

City of Toronto Bike Plan



Shifting Gears



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Executive Summary

The Toronto Bike Plan establishes a vision for cycling in Toronto. To “shift gears” towards a more bicycle friendly city, the Plan sets out integrated principles, objectives and recommendations regarding safety, education and promotional programs as well as cycling related infrastructure, including a comprehensive bikeway network.

The City has a long history of commitment to encouraging cycling, dating back to the creation of the Toronto City Cycling Committee in 1975. Over the years, both the City and the Cycling Committee have continued to focus their efforts on encouraging cycling as a practical mode of transportation for Torontonians.



Lakeshore Road at Mimico, circa 1907 – City of Toronto Archives (SC 244, Item 206)

A central premise in the development of the Toronto Bike Plan was to actively involve members of the public, staff from other City departments, the Toronto Cycling Committee and key stakeholders in all phases of the study. Key activities included meetings with a Technical Steering Committee, Bicycle Tours with stakeholders in the four City Districts, a Bikeway Planning and Design Seminar for City Staff, two series of public workshops held at four locations across the City and a formal Public Attitude Survey of over 1,000 Toronto Residents.

The City of Toronto has a high bicycle ownership and usage rate, as revealed during the 1999 Cycling Survey. Approximately 62 percent of households in Toronto own a bicycle, and there are over 939,000 adult cyclists within the City. The Plan is intended to build on this very solid base of existing cyclists.

Although the Toronto Bike Plan (TBP) is envisioned as a ten-year initiative, it has been designed to be flexible so it can evolve over time. The Plan will guide the development and maintenance of cycling infrastructure and programs. Finally, the TBP is expected to complement other planning efforts in the City, including the review of the City’s Official Plan and the redevelopment of Toronto’s waterfront.

Vision

The vision for the Toronto Bike Plan is *to create a safe, comfortable and bicycle friendly environment in Toronto, which encourages people of all ages to use bicycles for everyday transportation and enjoyment.*

Primary Goals

The primary goals of the TBP are:

-  to double the number of bicycle trips made in the City of Toronto, as a percentage of total trips by 2011; and
-  to reduce the number of bicycle collisions and injuries.



The Plan is structured along six key components, which are analogous to "six integral spokes". The six spokes are linked through a common implementation strategy, represented by the hub of a bicycle wheel. The six spokes of the wheel must work together to achieve the primary goals and realize the vision of a Bicycle Friendly City.



The City's physical environment, as well as numerous social and economic factors, influences the ways in which people choose to travel. To achieve the vision of a more Bicycle Friendly City, the six spokes detail a multi-faceted strategy to build both physical and social infrastructure to support cycling. Each spoke is based on a guiding principle which describes the overall importance of this component to the whole plan. Each principle is supported by a set of objectives to measure success, and a set of recommendations to achieve these objectives.

Implementing the Plan

The Toronto Bike Plan is a highly ambitious but achievable strategy to encourage more people in Toronto to cycle more often. Central to implementing the Plan is the need for an on-going City commitment to fund cycling

programs and infrastructure improvements, similar to the way that Toronto funds capital road projects. The Plan also encourages a greater level of co-ordination between the various City departments and outside agencies. For example, the Toronto Cycling Committee (TCC), a citizens advisory committee, also will play an important role in the ongoing development and review of the Toronto Bike Plan. Finally, the annual, ongoing monitoring and evaluation of the progress toward the goals and objectives is key to the overall success of the Plan.

Implementation of the Toronto Bike Plan will, in time, see Toronto streets and parks become more bicycle friendly. The proposed 1,000 km bikeway network will be built on a solid foundation of the 166 kilometres of bikeways now in place. This translates into a bikeway network that is a grid of north-south and east-west routes spaced approximately two kilometres apart. Measures will be implemented to assist cyclists in crossing major physical barriers such as the 400 series of highways, rail corridors and ravines that often discourage those who might otherwise cycle for practical purposes.

