate cycling facility type (e.g. from wide shared-use / wide curb lanes to bike lanes).*

**6.4 Implementing On-Road Cycling Facilities and the Class EA Process in Ontario**

In Ontario, the Municipal Engineers Association (MEA) Class Environmental Assessment Document applies to municipal infrastructure projects including roads, water and wastewater projects.<sup>1</sup> Recognizing projects undertaken by municipalities can vary in their environmental impact, such projects are classified in this Class EA in terms of schedules:

**Schedule A**

- Generally includes normal or emergency operational and maintenance activities; and
- The environmental effects of these activities are usually minimal and, therefore, these projects are pre-approved.

**Schedule B**

- Generally includes improvements and minor expansions to existing facilities; and
- There is the potential for some adverse environmental impacts and therefore the proponent is required to proceed through a screening process including consultation with those who may be affected.

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<sup>1</sup> Municipal Engineers Association, Municipal Class Environmental Assessment, June 2000

### Schedule C

- Generally includes the construction of new facilities and major expansions to existing facilities; and
- These projects proceed through the environmental assessment planning process outline in the Class EA.

Although implementing a signed-only bike route requires the installation of bike route signs at strategic locations and no other physical improvements to the road right-of-way are required, retrofitting an existing road to add bike lanes or wide shared-use / wide curb lanes may require some form of change. This may be limited to the addition of new pavement marking and signing, remarking part or all of an existing road to ‘fit in’ bike lanes or wide shared-use / wide curb lane, or widening the paved surface of the roadway to accommodate the proposed cycling facility.

The preferred approach to retrofitting an existing road to accommodate on-road cycling facilities (bike lane, paved shoulder, wide shared-use / wide curb lane or signed-only route) is to adjust existing pavement markings and/or signing, and not widen a roadway. However, for some projects a need exists to widen the paved surface of a roadway slightly to add a bike lane or paved shoulder. This widening can often be secured by shifting curbs slightly or adding paved shoulders at the time a road is reconstructed or rehabilitated. The issue for municipalities in Ontario is whether widening a road for the purpose of adding bike lanes or paved shoulders is an operational improvement and therefore a pre-approved (Schedule A) project according to the MEA Class EA Document or would the Ministry of Environment require a more involved Schedule B or Schedule C assessment and planning process.

According to the Special Project Officer of the Ministry of Environment (Toronto): The provision of bicycle lanes and paths are included in the document under Item 3 of Appendix 1- Project Schedules Municipal Road Projects and that “Construction or operation of sidewalks or bicycle paths within existing rights-of-ways” are considered Schedule A

projects with no specified project cost limit.<sup>2</sup> In addition, it does not matter if the bicycle path or lane is on or off the paved portion of the road right-of way. Ministry staff also advised that Project Descriptions 19 and 20 in Appendix 1 of the MEA Class EA Document of linear paved facilities and related facilities (e.g. adding or reducing lanes) is for “motor” vehicles including transit vehicles, and not bicycles or bicycle facilities. However, if adding a cycling facility will negatively impact the natural environment or addition road right-of-way is required or if an existing motor vehicle travel lane is proposed to be eliminated in order to provide a proposed bike facility, a Schedule B or C Class EA planning process should be considered.

## 6.5 Administering the Plan

Maximizing participation and removing obstacles to the flow of information between participants are two of the main objectives in managing implementation.

The OCP is more than a proposed network of on and off-road cycling facilities. It is a plan that includes a set of recommendations to encourage more cycling use, especially for commuting purposes, promote safe cycling in Ottawa and to recognize and share in the economic, health and quality of life benefits that cycling can offer. In order to implement and maintain the proposed plan and realize these benefits, a clear and practical structure needs to be in place to administer the plan.

### 6.5.1 Implementing Structure

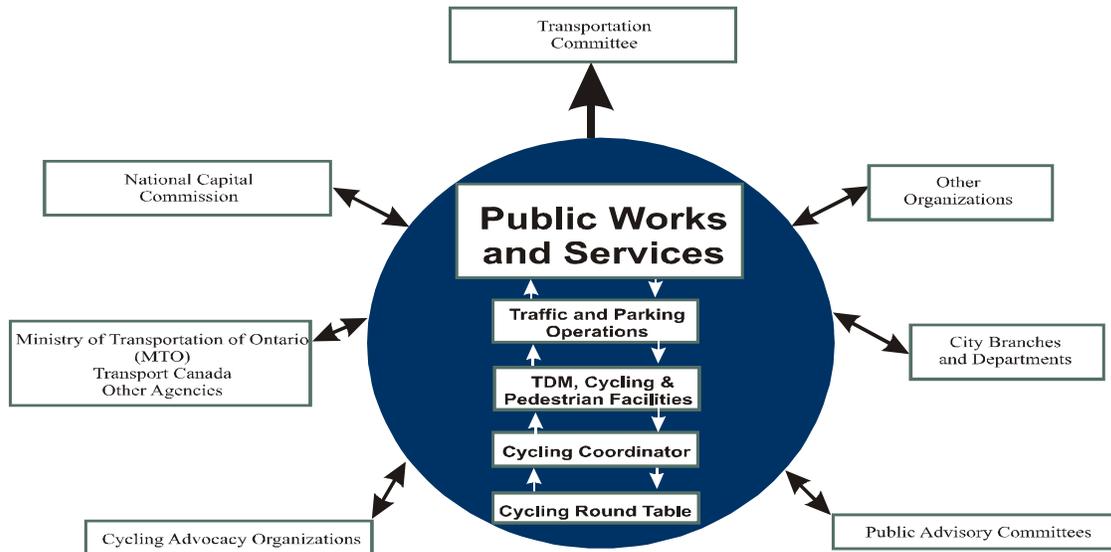
An efficient reporting structure is vital to ensure that the decision-making process associated with the implementation of the OCP is managed and all relevant City departments are involved.

A potential structure for managing and implementing the OCP is illustrated in **Figure 6-2** and is believed to generally reflect current informal practices at the City.

<sup>2</sup> Municipal Engineers Association, Municipal Class Environmental Assessment, June 2000, pg. Appendix 1-4

**People and leadership are the keys to setting the implementation of the OCP in motion. The formal relationships between individuals and organizations and their operational practices are important factors in determining whether a cycling initiative will proceed and be successful.**

Figure 6-2: Proposed Implementation Reporting Structure



The core of the proposed structure consists of the Traffic and Parking Operations Branch, Public Works and Services Department and the Cycling Round Table.

The Cycling Round Table consists of representatives from City departments that deal with the planning, design, implementation and maintenance of cycling facilities. Representation from key agencies (e.g. NCC), as well as cycling advocacy and public advisory committees, are invited to participate on the committee either full-time or as specific issues arise. This informal staff-led committee meets at least four times per year or as required to discuss major issues related to cycling infrastructure and programming. The Cycling Round Table provides the opportunity for members of various City departments to meet at one location and make informed decisions while balancing sometimes competing interests and responsibilities.

The core group of this recommended reporting structure would oversee and make decisions regarding funding and priorities associated with the OCP, as well as other City initiatives, as assigned. All reporting from the core group would be to the City Manager of Public Works and Services and then Transportation Committee as indicated in Figure 6-2.

City staff could use the above noted model or develop one that can be implemented within the City's existing department and reporting structure.

### 6.5.2 The Implementation Process Tool

The Ottawa Cycling Plan is not intended to be a static document. The timing and details related to its implementation, particularly the location of recommended routes and cycling facilities should evolve through community consultation and detailed technical studies when appropriate. At the same time, however, the extensive community and stakeholder effort that established the overall direction for this plan should be respected.

It should also be recognized that the complete cycling network and priorities recommended in this plan might evolve through the environmental assessment, planning and capital budget processes.

Central to the proposed implementation process tool is a proposed new City guideline that recommends that the OCP be reviewed when road or other infrastructure projects are identified or scheduled. This should include the City's road maintenance program as well as the reconstruction or resurfacing of roads, and any investigation of potential new road alignments or the reuse and/or sale of abandoned rail and utility corridors.

The objective is to ensure that the City's assets, particularly roads designated in the OCP for future cycling facilities, are given due regard when planning, designing and budgeting for larger capital works projects. Without this step, network opportunities could be lost and cost efficiencies not realized.