Toronto will become a City where many people can combine cycling and transit on their commute to and from work, and where safe and secure bicycle parking is available at all cycling destinations across the City. It will be a City that is more liveable for its residents, and one that also respects and promotes the environmental, social and economic benefits that cycling can offer. It will be a leader in promoting the use of the bicycle, and also delivering traffic safety and educational programs to both motorists and cyclists of all ages. Toronto will be a City where cyclists and motorists are more respectful of each other.

The following recommendations, grouped by Plan component or "spoke", are the heart of the Toronto Bike Plan. They encompass a reasonable and practical strategy to achieve this

bicycle friendly vision for Toronto. The support and participation of Council and all Toronto residents will ensure that this vision can be achieved.

Toronto Bike Plan Recommendations

Bicycle Friendly Streets

Improve Bicycle Detection at Traffic Signals

That the City continue to install bicycle actuation at all semi-actuated traffic signals, and investigate options for improving the effectiveness of bicycle detection.

Amend By-laws to Exempt Bicycles

That the City review existing turn and entry restrictions and, where it is safe to do so, amend the by-laws to exempt bicycles.

Enhance Safety and Maintain Access Through Traffic Calming Projects

That the City ensure that all new traffic calming projects enhance safety and maintain access for cyclists.

Investigate Two-way Bike Access on One-way Streets

That the City investigate and implement solutions for allowing two-way bicycle access on one-way local streets that experience a low volume of motor vehicle traffic.

Provide Wide Curb Lanes on Arterial Roadways

That, during road resurfacing or reconstruction projects on arterial roadways, the City provide wide curb lanes, where possible.

Provide Bicycle Friendly Features for Bridges/Underpasses

That the City incorporate bicycle friendly features in bridge and underpass projects as part of the annual capital works program.

Develop a Pavement Repair Reporting System

That the City develop a pavement repair reporting system designed specifically to include cyclists.

Ensure Street Cleaning Practices Respond to Cyclists' Needs

That the City ensure that the scheduled revision of street cleaning practices recognize and respond to the needs of cyclists.

Continue Catchbasin Grate Replacement Program

That the City continue to replace catchbasin grates in all construction projects and on all City streets beginning with the bikeway network and popular cycling streets.



Bike Lane Adjacent to On-Street Parking

 **Review Practices for Cyclist Safety during Road Construction**

That the City ensure the accommodation of cyclist safety and access during all road construction activities. This should include, but not be limited to:

- *construction notices posted on the City’s website;*
- *advance signing for construction activities;*
- *temporary conditions that are compatible with bicycles such as non-slip surfaces, ramped utility cuts and timber decking placed at right angles to direction of travel; and*
- *bicycle specific detours where appropriate.*

 **Improve Bikeway Maintenance to Ensure Safe Operation**

That the City maintain the bikeway network throughout the year, including:

- *ongoing inspection and remediation of pavement surfaces, bikeway signs and amenities;*
- *quick restoration of bikeways after an adverse event; and*
- *the review and development of policies for winter maintenance of bikeways on the roadway and off-road paths.*

 **Identify High Collision and Injury Locations**

That the City establish a mechanism for identifying high cycling collision and injury locations in the bikeway network, review such locations on an annual basis, and implement counter-measures.

Bikeway Network

 **Implement a Bikeway Network**

That the City of Toronto implement a 1,000 km bikeway network.

 **Demonstrate Innovative Designs**

That the City research, design and demonstrate innovative measures to enhance the bikeway network.

 **Develop Bikeway Network Information System**

That the City develop a bikeway network information system, including maps, signs, information boards and the City’s website.

 **Increase Police Resources**

That the Toronto Police Service be requested to increase the enforcement of illegal parking/stopping in bicycle lanes, and increase off-road path patrols.

 **Establish Seamless Connections with Neighbouring Municipalities**

That the City work with neighbouring municipalities to create seamless bikeway connections across municipal boundaries.

Safety and Education

🚲 Establish a Bicycle Safety Partnership

That the City establish a broad-based City of Toronto Bicycle Safety Partnership to develop and implement bicycle safety programming.

🚲 Develop and Implement Safety Programs

That the City maintain its commitment to bicycle safety programs by:

- *providing a stable level of core funding in the annual operating budget;*
- *supporting an entrepreneurial approach to generating revenue for the expansion and sustainability of programs; and*
- *investigating new, innovative programs to make bicycle safety information and training more accessible to specific target audiences.*

🚲 Expand and Improve Access to CAN-BIKE Courses

That the City continue to improve access to, and the delivery of, CAN-BIKE courses.



CAN-BIKE Training Course

🚲 Complete CAN-BIKE Driver-Training Unit

That the City complete the new CAN-BIKE driver-training material, and develop an instructor-training program.

🚲 Review Bicycle Collisions

That the City establish a process to review cycling fatality and collision data on an ongoing basis, and determine education, enforcement and infrastructure priorities for improving bike safety.

🚲 Develop Educational Material to Assist Cyclists Involved in Collisions

That the City work with the Toronto Police Service to develop materials to assist cyclists involved in collisions, as well as other agencies that have, or could share, responsibilities related to bicycle collisions.

🚲 Continue Toronto Police Service Role in Bicycle Safety

That the Toronto Police Service be requested to continue their active role in bicycle safety by:

- *increasing the number of bicycles and bicycle patrol officers in every Division;*
- *working with City staff to establish enforcement priorities based on collision research;*
- *continuing to play a co-ordinating role in CAN-BIKE training for parking enforcement officers and paramedics; and*
- *providing representation on the City's Bicycle Safety Staff Team.*



Request MTO to Develop/Implement Bicycle Safety Strategies

That the City request the Ministry of Transportation of Ontario to take a lead role in developing and implementing bicycle safety strategies by undertaking to:

- *set up an expert review panel to make changes to the Highway Traffic Act;*
- *improve cycling safety content in all publications and driver training courses;*
- *include cycling safety material in training programs for driver examiners, police recruits and other officials;*
- *provide funding for bicycle promotion and safety programs to assist Toronto and other municipalities in reducing cycling injuries; and*
- *become a member on the City of Toronto Bicycle Safety Partnership.*



Ride for Heart

Promotion



Expand Bike Week

That the City continue to expand Bike Week and ensure that events are available in all City Districts.



Develop a Bike-to-School Program

That the City work with school boards and other agencies to develop a bike-to-school program, which will identify safer routes to schools, and provide secure bicycle parking, CAN-BIKE training and incentive programs for students and their parents.



Promote Cycling Programs, Facilities and Events

That the City work with other groups and agencies to promote cycling facilities, programs and events through a variety of media, including:

- *an annual cycling guide;*
- *bike maps;*
- *the City's website; and*
- *special cycling events throughout the year.*



Maintain the Road and Trail Safety Ambassador Program

That the City continue to maintain the Road and Trail Safety Ambassador Program as a cost-effective vehicle to deliver educational and promotional campaigns.

 **Encourage and Support Cycling by City Employees**

That the City take a leadership role in encouraging and supporting cycling as a mode of transportation for City staff, including:

- *developing a plan for providing high quality bicycle parking and shower/change facilities at all civic work places;*
- *offering CAN-BIKE training to all City employees through the regular employee training and development programs;*
- *providing a pool of bicycles for City employees to use in conducting City business; and*
- *compensating City employees (through kilometre disbursement) for using their own bicycle to conduct City business.*

 **Encourage Employers to Promote Bicycle Commuting**

That the City encourage other employers in Toronto to promote and support bicycle commuting, including:

- *providing information and technical advice on the provision of bicycle parking facilities;*
- *developing a plan for establishing Bicycle User Groups; and*
- *continuing the annual Bicycle-Friendly Business Awards program.*

 **Encourage Bicycle Tourism in Toronto**

That the City work with Tourism Toronto to explore opportunities with other interest groups, agencies and governments to promote bicycle tourism in Toronto.

Cycling and Transit

 **Undertake Bike-and-Ride Survey**

That the City, in co-operation with GO Transit and the TTC, undertake a detailed survey of bike-and-ride activity, and repeat this survey every two years.