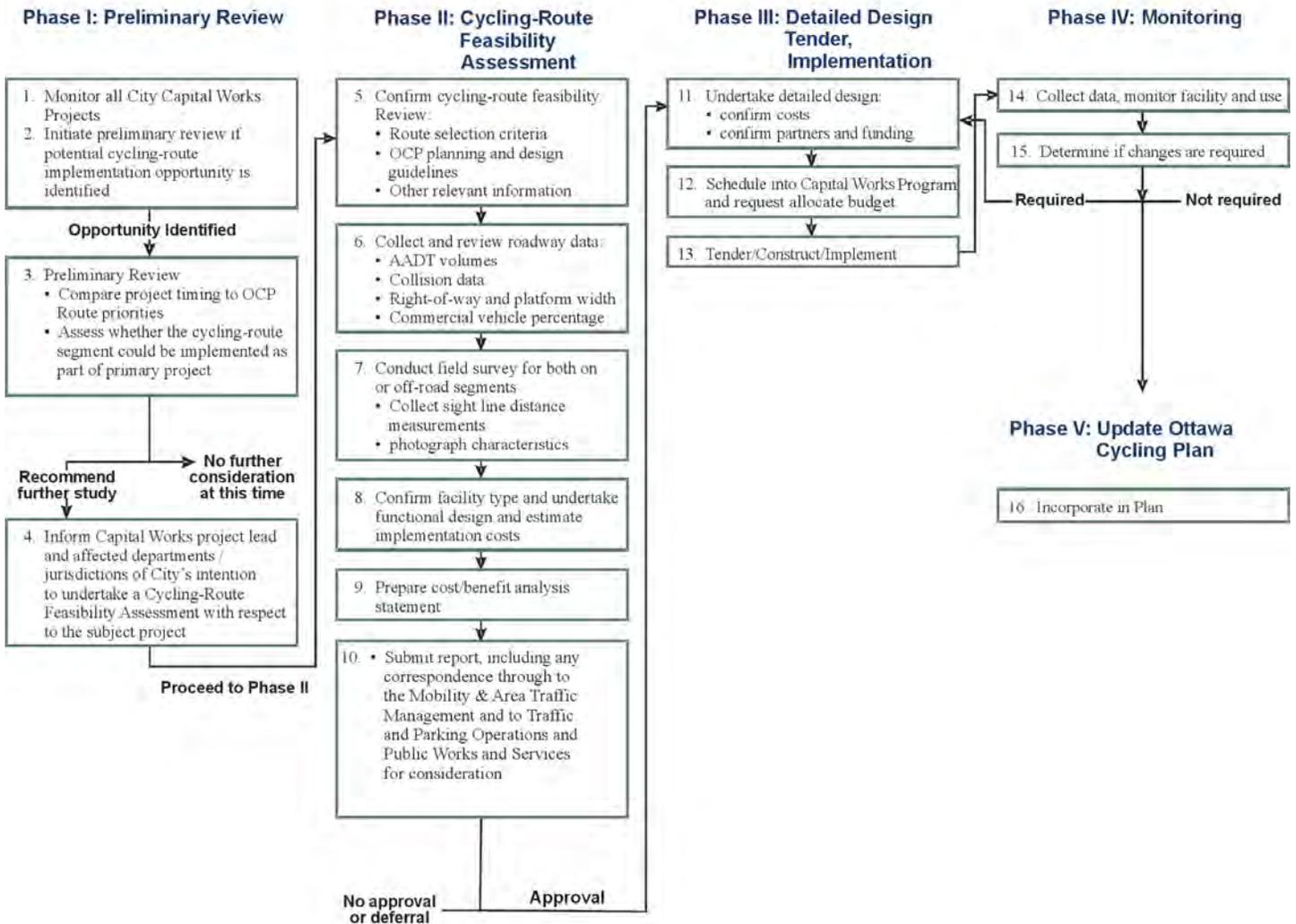
Building upon this central guideline, **Figure 6-3** outlines a proposed process tool for guiding the implementation of cycling facilities in the City of Ottawa. It is recommended that City staff review this tool and adapt it as necessary to establish a clear and practical process for implementing the proposed cycling network in Ottawa.

The process, comprised of five phases, is a clear mechanism to confirm the feasibility of each route recommended in this plan. It will also assist City staff from affected departments to

**The objective is to ensure that the City's assets, particularly roads designated in the OCP for future cycling facilities are given due regard when planning, designing and budgeting for larger capital works projects. Without this step, network opportunities could be lost and cost efficiencies not realized.**

work together, to share information and to facilitate the implementation of all aspects of the plan. The OCP should be reviewed and updated at least every five years, similar to the requirements in the Planning Act for Municipal Official Plans.

**Figure 6-3: Implementation Process Tool**



**Phase I: Preliminary Review**

The first step in implementing segments of the OCP is to identify opportunities and to communicate these to those leading a particular project. Staff should monitor all road projects scheduled for consideration. When a project involving a corridor or road proposed for a cycling route



identified in the OCP is advanced to the planning stage, or an opportunity to establish a new route not identified in the plan comes forward, staff should undertake a ten-year implementation plan preliminary review, based on available projected project plans from all other appropriate Branches. This review should:

- Compare the timing of the project to the short and long term implementation priorities identified in the OCP;
- Assess whether the nature of the project may permit implementation of the preferred cycling facility type at the same time; and
- Inform the project lead and affected departments whether or not a cycling feasibility assessment should be included as part of their study or project to confirm the feasibility and costs for implementing the proposed cycling route as part of the subject project.

The key aspect of this initial phase is communication. Staff from various departments should report all upcoming projects that may involve or impact a cycling route designated in the OCP. From this point forward, staff in TDM Cycling and Pedestrian Facilities would be expected to work through the remaining three phases of the implementation process with various City departments, public interest groups and through Senior Management and Council, as required.

### ***Phase II: Cycling Route Feasibility Assessment***

If a cycling-related project is confirmed through the preliminary review process (Phase I) City staff, should undertake a Cycling Route Feasibility Assessment. This is proposed to include some if not all of the following steps:

- Confirm the feasibility of the route based on a review of the OCP and supporting route selection and planning and design criteria, as well as and other relevant information.
- Collect and/or review current roadway characteristic information including AADT volumes, collision data and the commercial vehicle percentage. Data collection may also include manual traffic counts over different time periods to estimate current cycling demand, if any is thought to exist.

**The key aspect of this initial phase is communication. Staff from various departments should report all upcoming projects that may involve or impact a cycling route designated in the OCP.**

- Conduct a field survey for both on and off-road route segments to identify any other issues that should be considered and to measure sight line distances.
- Undertake a functional design for the on-road or off-road cycling route segment and estimate implementation costs, including construction and signing.
- Prepare a cost/benefit analysis statement. This “statement” should comment on the following:
  - the timing for implementing the proposed cycling route;
  - identify costs and efficiencies achieved;
  - identify any less costly alternatives and how they may fit within the overall cycling network; and
  - provide a draft recommendation on how to proceed.
- The Cycling Route Feasibility Assessment and related reports would then be provided for consideration.

This process typically takes place in conjunction with or as input to a roadway Class EA or functional design process whereby design alternatives are prepared. The design for the cycling portion of the facility should be in accordance with the Cycling Planning and Design Guidelines in Appendix I of this plan, as well as other relevant provincial and national design standards. Through consultation with the public and agencies, the preferred alternative is then identified. The City should confirm the feasibility of a proposed cycling facility (e.g. signed-only route, wide shared-use / wide curb lane, bike lane, etc.) during the implementation stage.

Consideration should be given to situations where there is a clear community demand for a cycling facility. If site specific circumstances prevent a facility from being constructed in association with a particular improvement project being considered, other nearby parallel routes on City roads should be closely examined at this time for their suitability so that a cycling opportunity may not be lost.

Furthermore, all roadway Class EA’s undertaken in the future should be required to consider and where possible conform to this plan. If a new road is constructed in the future that is not identified in the Ottawa Cycling Plan, which provides an

opportunity for a cycling route, these roads should be made “cycling-friendly”. The roadway geometry, such as right-of-way width and AADT’s, should be reviewed to determine the preferred facility type that could be installed (Refer to Appendix I – Planning and Design Guidelines, Section 3.5 Retrofitting City Roads, Tables 3.4 and 3.5).

If a preferred cycling facility such as a bike lane, cannot be accommodated along a particular segment due to geometric constraints, other limitations or funding constraints, consideration should be given to installing a wide shared-use / wide curb lane or signed-only route for the segment.

### ***Phase III: Detailed Design, Tender and Implementation***

Once approval has been obtained to implement a cycling route and the preferred facility type selected, the necessary detailed design should be completed. This step is typically done in conjunction with the detailed design for the primary capital works project, such as a road widening. The third phase of the process should also include confirming details with regard to partners (if any) and cost sharing. The project should then be scheduled into the City’s Capital Works Program and suitable budget requested and allocated. The final step involves tendering the project (if not undertaken by the City in-house) and then construction/implementation.

### ***Phase IV: Network Monitoring***

Once cycling facilities have been constructed, their design and use should be monitored to ensure that they function in the manner intended. When necessary, facilities should also be upgraded and maintained to ensure continued safe use by cyclists. Monitoring should also ensure that the cycling-route design guidelines and standards are current. This phase will involve collecting data to assist in the monitoring task.

### ***Phase V: Update Ottawa Cycling Plan***

The fifth phase of the implementation process includes updating the OCP as new segments of the network are implemented. The cycling network map identified in this plan should be updated on a semi-annual basis to reflect all network changes.

**If a preferred cycling facility, such as a bike lane, cannot be accommodated along a particular segment due to geometric constraints or other limitations or funding constraints, consideration should be given to installing a wide shared-use / wide curb lane or signed-only route for the segment.**

**If the City chooses, this GIS information could also, with some modifications, be posted on the City’s website in an interactive map format. This would be useful to the public and developers and would also serve as a ‘quick reference’ for City staff that does not have direct access to the Arc View database.**

***Technical Recommendations:***

- 6-3: *The OCP should be reviewed and given consideration by City staff when roads or other infrastructure projects are identified and/ or scheduled.*
- 6-4: *That the City adopt a formal implementation process for network components, that includes a process for coordination with all capital projects, feasibility checks, cost benefit analyses, integrated project development and contribution to cycling network completion.*

**6.5.3 Network Management Asset Tool**

The proposed cycling network for the OCP was developed using the City of Ottawa’s Geographic Information System (GIS) base. This digital GIS based network map provided to the City as part of the OCP can be used as a cycling facility management tool. A database is associated with the map information and includes a number of different attributes. For example, the network has been divided into segments, each specifying a length of the segment and the cycling facility type proposed, as well as whether the segment is recommended as a short-term or long-term priority.

During the implementation process over the next 10 years, City staff can refer to and use this tool to assist in confirming the feasibility of the cycling route and facility and its proposed schedule (short or long-term) for implementation. The GIS Tool can also be used to track and document new segments as they are implemented. Updating the facilities component of the plan on a regular basis will significantly reduce the effort and cost to update the Cycling Plan as recommended every five years. If the City chooses, this GIS information could also, with some modifications, be posted on the City’s website in an interactive map format. This would be useful to the public and developers and would also serve as a ‘quick reference’ for City staff that does not have direct access to the City’s GIS database.

***Technical Recommendation:***

- 6-5: *That the City of Ottawa should utilize the GIS based management tool developed as part of this plan to*



*assist in routes and confirming the feasibility of proposed cycling facilities as they are considered for implementation.*

## **6.6 Funding the Plan (Network and Program)**

To successfully implement the Ottawa Cycling Plan, City Council will need to commit to annual funding for this plan and its supporting implementation strategy. The City should also seek out other sources of revenue or cost sharing opportunities from its local partners as well as the Provincial and Federal Governments.

The OCP is an integrated body of components, and as such requires a strategic approach for implementation and a funding commitment. Focusing efforts on individual elements of the plan in isolation of the others will not result in the level of success that this plan has been designed to achieve. For example, funding new paved shoulder cycling routes in the short-term but not the development and delivery of programming or promotional campaigns, is not an efficient or recommended strategy, as it will not achieve the desired goal to double the current (2003) cycling mode share.

The public input received throughout the development of the OCP at public open houses and information sessions, as well as the Decima 2003 Cyclist Profile Survey, clearly indicate that both residents and visitors to Ottawa support improving cycling facilities and programs to promote cycling in the City. The time is right for the City of Ottawa to invest in its future and commit the necessary long-term funding to implement the Ottawa Cycling Plan. City Council's leadership through this action will directly improve the liveability of the City, and further establish Ottawa as a leader in creating a "bicycle-friendly" City, and as a premier cycling destination in Canada, if not North America.

### **6.6.1 How Much Will It Cost?**

The Ottawa Cycling Plan is both an infrastructure and an operations plan. Therefore, it requires infrastructure, program development and operations funding to ensure its successful implementation.

**The public input received throughout the development of the OCP at public open houses and information sessions, as well as the Decima 2003 Cyclist Profile Survey, clearly indicate that both residents and visitors to Ottawa support improving cycling facilities and programs to promote cycling in the City.**

**The Ottawa Cycling Plan is both an infrastructure and an operations plan. Therefore, it requires infrastructure, program development and operations funding to ensure its successful implementation.**

**It is estimated that the total cost to implement new programs and infrastructure is about \$26.6 million over the next 10 years.**

Some of the cycling routes outlined in the OCP, especially on-road signed-only or paved-shoulder cycling routes, require little if any improvement beyond a change in pavement markings and signing. These types of improvements as well as maintenance of the on-road network should be included in the City's Long-Range Financial and Capital Works Plans.

Operation costs include on-going funding related to implementing the plan, preparing annual progress reports, delivering safety, educational and promotional programs, and performing network and infrastructure maintenance. These costs also include staff resources, management and administration.

It is estimated that the total cost to implement new programs and infrastructure is about **\$26.6 million over the next 10 years**. This is the amount of new funding that the City should budget for over the next 10 years to implement Phase 1 of this plan. **This cost consists of approximately \$24.8 million for the network and \$1.8 million for education, promotion and safety programming.**

The network cost of \$24.8 million is comprised of the following components:

- \$8.1 million for bike lanes;
- \$9.1 million for paved shoulders;
- \$0.5 million for wide shared-use / wide curb lanes on multi lane roads;
- \$0.2 million for signed-only routes on two lane / quieter roads;
- \$6.2 million for multi use pathways; and
- \$0.7 million for NCC owned Capital Pathways.

It is considered a conservative estimate, and as implementation proceeds, will likely be reduced. The unit prices used to estimate the construction cost of the various on-road facility types are stand-alone unit prices (see **Appendix A**). However, on-road components of the network will typically be included as part of the same tender for a road resurfacing or reconstruction project. Therefore, through

economies of scale, the construction cost charged to the City by a contractor should be less than if the cycling facility was constructed separately.

The City of Ottawa has recently developed a set of revised road corridor design guidelines, which includes a recommendation to provide 1.5 m paved shoulders on all rural arterial and collector roadways to improve road safety and extend the life cycle of the roadway. This new design specification, if approved by City Council, will mean the provision of 1.5m paved shoulders on rural arterials and collectors will become standard practice where considered feasible.

The detailed costs associated with each recommendation in this plan can be found in Table 6.2 (See Section 6.7 – Recommended Implementation Plan).

### **6.6.2 Why Should the City Make the Investment?**

The City has clearly indicated through its Transportation Master Plan and Official Plan that a comprehensive bikeway network will be developed as part of a larger TDM program to encourage more people to leave their cars at home more often and bike, walk and take public transit. If the City is committed to this objective then it must commit annual funding to implement Phase 1 of the Ottawa Cycling Plan.

The OCP recommends a significant investment of approximately \$26.6 million over 10 years. The justification for the investment becomes clear when the following transportation, economic, environmental and social benefits are taken into consideration.

#### **Transportation Benefits**

- *Reduction in Traffic Congestion:* Encouraging more people to cycle, especially for utilitarian purposes, would result in taking more cars off the road during peak hours, helping to reduce traffic congestion; and
- *Increased Physical Activity:* Making an investment to include active transportation modes such as cycling into daily commuting habits and errands can help promote a healthy and active lifestyle for Ottawa’s residents.

**“If Canadian cities really want to further increase cycling levels, they will have to further expand cycling infrastructure, curb low-density sprawl, and impose restrictions and charges on car use.”**

Source: Cycling Trends and Policies in Canadian Cities, John Pucher and Ralph Buehler

**A roadway can carry 7 to 12 times as many people per metre of lane per hour by bicycle compared to that of motor vehicles in urban areas operating at similar speeds.<sup>4</sup>**

### **Economic Benefits**

- *Roadway Cost Savings:* Typical roadway costs include maintenance costs, safety and enhancement costs and the addition of roadway capacity through lane widenings or additions. Furthermore, the costs for road construction, reconstruction and maintenance are usually paid for by road users through gas taxes, development charges and property taxes.<sup>3</sup> An emphasis on cycling and other “active transportation” modes can result in a reduction in roadway costs as bicycles are lightweight vehicles that take up little space and cause little to no damage to a road surface.

A roadway can carry 7 to 12 times as many people per metre of lane per hour by bicycle compared to that of motor vehicles in urban areas operating at similar speeds.<sup>4</sup> It is also much cheaper to provide paved shoulders on a road for cyclists (\$50,000 - \$60,000 per kilometre on both sides of the road)<sup>5</sup>, than to provide two additional motor vehicle travel lanes (\$1.3 million per kilometre on both sides of the road).<sup>6</sup> A small portion of the City’s transportation budget can be used to facilitate high levels of bicycle use. For example, in the Netherlands, 6% of the money spent on road infrastructure is used for cycling facilities, while the Netherlands has a cycling modal share of 27%.<sup>7</sup>

- *Parking Cost Reduction:* Parking is a significant cost of operating an automobile. A reduction in car use results in a reduction in the number of automobile parking spaces required. Encouraging more people to cycle to work could lead to a reduction in the number of parking spaces required at places of employment. Bicycle parking facilities could be provided in an existing surface or

<sup>3</sup> The Business Case for Active Transportation, the Economic Benefits of Walking and Cycling; Go for Green, March 2004.

<sup>4</sup> *Ibid*

<sup>5</sup> Ministry of Transportation, 1992.

<sup>6</sup> Ministry of Transportation, 1992.