 **Undertake Demonstration of Bike Racks on Buses**

That the TTC undertake a demonstration project of bike racks on buses, in consultation with the Toronto Cycling Committee.

 **Review Access to Transit Stations & Implement Improvements**

That the City of Toronto undertake a comprehensive review of bicycle access to all transit stations in the City and implement improvements wherever possible.

 **Develop Bike-and-Ride Promotion Strategies**

That the City of Toronto, GO Transit and the TTC develop a co-ordinated bike-and-ride promotion strategy and related initiatives.

Bicycle Parking

 **Manage City-wide Bicycle Parking Strategy**

That the City’s Transportation Services Division manage a comprehensive city-wide bicycle parking program, which will:

- *install 1,000 new post-and-ring bicycle stands per year at requested locations;*
- *provide replacement bike parking when parking meters are removed with joint funding by the Toronto Parking Authority;*
- *install bicycle parking at all civic centres and work sites, recreation facilities, libraries, transit stations and other civic buildings; and*
- *develop alternative bike rack designs appropriate for a variety of public spaces.*

 **Research Enhanced Bicycle Parking Facilities**

That the City research and develop demonstration projects for enhanced bicycle parking facilities, including bicycle lockers and bicycle parking shelters.

 **Determine Viability of Operating a Bikestation**

That the City, in co-operation with the Toronto Parking Authority, the TTC and other potential partners, undertake a feasibility study to determine the viability of operating a Bikestation to serve Toronto cyclists.

 **Evaluate Zoning By-laws for Bicycle Parking Requirements**

That the City undertake a study to evaluate the existing zoning by-law bicycle parking requirements and to develop new requirements for bicycle parking and shower/change facilities that would apply to all appropriate uses in all Districts of the City.

 **Produce Bicycle Parking Guidelines for Developers**

That the City produce bicycle parking guidelines for developers and property managers to assist in the provision of high quality bicycle parking facilities.

 **Develop a Strategy for Reducing Bicycle Theft**

That the City, in co-operation with the Toronto Police Service, bicycle retailers and the insurance industry, research and develop a strategy for reducing bicycle theft.

Implementation and Evaluation

 **Establish Inter-Departmental Bike Plan Co-ordinating Committee**

That an interdepartmental Bike Plan Co-ordinating Committee be established to co-ordinate the implementation of the Plan, in consultation with the Toronto Cycling Committee, and that Transportation Services Division take the lead in establishing and chairing the Committee.

🚲 Prepare Annual Progress Report to Council

That the Commissioner of Works and Emergency Services be requested to prepare annual progress reports to City Council, in consultation with the Bike Plan Co-ordinating Committee, documenting the progress of the Bike Plan and presenting implementation priorities and funding requirements for the following year; and that the first report be presented in the Fall of 2001 outlining Bike Plan projects to be implemented in 2002.

🚲 Review Staff Resources Required for the Bike Plan

That the Commissioners of Works and Emergency Services, Urban Development Services and Economic Development, Culture and Tourism be requested to review staffing resources required to implement the Bike Plan, and report to the Planning and Transportation Committee on any proposed changes to the current establishment beginning January 2003.

🚲 Undertake Design and Public Consultation for Bikeway Routes

That the bikeway routes proposed in the Bike Plan be subject to the existing approval process (detailed analysis, design and public consultation) before being considered by City Council for implementation.



Mayor Mel Lastman and the Toronto Cycling Committee

🚲 Commit Funding for Implementation of Toronto Bike Plan

That the City of Toronto commit funding, estimated in the amount of \$73 million, to be phased in over a period of ten years; and that this funding be used for the exclusive purpose of implementing all six components of the Toronto Bike Plan, as set out in the recommendations of this report.

🚲 Explore Alternate Funding Sources

That the City of Toronto explore alternative funding sources and opportunities, including the federal, provincial and private sectors to assist in the implementation of the Toronto Bike Plan.

🚲 Collect and Analyze Cycling Data

That the City collect and analyze high quality cycling data to measure the progress of the Bike Plan, including:

- *bicycle traffic counts to monitor cycling trends;*
- *focussed user surveys on specific cycling issues;*
- *public attitude surveys every 3 to 5 years; and*
- *annual bicycle collision data analysis.*

The Toronto Bike Plan set out in this report is the product of extensive study and consultation. It is a clear response to an identified need of Toronto residents and professionals to improve the liveability of the City. Although it has substantial cost implications over time, the long term benefits, including financial, physical and social “costs”, as outlined in this report, will significantly move the City towards improving the environmental “sustainability” of Toronto.

1 Introduction

Encouraging more people in Toronto to cycle more often, especially for utilitarian reasons, will improve the health and the liveability of our City. The Toronto Bike Plan (TBP) has been prepared in response to this general principle. It will guide the City in the development and implementation of new programs and facilities to encourage people to cycle, and to reduce their dependence on the automobile. It is a Plan based on extensive public and staff consultation, and is designed to be flexible so it can evolve over time as it is implemented.

The Toronto Bike Plan is envisioned as a ten-year initiative. It will complement other planning efforts in the City, including the review of the City's Official Plan and the redevelopment of Toronto's waterfront.

The TBP establishes a vision for cycling. It sets out integrated principles, objectives and recommendations regarding safety, education and promotional programs as well as cycling related infrastructure, including a comprehensive bikeway network.



Taylor Creek Trail

1.1 Why a Bike Plan for Toronto?

The amalgamation of the former Cities of Toronto, Etobicoke, York, North York and Scarborough plus the Borough of East York has provided the impetus to develop a policy framework for the new City. Toronto, like other cities across North America, is also looking for ways to guide development in a way that is more environmentally, socially and economically sustainable.

The City is developing a new Official Plan which includes a vision for transportation in Toronto. This transportation vision focuses largely on reducing automobile dependence. It proposes fundamental changes in how the City will develop, and how it will plan and operate its transportation system.

This transportation vision is consistent with one developed by the Transportation Association of Canada (TAC) in 1993. It is based on the fundamental premise that current trends are leading to urban transportation “systems which do not meet all needs and which are not sustainable”.¹ Six of the eight key attributes of the new transportation vision for Toronto will have a direct or indirect impact on cyclists. These are:

- 1) Integrated land use and urban design that lead to fewer and shorter vehicular trips for personal travel;
- 2) Improved accessibility in public transit service for all constituents. This service must also be competitive with the private automobile in terms of cost and convenience for most personal travel;
- 3) Traffic engineering and street design that encourage walking and cycling;

¹ Transportation Association of Canada, *A New Vision for Urban Transportation*, Ottawa: reprinted November 1999.

- 4) Less need to own an automobile or to use an automobile for most travel within the City;
- 5) Strong safeguards for the protection of the natural environment; and
- 6) Reduced air pollution and greenhouse gas emissions from transportation.

Achieving the City’s transportation vision will require a fundamental shift in how the transportation system is planned and operated. This means identifying areas in which pedestrians, cyclists and transit passengers can be given higher priority.

This won’t be easy. The City faces significant challenges in shifting gears towards a new way of thinking about transportation. Toronto’s transportation system has evolved gradually over the past several decades, influenced by the growth in automobile use and suburban sprawl after the Second World War. While the City has had long-standing policies that support walking, cycling and transit, there has not been sustained funding for major expansion of bicycle facilities and programs for encouraging and supporting cycling. The challenge, therefore, is to foster support for these and future policies so that they can turn into actions that can achieve change. The Toronto Bike Plan is an important step in moving this process of change forward.

Implementing the City’s vision will impact all users of Toronto’s transportation system. Achieving the vision will involve some difficult trade-offs, but will also yield significant environmental, economic, social equity and health benefits to individuals and to the City as a whole.

1.2 The Benefits of Cycling

Bicycle transportation is a growing activity in Toronto and throughout North America, due in part because of the many benefits cycling offers. These benefits are highlighted below.

Transportation Efficiency

- Transportation by bicycle is the most energy efficient mode of transportation, and generates no pollution, except in its manufacture.