<sup>7</sup> Feiten over het fietsen in Nederland (Facts about cycling in the Netherlands), Min. Verkeer en Waterstaat, Den Haag, 1993.

underground parking lot with no additional parking lot expansion required. The cost of providing additional parking spaces for an automobile at a surface parking lot is about \$3,000 per stall or \$16,000 to \$20,000 per stall in an underground parking garage.<sup>8</sup>

### **Environmental Benefits**

- *Reduction in Air Pollution:* Reducing the number of vehicles on the road will reduce the number of hazardous pollutants that are emitted into the atmosphere by motor vehicles. Bicycle use does not result in any emissions.
- *Noise Reduction:* Motor vehicles create noise that can result in disturbance and discomfort to residents. Some noises such as engine acceleration, tire / road contact, braking, horns and car alarms can be especially disturbing.<sup>9</sup> Bicycles make little noise and are not disruptive to communities.
- *Land Use:* Automobile dependent communities require more land for road rights-of-way and parking than communities that are not as reliant on the automobile.<sup>10</sup> Making communities less automobile-dependent by providing infrastructure for alternate transportation modes such as cycling, can reduce the amount of space required for new communities, thus making them easier to manage.

### **Social Benefits**

- *Increased Mobility:* Cycling can provide a form of mobility for people who do not have regular access to an automobile and live in communities with limited transportation alternatives.

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<sup>8</sup> The City of Regina, The Future of Housing in Regina – Laying the Groundwork, ([http://www.cityregina.com/pdfs/housing\\_report/downtown\\_housing.pdf](http://www.cityregina.com/pdfs/housing_report/downtown_housing.pdf)) 2000, p 84.

<sup>9</sup> Indicators of the Environmental Impacts of Transportation, Office of Policy and Planning, US Environmental Protection Agency, Washington DC, ([www.itre.ncsu.edu/cte](http://www.itre.ncsu.edu/cte)), 1999.

<sup>10</sup> The Business Case for Active Transportation, The Economic Benefits of Walking and Cycling; Section 4.2.5 Land Use; Go for Green, March 2004.

- *Improved Liveability:* Improving active transportation methods such as cycling and reducing automobile traffic can help to make communities more “liveable” by creating an environment that is pleasant and safe without noise and pollution. This can help to encourage more social interaction within a neighbourhood and create a stronger sense of community.

In addition to these important benefits, and while also recognizing that the proposed plan directly responds to travel mode objectives stated in the City’s Transportation Master Plan and Official Plan, the costs of the plan can also be justified as part of the “cost” to provide a more balanced and efficient transportation system in the City of Ottawa.

In keeping with the objectives of the City’s current Official Plan and the Transportation Master Plan, and to develop a more balanced transportation system, the OCP proposes to connect and expand existing cycling facilities via an integrated network serving both urban and rural Ottawa at a cost of approximately \$26.6 million (\$24.8 million network and \$1.8 million programming costs) over the next 10 years. This planned investment in infrastructure and programming is central to achieving the vision of cycling in Ottawa in 10 years.

The overall cost of the plan can also be expressed as an average cost per kilometre of bikeway. This translates to \$43,979 per kilometre of bikeway (total ten-year plan cost / number of kilometres of new bikeways proposed in the plan, where total ten-year plan cost = total ten-year network cost + total ten-year programming cost).

So what price will residents pay to see this plan implemented? If the current population of 800,000 Ottawa residents were to pay the entire cost of the recommended ten-year plan upfront today, the cost per person would be equivalent to approximately \$33.29 or \$3.33 per year over 10 years.

### **6.6.3 Where Will the Money Come From?**

The annual implementation budget for the OCP should be identified in the next review of the Long Range Financial and Capital Works Plans and budgets, and should be based on the implementation objectives and opportunities for the coming

**If the current population of 800,000 Ottawa residents were to pay the entire cost of the recommended ten-year Plan upfront today, the cost per person would be equivalent to approximately \$33.29 or \$3.33 per year over ten years.**



year. It is expected that the majority of OCP capital costs related to proposed on-road facilities will be identified and included as component costs within planned roadway reconstruction or resurfacing projects, or other Public Works projects.

The network component of the plan is expected to be funded in the following way:

- On-road facilities or boulevard paths on *new roads* (perhaps in place of a sidewalk on one side of the road) may be built by developers, subject to driveway considerations and included as part of subdivision agreements with the City.
- On-road facilities on *existing arterial and collector roads in growth areas* that are to be widened to accommodate growth could be funded partially through development charges.
- On-road facilities on existing roads in *established areas* of the City will need to come from City tax revenues and from Federal and Provincial funding sources, including gas taxes.
- Developers of *new residential and commercial subdivisions* should be encouraged to construct new off-road pathways and connections to the proposed network.
- Pathways and on-road cycling facilities proposed in *existing or future transit corridors* should be funded by the City as part of the larger transit infrastructure improvement budgets.
- Costs associated with *network signing* are not currently eligible for Development Charges (DC) funding and will need to be financed from general revenues.

#### **Technical Recommendations:**

6-6: *That the next review of Development Charges should take into account the cost of growth related on and off-road cycling facilities.*

To assist in reducing taxpayer costs, the City of Ottawa should also pursue outside funding opportunities. It is the experience of the consulting team that funding sources made available over the last few years for cycling and pathway

**It is expected that the majority of OCP capital costs related to proposed on-road facilities would be identified and included as component costs within planned roadway reconstruction or resurfacing projects, or other Public Works projects.**

**The City should also look into other sources of funding, particularly from the gas tax, which is currently being used to provide additional funding to municipalities to fund public transportation projects.**

related projects is at or near an all time high, likely due to the enormous popularity of on and off-road cycling routes and pathways today. It is expected that this trend will continue.

In 1991, the U.S. Congress appropriated \$1 million to complete the National Bicycling and Walking Study in the United States. One of the specific goals of the study was to double the percentage of total trips made by bicycle and walking, while decreasing the number of cyclists and pedestrians killed or injured in traffic accidents, over a ten-year period. In 2004 a U.S. study found that the significant investment by State and Federal governments since 2001 has resulted in a measurable increase in the number of people who cycle and walk in the United States.<sup>11</sup> These goals are similar to those proposed for the Ottawa Cycling Plan and the City should look to the provincial and federal government for possible sources of funding.

Other examples of potential funding sources include:

- Federal and Provincial gas taxes;
- The Canada-Ontario Infrastructure Program;
- The Federal Government's Transportation Showcase Program (Ottawa was selected in 2003 for funding in this program);
- Ontario Trillium Foundation that was recently expanded in response to the money collected throughout the Province by the Ontario Lottery and Gaming Commission;
- Federal funding through partnership with the National Capital Commission;
- Corporate Environmental Funds such as Shell and Mountain Equipment Co-op and others that in the past have funded small, labour-intensive projects where materials or logistical support is required;
- Corporate Donations may consist of money or services in-kind, and have been contributed by a number of large and small corporations over the years; and

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<sup>11</sup> National Bicycling and Walking Study, Ten-Year Status Report, October 2004, FHWA.

- Moving On Sustainable Transportation (M.O.S.T), Transport Canada.

The City of Ottawa should investigate these and other public and private sector funding programs to assist in implementing the OCP.

***Technical Recommendations:***

- 6-7: *That City Council provide funding for the implementation of the OCP for both infrastructure and programming costs, on an annual basis for the duration of their term.*
- 6-8: *That the City, seek out alternative funding sources to assist in implementing components or specific projects related to the OCP.*

## **6.7 Recommended Implementation Plan**

The Ottawa Cycling Plan is comprehensive and strategic in nature. As such, it will need to be implemented efficiently through an incremental process, with each step or action building upon previous ones. As identified in Section 6.2, the plan's recommendations have been prioritized and scheduled through an Implementation Plan over a ten-year horizon.

**Table 6.2** lists each technical recommendation in the order presented in the report and identifies the total cost associated with each recommendation over the ten-year period. The cost estimates provided in Table 6.2 are based in part on a Unit Cost Schedule in **Appendix A** of this report and on the study team's knowledge of the resources required to implement a plan of this type in other jurisdictions in North America.

Table A-1 in the appendix break down the proposed network component cost of the plan. This table identifies the length and associated cost by facility type, distance, and implementation priority.

The implementation plan is intended as a guide and therefore it should be reviewed and updated regularly as part of an annual progress report by City staff that would include infrastructure and programming priorities for the upcoming year. Therefore, as the plan evolves the implementation plan

will need to be adapted accordingly. This may be in response to opportunities that may emerge or because of input derived from the on-going monitoring and evaluation of the plan.

**The guidelines are intended to provide technical guidance to the City and other partners in the expansion, implementation and maintenance of a city-wide cycling network. They are a compilation of guidelines from a variety of accepted sources, and are believed to represent the “state of the art” in bicycle route and facility planning and design in Canada and the United States.**

## **6.8 Implementation of Cycling Facilities – Planning and Design Guidelines**

When implementing designated on and off-road cycling facilities, the Planning and Design Guidelines in Appendix I should be referred to for guidelines on implementation procedures and practices. The Planning and Design Guidelines were prepared to assist the City and other local partners including the National Capital Commission (NCC) in the development and implementation of the OCP. It contains recommended planning and design guidelines as well as cycling facility implementation solutions. The guidelines are intended to provide technical guidance to the City and other partners in the expansion, implementation and maintenance of a city-wide cycling network. They are a compilation of guidelines from a variety of accepted sources, and are believed to represent the “state of the art” in bicycle route and facility planning and design in Canada and the United States. They contain general information about cyclists, their abilities and their needs from a cycling network planning and design point of view. The guidelines are not meant to be inclusive of all design considerations and standards. Rather, they are a carefully selected set of currently accepted design practices in North America and should be treated as a reference to be consulted during the development and construction of the cycling network. These guidelines should not over-ride good engineering and fiscal judgement by the City’s professional staff. In addition, they should be reviewed at least every five years.

## **6.9 Cycling Program Implementation**

### **6.9.1 Implementation of the OCP through TDM**

One of the key goals of the City’s TDM program is enhancing public support for travel options, improving public awareness of their benefits, and encouraging their use. The objectives of TDM are to:



**Table 6.2: Ten-Year Implementation Plan Summary  
Ottawa Cycling Plan (2007)**

Chapter	#	Technical Recommendations	Page Number	Phase 1 Estimated Cost (10 Year Implementation Plan)
<b>Chapter 3.0 - Network</b>				
3	3-1	That the City of Ottawa adopt in principle the proposed cycling network plan illustrated in Figure 3-4 (a, b, c), and the corresponding plan of facility types proposed in Figure 3-5 (a, b, c).	3-15	\$24,861,120
	3-2	That the entire Ottawa Cycling Plan, including the network plan, be reviewed and updated at least every five years, and between formal review periods that individual network route changes, additions or deletions be considered when opportunities arise in accordance with the Official Plan and Transportation Master Plan (2003).	3-15	\$40,000
	3-3	That City staff consider the Planning and Design Guidelines of the OCP in Appendix I when implementing designated on and off-road cycling facilities for the cycling network.	3-15	Existing Resources
	<b>Sub-Total</b>			\$24,901,120
<b>Chapter 4.0 - Making Ottawa More Cycling Friendly</b>				
4	4-1	That where appropriate & feasible, road design should be enhanced to accommodate cyclists. This is especially important at intersections, on bridges and underpasses.	4-3	Included in Network Cost (See 3-1)
	4-2	That the City continue to consider bicycles in the timing of traffic signals and in the selection, sensitivity and placement of vehicle detection devices wherever there is bicycle traffic. Bicycle signals should be considered at locations where conditions warrant.	4-4	Existing Resources
	4-3	That pavement markings be considered at all semi-actuated intersections to help direct cyclists to the actuation zone and to position themselves properly in the lane, where conditions warrant.	4-4	Existing Resources
	4-4	That the City continue to review existing and proposed turn and entry restrictions at local streets and, where it is safe to do so, amend the by-laws to exempt bicycles.	4-5	Existing Resources
	4-5	That as traffic levels increase on the higher order roadways such as arterials and major collectors, they should be matched with a focus on improving the environment for cyclists.	4-7	TBD
	4-6	That the City consider cycling safety and access in all new traffic management projects.	4-9	Existing Resources
	4-7	That the City investigate and implement solutions for allowing two-way bicycle access (Contra-flow) on one-way local streets that experience a low volume of motor vehicle traffic and provide an important connecting link for cyclists.	4-9	Included in Network Cost (See 3-1)
	4-8	That during road resurfacing projects on arterial roadways, the City provides wide curb lanes or bicycle lanes (e.g. pavement markings), on the cycling network, where feasible.	4-11	Existing Resources
	4-9	That during road reconstruction projects (e.g. road widening) on arterial roadways, the City provides bicycle lanes or wide curb lanes, on the cycling network, where feasible.	4-11	Existing Resources
	4-10	That the City incorporate bicycle friendly features in bridge and underpass projects, including bicycle ramps on stairs, as part of the annual capital works and rehabilitation programs.	4-13	Included in Network Cost (See 3-1)
	4-11	That the City's road maintenance and pavement repair reporting system and annual budget specifically include the needs of cyclists.	4-14	\$200,000

**Table 6.2: Ten-Year Implementation Plan Summary  
Ottawa Cycling Plan (2007)**

Chapter	#	Technical Recommendations	Page Number	Phase 1 Estimated Cost (10 Year Implementation Plan)
4	4-12	That the road maintenance scheduling program recognize and prioritize primary "Spine" segments of the cycling network and prioritize these streets for snow removal and year-round cleaning.	4-15	\$100,000
	4-13	That the City provide measures to reduce risks to cyclists passing through construction zones, and to ensure access for cyclists during road construction activities when practical. This should include, but not be limited to: a. Construction notices posted on the City's website; b. Advanced signing for construction activities; c. Temporary conditions that are compatible with bicycles such as non-slip surfaces, ramped utility cuts and timber decking placed at right angles to the direction of travel; and d. Bicycle specific detours, where appropriate.	4-16	Existing Resources
	4-14	That the City provide medium-security bicycle parking facilities at all City of Ottawa facilities to serve as a model to other jurisdictions and the private sector.	4-19	Existing Resources Mostly Complete
	4-15	That the minimum bicycle parking spaces as identified in the City Comprehensive Urban Zoning By-Law / (Table 4.2 of this report) should be used for all future developments in the City of Ottawa. Owners of existing buildings should be encouraged to upgrade to meet these standards.	4-21	Existing Resources
	4-16	That the City of Ottawa encourage the City's partners and the private sector to provide secure bicycle parking at key destinations, including all places of work with 20 or more employees and multi-unit residential buildings.	4-21	Existing Resources
	4-17	That the City of Ottawa continue partnership with the private sector to install bicycle racks throughout the City in public rights-of-way as part of their strategy to enhance bicycle parking in the City.	4-23	Existing Resources
	4-18	That the City continue installing "Ring and Post" bicycle racks, especially at locations where bicycle-parking demand is high.	4-23	Existing Resources
	4-19	That a "Park and Bike" pilot project should be initiated by the City and monitored for up to two years.	4-26	\$125,000
	4-20	That the Bike & Ride project be continued to assist the City in promoting and encouraging people to cycle for commuting purposes.	4-27	Existing Resources
	4-21	That future extensions of the O-Train or future LRT systems remain completely accessible to cyclists with bicycles being allowed on board and bicycle parking being provided at every station.	4-30	Existing Resources
	4-22	That future transit stations provide direct connections to the Ottawa Cycling Network.	4-30	Included in Transit Costs
	4-23	That cycling facilities such as multi-use pathways be installed along corridors reserved for future rapid transit use.	4-31	Included in Network Cost (See 3-1)
	4-24	That as higher-order rapid transit facilities are installed, any existing cycling facilities such as multi-use pathways should be retained within the corridor, but must be physically separated from the rapid transit facility.	4-31	Included in Network Cost (See 3-1)
	4-25	That the TravelWise program be further promoted throughout the City through appropriate marketing campaigns.	4-32	\$100,000

**Table 6.2: Ten-Year Implementation Plan Summary  
Ottawa Cycling Plan (2007)**

Chapter	#	Technical Recommendations	Page Number	Phase 1 Estimated Cost (10 Year Implementation Plan)
4	4-26	That the City of Ottawa continue to provide trip-end facilities at all public buildings where feasible, and that the private sector be encouraged to do the same.	4-32	Existing RPAM Program
	4-27	That consideration should be given to promoting and / or implementing trip-end facilities as part of efforts to apply a city-wide TDM program.	4-32	Existing Resources through Integrated TDM Implementation Model
	<b>Sub-Total</b>			\$525,000
<b>Chapter 5.0 - Outreach</b>				
5	5-1	That the City of Ottawa, in conjunction with its many partners, should increase the effectiveness of cycling education information by:		
		a) Developing and implementing a comprehensive communications strategy for the creation and distribution of cycling information that seeks to expand delivery through the use of a wide variety of media;	5-6	\$40,000
		b) Ensuring information such as cycling skills education, is produced in a language and style appropriate for the age group being targeted, such as children and seniors;	5-6	Existing Resources
		c) Reviewing the City's web site for information to ensure that direct resources are clearly provided to cyclists and non-cyclists; and	5-6	Existing Resources
		d) Continuing to research and develop education and promotional materials regarding the benefits of cycling and incorporate or reference this information in City publications, reports and events.	5-6	Existing Resources
	5-2	That the City of Ottawa should maintain and enhance its commitment to bicycle safety programs through the following measures:		
		a) Investigate entrepreneurial approaches for the generation of support revenue and to facilitate an atmosphere where new ideas can be generated through consideration of a Bicycle Safety Partnership;	5-8	Existing Resources
		b) Consider delivery programs such as the Bicycle Safety Ambassadors and Bike Bus initiatives; and	5-8	Existing Resources
		c) Develop public-private sector relationships to provide services that enhance the safety of cycling facilities and cyclists.	5-8	Existing Resources
	5-3	That the City of Ottawa, in consultation with its cycling partners, develop and implement or expand focused safety campaigns to address common conflict areas between cyclists, motor vehicles and pedestrians.	5-10	\$250,000
	5-4	That the City should consider the following initiatives, in conjunction with a program delivery partner:		
		a) Actively increase the marketing/advertising effort and funding available for CAN-BIKE courses; and	5-12	\$315,000
		b) Expand the number and availability of CAN-BIKE courses across the City to compliment efforts to increase enrolment.	5-12	Included in Cost of 5-10
	5-5	That the City continue a process to review cycling fatality and collision data on an ongoing basis and recommend improvements relating to education, enforcement and infrastructure priorities to improve bike safety.	5-13	Existing Resources
5-6	That the City develop materials to assist cyclists involved in collisions, in consultation with Ottawa Police Services and other agencies or groups that could provide input on this topic.	5-13	\$30,000	