Cyclists on Bay Street

- Cycling is often the fastest mode of transportation from door to door for distances up to 10 km in urban cores.²
- Ten bicycles can be parked in the space required for a single automobile.
- The cost of a typical car parking space in a parking structure can be up to \$10,000 compared to \$125 to manufacture and install a post-and-ring bike stand accommodating two bicycles, or \$1,000 for a high security bicycle locker.
- The addition of a through traffic lane on an existing road can cost from \$350,000 to \$500,000 per kilometre to design and construct in Toronto. This widening would provide an additional roadway capacity of 800 vehicles per hour. By comparison, the costs associated with the addition of a single 1.5 m bike lane, which can accommodate

² U.S. National Bicycle and Walking Study, 1994.

approximately 2,000 trips per hour³, can range from \$5,000 to \$10,000 for a simple restriping, or from \$35,000 to \$150,000 per kilometre where a road widening is required.⁴

Environmental

- 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.

Health and Fitness

- 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.⁵ 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.

³ Ministry of Transportation of Ontario, *Ontario Bikeways Planning and Design Guidelines*, pg. 8-34, March 1996.

⁴ All cost estimates are exclusive of land acquisition and major utility relocations.

⁵ Canadian Medical Association Journal, Nov. 28, 2000.

- Cycling benefits one’s health regardless of the age at which one takes up cycling.

Economic and Social

- Cycling provides access and transportation to segments of the population who would not otherwise be able to travel independently. These segments include:
 - those who cannot or choose not to own a motor vehicle;
 - those who do not have access to a motor vehicle for the required period; 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.

1.3 Plan Development: What We Have Done

The Toronto Bike Plan Study was initiated in the Fall of 1999. Marshall Macklin Monaghan Limited, in association with ESG International and Stantec, were retained by the City of Toronto to assist City Staff in the development of a cycling master plan. A Study Team was formed that involved both City staff and consultants who then worked together, in consultation with the Toronto Cycling Committee, to undertake each phase of the study.

Study Approach

The *study approach* that lead to the development of the “Toronto Bike Plan” was undertaken generally in four phases, as follows:

- 1) *Assessing Existing Conditions* involved undertaking an extensive inventory of existing bikeway facilities, digitally mapping existing and planned bikeways,

paths, major attractions and destinations, then identifying real or perceived barriers to cycling. This phase also included the development and execution of the 1999 Toronto Cycling Survey and an analysis of the results.

- 2) *Developing the Bikeway Network Plan* involved establishing a vision for the network, then identifying, evaluating, groundproofing and selecting bikeway routes, and confirming facility type by route. The facility options included on-street bike lanes, signed routes and off-road paths. This phase also involved conducting a very successful one-day *Bikeway Planning and Design Seminar* that saw staff from across the recently amalgamated City come together and participate in an intense practical training session.
- 3) *Reviewing and Assessing Cycling Policies and Programs* involved a comprehensive review of existing programs, policies and funding sources by both City Staff and the Consultant Team. This led to the development of the objectives and recommendations for each component of the Plan: safety and education, promotion, cycling and transit, bicycle parking and the concept of bicycle friendly streets.
- 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 “ten year plan of action” that will serve to guide the City in its efforts to improve the state of cycling in Toronto.

Public and Staff Consultation

A central premise in the development of the Toronto Bike Plan was to actively involve members of the public, staff from other City departments, the Toronto Cycling Committee

and key stakeholders in all phases of the study. Key activities or tasks included:

- Meetings with a Technical Steering Committee of City Staff created to provide input and guide the study;
- Bicycle Tours with stakeholders in November of 1999 in the former municipalities of North York, Scarborough, Etobicoke and Toronto (including York and East York);
- A formal Public Attitude Survey of over 1,000 Toronto residents to gather input on cycling related issues from both cyclists and non-cyclists;
- A one day Bikeway Planning & Design Seminar for City staff in December of 1999;
- An initial series of Public Workshops in December 1999 at four locations across the City to identify issues, and develop a vision and set of principles to guide the development of the proposed bikeway network;
- On-going meetings with key City staff from Traffic Operations, Right-of-Way Management, Transportation Planning, Urban Design and Parks Planning in each of the four Districts that comprise the new City of Toronto;
- A Second series of Public Workshops conducted in September 2000 at Civic Centres across the City to present the draft network plan, review key objectives and outline the next steps in the study;
- Development of literature for distribution, including a pamphlet on the results of the 1999 Toronto Cycling Survey, an article in *Cyclometer*, and the creation of a new newsletter, *Cycle Toronto*, by the Pedestrian and Cycling Infrastructure Unit (PCIU) of the Transportation Services Division. The

purpose of *Cycle Toronto* was to inform the public of the status of the Toronto Bike Plan as well as other City lead cycling related activities or actions; and

- Development of a web page on the City of Toronto Website:

<http://city.toronto.on.ca/cycling/cycling.htm>

A record of the major consultation activities is found in Appendix B.

The substantial input received from those who participated in the cycling master plan study was reviewed and taken into consideration in the development of the Plan. The TBP, therefore, is the product of an extensive study and consultation process which the City believes generally reflects the interests of all Toronto residents, and at the same time is a direct response to many of the needs and wishes of Toronto cyclists.

1.4 Toronto Bike Plan Organization

The balance of this report describes the Toronto Bike Plan in detail. Chapter 2 sets the stage by briefly describing where we have come from and where we are today. It includes background information on Toronto's cycling history, the status of existing cycling programs and services, and some key demographic and cycling trend data. Chapter 3 points to the future, outlining the Plan's two primary goals, the "six spokes", and their guiding principles and objectives.

The next six chapters, 4 through 9, provide the details for the six spoke plan. Each chapter focuses on one of the six spokes, detailing a set of actions and recommendations for achieving the plan's primary goals. Chapter 10 pulls it all together with a comprehensive implementation strategy which addresses priorities, phasing, funding, monitoring and evaluation.

The technical appendices provide a listing of the streets and paths which comprise the proposed bikeway network, a summary of the public and

staff input from the workshops and open houses, and the results of the 1999 Cycling Survey.

2 Cycling in Toronto

2.1 A Brief Cycling History of Toronto

Bicycles created quite a stir when they arrived in North American cities in the late 1800's. This pre-dated the advent of the automobile. "Personal transportation was the heart of the matter; to understand the love affair with the bicycle that began with the 80's and flamed into a roaring passion in the 90's, one must grasp that the bicycle was...in all history...the first personal transportation the common man could afford to own. It transformed his life."¹

The roads of the day were not designed with bicycles in mind, and cyclists lobbied for better road conditions. The minutes of an 1896 Toronto City Council meeting document the approval for construction of three foot wide bicycle lanes, constructed of cedar blocks and cinder, on Spadina Avenue, Harbord Street and Winchester Street.



Old Bike Shop on Yonge Street – circa 1890's

In the early decades of the twentieth century, the bicycle lost much of its popularity as the automobile became more prevalent. Automobiles enabled people to move farther from their place of work, giving way to rapid suburban development in cities across North America. Toronto was no exception to this "romance" with the automobile. The bicycle, ideal for short trips, lost its advantage as well as its place on the road. The automobile became an integral part of the economy and a symbol of the modern era.

The bicycle, as a means of adult transportation, was absent from most North American cities, including Toronto, until the early 1970's. The introduction of the mass-market 10 speed bicycle ushered in the second bicycle boom.

The last three decades have seen the emergence of the bicycle once again as a popular mode of transportation. A political reform movement in the early 1970s saw a group of social and environmental advocates bring quality of life and social equity issues to the forefront of the political scene. Central to this on-going movement has been an increasing public awareness of the environmental and social impacts associated with automobile use, urban sprawl and the need for change. Through this movement, the bicycle has re-emerged, and is again recognized as an integral and necessary part of the City's transportation system.