**Table 6.2: Ten-Year Implementation Plan Summary  
Ottawa Cycling Plan (2007)**

Chapter	#	Technical Recommendations	Page Number	Phase 1 Estimated Cost (10 Year Implementation Plan)
5	5-7	That the City of Ottawa, in consultation with its cycling programming partners, account for cycling issues related to children. Through education and training provide children with the opportunity to graduate from the "community system" to the "spine system", as they become adults.	5-16	Existing Resources
	5-8	That the Ottawa Police Services should look at their active role in bicycle safety by increasing the number of bicycle patrols.	5-17	Existing Resources
	5-9	That the City work with the School Boards to incorporate safe cycling as a school activity and develop a bike-to-school program.	5-18	Existing Resources
	5-10	That the City continue to consult and work with the National Capital Commission as a key partner on all matters related to bicycle safety education on multi-use pathways.	5-19	Existing Resources
	5-11	That the City continue to develop positive relationships with not-for profit organizations as part of an important strategy for delivering safe cycling educational programs in the City of Ottawa.	5-19	Existing Resources
	5-12	That the City should formally request that the Ministry of Transportation of Ontario take a lead role in developing and implementing bicycle safety initiatives by:		
		a) Updating the 1992 Bicycle Policy Review and 1996 Bikeway Planning and Design Guidelines;	5-20	Existing Resources
		b) Making changes to the Highway Traffic Act following input from an expert review panel and to update and formalize HTA regulations as they affect cycling and cyclists in Ontario;	5-20	Existing Resources
		c) Continuing to update and improve cycling content in all transportation related publications, including driver-training courses;	5-20	Existing Resources
		d) Including cycling safety material in training programs for driver examiners, police recruits, fleet/transit operators and other officials;	5-20	Existing Resources
		e) Funding bicycle safety and promotion programs at the Provincial and Municipal level to assist municipalities in their efforts to promote cycling and educate all road users with the objective of reducing cycling collisions;	5-21	See Recommendations 5-12 to 5-21
		f) Participating in municipal Bicycle Safety Partnerships and other co-operative groups to provide expertise and resources to help reduce cycle injuries and fatalities; and	5-21	Existing Resources
		g) Making the Cycling Skills Handbook available to the public, to be provided throughout the City at all Client Service Centres.	5-21	Existing Resources
	5-13	That the City of Ottawa continue to maintain and support a strong cycling representation through an Advisory Committee and that it report to Council annually.	5-21	Existing Resources
	5-14	That the City of Ottawa, with assistance from its partners, should update the new Ottawa Cycling Map every two years.	5-23	\$50,000
	5-15	That the City of Ottawa, in conjunction with other groups and agencies, undertake the following initiatives to encourage and promote cycling events and programs:		
	a) In conjunction with partners undertake development and implementation of a mass promotional ride event similar to Montreal's Tour de l'Île;	5-25	Existing Resources	
	b) Undertake off-season cycling events and programs to demonstrate the feasibility and enjoyment of year-round cycling;	5-25	Existing Resources	

**Table 6.2: Ten-Year Implementation Plan Summary  
Ottawa Cycling Plan (2007)**

Chapter	#	Technical Recommendations	Page Number	Phase 1 Estimated Cost (10 Year Implementation Plan)
5		c) Produce and distribute a calendar of cycling events and programs for the entire year that would act as a guidebook to key cycling activities; and	5-25	\$200,000
		d) Continuing the Bruce Timmermans Cycling Awards and consider expanding their applications to a broader number of workplace categories and increasing the profile of the annual awards ceremony.	5-25	Existing Resources
	5-16	That the City should lead by example and, where appropriate, should take a comprehensive role in encouraging and supporting cycling by City staff. For example, the City should develop a plan for providing trip end facilities such as secure parking, showers and lockers at all City of Ottawa work places.	5-27	Existing Resources
	5-17	That the City of Ottawa should encourage employers to promote and support cycling by such measures as:		
		a) Developing a plan to increase the number of Bicycle User Groups and a BUGS network to link one group to another; and	5-28	Existing Resources
		b) Providing advice and assistance to workplaces on developing a plan for the provision of cycling trip end facilities such as secure parking, showers and lockers.	5-28	Existing Resources
	5-18	That the Ottawa Police Service should continue to work with other City staff and cycling interest groups to improve cycling safety and reduce collisions. For example, continue targeting cyclists who disobey the law as part of the Integrated Road Safety Program.	5-32	Existing Resources
	5-19	That the City should work with the private sector, interest groups, agencies, governments and intercity carriers to promote bicycle tourism in Ottawa and develop the City into a primary destination for cyclists.	5-35	Existing Resources
<b>Sub-Total</b>				\$885,000
<b>Chapter 6.0 - Implementation</b>				
6	6-1	That the Cycling Network illustrated in Figures 6-1a, 6-1b and 6-1c, and Table 6.1, recommended programming and other initiatives should be implemented in five-year phases over 10 years with progress measured and the schedule re-evaluated at the end of each 5-year period.	6-7	Included in Network Cost (See 3-1)
	6-2	That when a road with an existing cycling facility is resurfaced or reconstructed, consideration should be given to improving the cycling facility type (e.g. from wide shared-use / wide curb lanes to bike lanes).	6-7	Included in Network Cost (See 3-1)
	6-3	The OCP should be reviewed and given consideration by City staff when roads or other infrastructure projects are identified and / or scheduled.	6-16	Existing Resources
	6-4	That the City adopt a formal implementation process for network components, that includes a process for coordination with all capital projects, feasibility checks, cost benefit analyses, integrated project development and contribution to cycling network completion.	6-16	Existing Resources
	6-5	That the City of Ottawa should utilize the GIS based management tool developed as part of this plan to assist in routes and confirming the feasibility of proposed cycling facilities as they are considered for implementation.	6-16	Existing Resources
	6-6	That the next review of Development Charges should take into account the cost of growth related on and off-road cycling facilities.	6-23	TBD

**Table 6.2: Ten-Year Implementation Plan Summary  
Ottawa Cycling Plan (2007)**

Chapter	#	Technical Recommendations	Page Number	Phase 1 Estimated Cost (10 Year Implementation Plan)
6	6-7	That City Council provide funding for the implementation of the OCP for both infrastructure and programming costs, on an annual basis for the duration of their term;	6-25	Included in Total Cost
	6-8	That the City, seek out alternative funding sources to assist in implementing components or specific projects related to the OCP.	6-25	Existing Resources
	6-9	That all cycling promotion efforts undertaken by the City in the future should be consistent with the City's TDM work program and Corporate Policy.	6-28	Existing Resources
	6-10	That the City continue including cycling data in the City's current traffic data collection program.	6-30	Existing Resources
	6-11	That the City conduct Cycling User Surveys as part of regular updates to the TMP and a statistically valid Public Attitude Survey at least every five years.	6-30	\$60,000
				<b>Sub-Total</b>
			<b>TOTAL</b>	<b>\$26,371,120</b>

Existing Resources = Existing Resources / or no specific funding required (e.g. change practice)

- Promote a social culture that supports and encourages personal use of travel options;
- Use information and incentives to overcome barriers to the greater use of travel options;
- Support special events that promote public awareness, trial and use of travel options; and
- Use the TravelWise identity (name and logo) to connect and strengthen TDM messages, and to encourage a positive public response to them.

The City had established a TDM Task Force that was to be responsible for integrating TDM philosophy and practice across the City's public services and corporate functions. This TDM Task Force is currently not operating and it is recommended that it be re-established. The task force included representatives from Transit Services, Development Services, Public Health and Long-Term Care, for example. This Task Force should also include representatives from committees such as the Roads and Cycling Advisory Committee, a cycling interest group and the NCC to ensure that TDM direction is provided for cycling measures. TDM-supportive actions that are recommended in the TDM strategy framework such as the Transit Marketing Initiatives should be continued and further broadened to promote walking and cycling as complementary travel modes. Cycling-specific marketing initiatives are also recommended to further promote cycling as a realistic travel mode on its own, especially for travelling to work.

In November of 2004, Public Works and Government Services Canada and Environment Canada initiated a program to provide discounted annual transit passes to employees of Public Works and Government Services Canada working within the National Capital Region. This initiative has been developed in an effort to make "...public transportation more affordable and more accessible, it contributes to our ongoing commitment to work towards a cleaner environment and green government", (*the Honourable Scott Brison, Minister of Public Works and Government Services Canada, City of Ottawa, November 26, 2004*). Discounted transit passes are sold through a payroll deduction plan (like the OC Transpo ECOPASS) and are cheaper and more convenient than monthly passes.

**The City had established a TDM Task Force that was to be responsible for integrating TDM philosophy and practice across the City's public services and corporate functions. This TDM Task Force is currently not operating and it is recommended that it be re-established.**

**All cycling and promotion efforts undertaken by the City in the future should be consistent with the City's TDM strategy framework**

All cycling and promotion efforts undertaken by the City in the future should be consistent with the pending City's TDM Strategy and Corporate Policy.

***Technical Recommendations:***

6-9: *That all cycling promotion efforts undertaken by the City in the future should be consistent with the City's TDM work program and Corporate Policy.*

**6.9.2 Integrating Cycling with TDM and Other Transportation Services**

The TDM strategy framework also proposes to integrate TDM measures with other services such as TDM and transit service, TDM and land use planning, as well as TDM and social programs. For TDM and social programs, as with environmental issues, there are key public health concerns that have strong synergies with the City's TDM strategy framework. The promotion of respiratory health and physical activity can integrate positive TDM messages such as encouraging cycling as an excellent method of exercise and an inexpensive method of travel. Both the City's TDM and public health efforts undertaken in the future will rely extensively on outreach to get their messages across, and opportunities to share resources or jointly develop new channels of communication may offer mutual benefit. The City's recreation programs are another valuable channel to support cycling and TDM programs, through such means as the delivery of cycling skills courses.

This process for integrating TDM measures with other services could also be applied to cycling programs, therefore, it is recommended that the City of Ottawa pursue these initiatives.

**6.10 Monitoring**

Implementation of the OCP is expected to begin in 2008. Implementation of the City-wide cycling network infrastructure should be phased on an annual basis in accordance with available capital funding, and as authorized by City Council.

Collecting data to monitor the different and changing aspects of cycling behaviour will assist in evaluating the effectiveness, performance and overall contribution of various activities to achieve the stated vision and goals of this plan.

This data collection should begin in 2008 and build upon previous cycling initiatives undertaken by the City and its former municipalities, including the User/Public Attitude and Travel-Mode Surveys.

The City should also consider conducting similar surveys to monitor bicycle use and the public's attitude towards cycling as the network is implemented. Over time, the monitoring system should identify changes in route preference to assist in determining where to implement changes to "hard and soft" cycling infrastructure.

In addition, on-going public consultation should also continue following the adoption of the Ottawa Cycling Plan and as the cycling network is constructed in the upcoming years.

The results of this assessment may be used to determine the success of implementing various types of cycling facilities. However, caution must be used in relying on an immediate response to a given improvement. An extended timeframe should be established to ensure that cycling awareness initiatives are in place to assist in changing travel patterns and habits.

Assessing the impact and costs of a cycling program should be based on information such as:

- origin/destination counts;
- screenline counts on a finer scale that are appropriate to cycling travel patterns; and
- intersection counts coinciding with routes on which improvements are proposed, as well as on parallel routes.

This information should be collected at least every five years and during the cycling season. Appropriate Advisory Committees such as the Roads Cycling Advisory Committee may have a role in the collection and/or review of the cycling related data.

Data collected through monitoring programs along with information collected through on-going public consultation exercises, such as user surveys and public attitude surveys conducted every five years, will inform and thus assist in the preparation of the list of annual priorities.

***Technical Recommendations:***

*6-10: That the City continue including cycling data in the City's current traffic data collection program.*

*6-11: That the City conduct Cycling User Surveys as part of regular updates to the TMP and a statistically valid Public Attitude Survey at least every five years.*

The Public Advisory Committee that addresses cycling issues (currently the Roads and Cycling Advisory Committee) will play an important role in this ongoing review of the OCP and can help City staff identify priorities for the coming year. The resources necessary to implement the annual work plan will need to be determined and scheduled, and their budget requirements understood and documented.

The first annual report identifying priorities for 2008/2009 should be submitted in early 2009. This report should outline the infrastructure and programs set for implementation in 2009 and confirm associated budget requirements.

The implementation strategy set out in this chapter has been designed specifically for the City of Ottawa. Although it is based on the study team's understanding of the City's current structure and practices, modifications may need to be considered to ensure the process is feasible and can work within the City's existing administrative structure. It is proposed that the first annual progress report should also identify any changes to the implementation process set out in this report.

### **6.11 OCP Policy Recommendations**

The following recommendations have been identified to provide policy direction for the implementation of the Ottawa Cycling Plan.

The City of Ottawa will:

- 6-a: Consider the safe and comfortable year round operation of cyclists through the adoption, implementation and monitoring of bicycle maintenance practices and standards for both on and off road routes;
- 6-b: Recognize the bicycle as an important element towards maximizing efficient operations of the transportation and land use system, by helping to reduce the space needed for mobility requirements such as parking, and being supportive of more intensive land use practices;
- 6-c: Incorporate the bicycle as an important Travel Demand Management tool that helps reduce automobile dependence, lower peak hour congestion and the related need for new or wider roads;
- 6-d: Recognize and promote the many benefits of cycling which underline why this mode of transportation must be supported and given a higher profile. Bicycling provides benefits that include community health from exercise, economic returns from retail sales and tourism, positive environmental impacts from less air pollution, energy consumption and mobility space requirements, and increased social interactions;
- 6-e: Provide appropriate funding and resource support to cycling programs and initiatives, in recognition of the priority placed on this efficient and enjoyable mode of transportation, and its important role in supporting the achievement of the City's growth management principles to create a healthy, caring, creative, green and environmentally sensitive community; and
- 6-f: Monitor the implementation and effectiveness of the 2007 Ottawa Cycling Plan through measurements of priority achievements, counting programs, surveys and target modal splits.



### 6.12 Next Steps

The Ottawa Cycling Plan (OCP) is a long-term (20 year plus) strategy that consists of two phases, a ten-year implementation plan and a longer-term strategy (year 10 to 20) that is intended to guide the City as it implements a comprehensive city-wide network of both on and off-road cycling facilities. The proposed network identified in this plan, along with the supporting policies, programs and recommendations are intended to encourage and promote more and safe cycling in the City of Ottawa. This plan is meant to assist the City in achieving its cycling goals for Ottawa, including those set out in Ottawa's 2003 Transportation Master Plan to triple the number of cycling-trips made in the City from 4,500 in 2001 to 12,000 by 2021.

The successful fulfilment of the goals and the vision of the OCP are dependent on the following four principles or “cornerstones” that are intended to guide its implementation. These include:

1. Developing a Network approach to expanding and connecting existing on and off-road cycling facilities in the urban and rural areas of the city to form a complete city-wide cycling network;
2. Developing a set of recommendations to make Ottawa “More Cycling Friendly”;
3. Developing an Outreach Program to educate, encourage and promote cycling in Ottawa; and
4. Developing an Implementation Strategy that provides the tools necessary to prioritize, estimate costs and implement the recommendations in the OCP.

Although a crucial component of the OCP is to create an integrated city-wide network of designated cycling facilities, the network must be supported by policies and programs to ensure the OCP is properly implemented, monitored, maintained and managed. The recommended policies and programs outlined in this report should be established to ensure that the implementation of the OCP is organized and structured.

Funding for the OCP is vital. Without appropriate funding for cycling programs and infrastructure, the vision and goals of the OCP will not be realized.

This plan also provides recommendations on encouraging more “active transportation” methods in an effort to reduce automobile dependency, and to get “more people cycling more often”. This includes the further integration of cycling and transit as well as cycling and walking.

There are a number of immediate steps that the consultant team recommends should be taken in 2008 and 2009 to advance the Ottawa Cycling Plan. These actions include the following:

- City staff should report to Council indicating any comments regarding the recommended plan and identifying any areas of suggested further study. The staff report should include a request to Council to provide funding to begin implementing the OCP.
- The Public Works and Services department should review annual budgets and compare it to the recommended budget indicated in the OCP for that year.
- The Ottawa Cycling Plan report should be posted in digital format on the City’s website so that it can be viewed and downloaded by the public.
- The City of Ottawa should issue a media release announcing the completion of the OCP.
- As capital works projects move forward through the EA and design process, staff of Public Works and Services and Planning and Growth Management departments should work to undertake the Cycling-Route Feasibility Assessment to confirm the appropriateness of the recommended cycling facility and to incorporate it into the detailed design. This step is crucial in order to avoid missing opportunities to implement segments of the cycling network during capital works projects that are currently underway.
- Public Works and Services should review the recommendations in the Outreach chapter and initiate discussions with City partners to assist in both funding and implementing of the cycling outreach initiative recommended in the OCP.

**The Ottawa Cycling Plan, documented in this report, is designed to achieve the City's objectives for reducing auto dependency, improving the health and quality of life of its residents and tripling the number of person trips made by bicycle from the year 2001 to 2021. But the plan has to be implemented if these benefits and the vision for cycling in Ottawa are to be realized.**



# OTTAWA CYCLING PLAN

## Figure A-1: Network Development Costs According to Road Classification

ITEM	EXISTING (km) <sup>1</sup>	UNIT PRICE (2007 DOLLARS) <sup>2</sup>		10 -YEAR (2008-2018) IMPLEMENTATION		EXTENDED COST
			UNIT	PHASE		
<b>On-Road Bike Lanes<sup>4, 6</sup></b>						
Existing Bike Lanes (includes both urban and rural areas)	119.0	0		0.0		\$0.00
Proposed Bike Lanes on Arterial Roads (urban area)		\$100,000	per km	47.5		\$4,470,000.00
Proposed Bike Lanes on Major Collector Roads (urban area)		\$100,000	per km	9.2		\$920,000.00
Proposed Bike Lanes on Collector Roads (urban area)		\$100,000	per km	2.0		\$200,000.00
Proposed Bike Lanes on Local Roads (urban area)		\$100,000	per km	22.9		\$2,290,000.00
<b>Subtotal Bike Lanes (Urban)</b>		<b>\$100,000</b>		<b>81.6</b>		<b>\$7,880,000.00</b>
Proposed Bike Lanes on Arterial Roads (rural area)		\$100,000	per km	0.0		\$0.00
Proposed Bike Lanes on Collector Roads (rural area)		\$100,000	per km	0.0		\$0.00
Proposed Bike Lanes on Local Roads (rural area)		\$100,000	per km	0.0		\$0.00
<b>Subtotal Bike Lanes (Rural)</b>				<b>0.0</b>		<b>\$0.00</b>
<b>Total On-road Bike Lanes</b>	<b>119.0</b>			<b>81.6</b>		<b>\$7,880,000.00</b>
<b>On-Road Paved Shoulders<sup>5</sup></b>						
Existing Paved Shoulders (includes both urban and rural areas)	122.8	\$0		0.0		\$0.00
Proposed Paved Shoulders on Arterial Roads (urban area)		\$55,000	per km	25.2		\$1,386,000.00
Proposed Paved Shoulders on Major Collector Roads (urban area)		\$55,000	per km	0.0		\$0.00
Proposed Paved Shoulders on Collector Roads (urban area)		\$55,000	per km	0.6		\$33,000.00
Proposed Paved Shoulders on Local Roads (urban area)		\$55,000	per km	5.4		\$297,000.00
<b>Subtotal Paved Shoulders (Urban)</b>				<b>31.2</b>		<b>\$1,716,000.00</b>
Proposed Paved Shoulders on Arterial Roads (rural area)		\$55,000	per km	107.7		\$5,923,500.00
Proposed Paved Shoulders on Collector Roads (rural area)		\$55,000	per km	23.7		\$1,303,500.00
Proposed Paved Shoulders on Local Roads (rural area)		\$55,000	per km	3.1		\$168,850.00
<b>Subtotal Paved Shoulders (Rural)</b>				<b>134.5</b>		<b>\$7,395,850.00</b>
<b>Total On-road Paved Shoulders</b>	<b>122.8</b>			<b>165.7</b>		<b>\$9,111,850.00</b>
<b>On-Road Wide Shared-Use/Wide Curb Lanes<sup>3, 4</sup></b>						
Existing Wide Curb Lanes (includes both urban and rural areas)	28.7	\$0		0.0		\$0.00
Proposed Wide Curb Lanes on Arterial Roads (urban area)		\$9,000	per km	17.0		\$153,000.00
Proposed Wide Curb Lanes on Major Collector Roads (urban area)		\$9,000	per km	16.6		\$149,400.00
Proposed Wide Curb Lanes on Collector Roads (urban area)		\$9,000	per km	12.1		\$108,900.00
Proposed Wide Curb Lanes on Local Roads (urban area)		\$9,000	per km	12.7		\$114,300.00
<b>Subtotal Wide Curb Lanes (Urban)</b>		<b>\$9,000</b>		<b>58.4</b>		<b>\$525,600.00</b>
Proposed Wide Curb Lanes on Arterial Roads (rural area)		\$9,000	per km	0.0		\$0.00
Proposed Wide Curb Lanes on Collector Roads (rural area)		\$9,000	per km	0.0		\$0.00
Proposed Wide Curb Lanes on Local Roads (rural area)		\$9,000	per km	0.0		\$0.00
<b>Subtotal Wide Curb Lanes (Rural)</b>				<b>0.0</b>		<b>\$0.00</b>
<b>Total On-road Wide Curb Lanes</b>	<b>28.7</b>			<b>58.4</b>		<b>\$525,600.00</b>
<b>On-Road Signed-Only Routes<sup>7</sup></b>						
Existing Signed-Only Routes (includes both urban and rural areas)	12.1	\$0		0.0		\$0.00
Proposed Signed-Only Routes on Arterial Roads (urban area)		\$400	per km	18.2		\$7,280.00
Proposed Signed-Only Routes on Major Collector Roads (urban area)		\$400	per km	20.2		\$8,080.00
Proposed Signed-Only Routes on Collector Roads (urban area)		\$400	per km	153.7		\$61,480.00
Proposed Signed-Only Routes on Local Roads (urban area)		\$400	per km	177.2		\$70,880.00
<b>Subtotal Signed-only Routes (Urban)</b>				<b>369.3</b>		<b>\$147,720.00</b>
Proposed Signed-Only Routes on Arterial Roads (rural area)		\$400	per km	11.3		\$4,520.00
Proposed Signed-Only Routes on Collector Roads (rural area)		\$400	per km	94.2		\$37,680.00
Proposed Signed-Only Routes on Local Roads (rural area)		\$400	per km	24.0		\$9,600.00
<b>Subtotal Signed-only Routes (Rural)</b>				<b>129.5</b>		<b>\$51,800.00</b>
<b>Total On-road Signed Routes</b>	<b>12.1</b>			<b>498.8</b>		<b>\$199,520.00</b>
<b>Off-Road Pathways (City)<sup>8</sup></b>						
Existing Off-Road Pathway	151.1	\$0	per km	0.0		\$0.00
Proposed Off-Road Pathways (urban area)		\$75,000	per km	55.3		\$4,147,500.00
Proposed Off-Road Pathways (rural area)		\$75,000	per km	27.3		\$2,047,500.00
<b>Total Off-road Pathways</b>	<b>151.1</b>			<b>82.6</b>		<b>\$6,195,000.00</b>
<b>NCC-owned Capital Pathways</b>						
Existing Off-Road Capital Pathway	107.1	\$0	per km	0.0		\$0.00
Planned Off-Road Pathways (urban area)		\$75,000	per km	8.9		\$667,500.00
<b>Total Capital Pathways</b>	<b>107.1</b>			<b>8.9</b>		<b>\$667,500.00</b>
<b>Summary (Totals)</b>	<b>540.8</b>			<b>896.0</b>		<b>\$24,579,470.00</b>

### Notes/Assumptions:

- Existing facilities have not broken out according to road classification, urban or rural location.
- Unit Prices reflect 2007 dollars, and do not include the cost of design, property acquisition, utility relocations, major roadside drainage works or applicable taxes.
- Wide shared-use lanes/wide curb lanes on multi-lane roads can be implemented through road repainting and reconstruction (widening) is not required, therefore the unit cost reflects line painting only.
- Unit Price is based on the incremental cost of additional asphalt to accommodate the facility, and the cost to provide bicycle route signing. Cost to reconstruct curbs, catch basins and road base is assumed to be included as part of road reconstruction budget.
- Unit Price is based on the incremental cost of additional asphalt to accommodate the facility, and the cost to provide bicycle route signing.
- Based on field observations, some road segments can accommodate bike lanes with pavement markings only (no reconstruction required). Therefore an average composite unit price has been assumed for all bike lanes.
- Assumes an average of 2 signs per direction, per km (4 signs/km).
- The urban/rural split for proposed City pathways is 55% urban: 45% rural. Based on this statistic it has been assumed that 55% of proposed City pathways will be asphalt surfaced and 45% will be granular surfaced. Therefore the unit price for pathway construction reflects a harmonized unit price of \$75,000/km. This is calculated from a base cost of \$35/m<sup>2</sup> for asphalt pathways and \$15/m<sup>2</sup> for granular surfaced pathways.

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# *Ottawa Cycling Plan*