“Council recognizes that the bicycle, as an integral and efficient form of transportation and as a means of recreation, can make a significant contribution to the quality of City life; therefore, it is the policy of Council to implement programs that will promote and facilitate greater and safer use of the bicycle.”

¹ American Bicyclist and Motorcyclist, pp. 52-53, Vol. 90, No. 10, October, 1969.

In 1975, the Toronto City Cycling Committee was established by the former City to promote cycling and safety initiatives. In forming the Committee, Council adopted the following policy statement: “Council recognizes that the bicycle, as an integral and efficient form of transportation and as a means of recreation, can make a significant contribution to the quality of City life; therefore, it is the policy of Council to implement programs that will promote and facilitate greater and safer use of the bicycle.”

The City Cycling Committee was comprised of citizen activists, City Councillors and many volunteers who worked closely with staff to improve cycling conditions, including establishing new bicycle routes. In 1979, the first bicycle lane was installed in Toronto on Poplar Plains Road at the request of the Cycling Committee.



Poplar Plains Bike Lane

In the 1980’s, attention was focussed on several issues to improve cycling conditions. With input from the Committee, urban design staff developed the post-and-ring bicycle stand. The City constructed the waterfront Martin Goodman Trail, and Metropolitan Toronto began developing the river valley trail systems. The City also began a program to replace thousands of old-style catchbasin grates which were a potential hazard to the narrow tired bikes of the day. In the last half of the decade, the Committee focussed attention on bicycle safety training with the development of safe cycling materials and public awareness campaigns. In 1988, the City began to promote Bike Week, including such initiatives as Bike-to-Work Day and the Becel Ride for Heart.

In the 1990’s, greater attention was focussed on the need to develop facilities to support cycling. The 1991 “Route Selection Study for On-Street Bicycle Lanes” paved the way for the first significant expansion of the on-street bikeway network. The City amended its Zoning By-law to require developers to provide secure bike parking in new buildings. The Toronto Transit Commission and GO Transit installed bike parking at most of their stations.

At the same time, the City expanded cyclist training courses through the CAN-BIKE program, and developed safety campaigns with the Cycling Ambassadors taking the message to the streets and paths. The Toronto Police Service, recognizing the effectiveness of bicycles, trained over 500 officers and equipped community patrols with mountain bikes.

Both the City of Toronto and Metropolitan Toronto Official Plans included significant policies supporting increased cycling infrastructure. The 1993 City of Toronto Official Plan, which is currently under review, states: “It is the policy of Council to support, in principle, the objective of reducing the overall use of the private automobile from present-day levels, and to take appropriate measures towards this end as acceptable automobile reduction



Ride for Heart

strategies are developed.” To achieve this objective, people clearly need to be encouraged to cycle for utilitarian purposes.

Public interest in cycling was on the rise. The Metro Cycling Committee was established in 1993, and in 1996 volunteers in North York formed an ad-hoc Cycling and Pedestrian Committee.

The success of these initiatives culminated in 1995 when the former City of Toronto was named “the Number 1 Cycling City in North America” by *Bicycling Magazine*. The magazine attributed Toronto’s success to an “impressive blend of programs, ridership and natural amenities”.

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Since 1995, the City has changed dramatically. On January 1, 1998, the Ontario government amalgamated Metropolitan Toronto and the six local municipalities. The new City of Toronto now has a population of approximately 2.3 million people and covers 240 square

kilometres. **Figure 2.1** illustrates the existing bike facilities for the City of Toronto.

With the new city come new challenges. These include the need to rationalize and improve the delivery of bicycle programs, integrate existing on and off-road bikeway facilities, and plan for the future, all for a much larger City.

Toronto still has a very impressive blend of cycling programs to build on. The City has taken important steps to remain pro-active in encouraging and supporting cycling. The cycling committees have been merged into a single body with the Toronto Cycling Committee now representing the amalgamated City. The City’s Transportation Services Division has created a new Pedestrian and Cycling Infrastructure Unit to plan and implement new cycling facilities.

The Toronto Bike Plan is intended to build upon these past initiatives and guide the City as it continues the movement towards a more “bicycle friendly city”. The Plan sets out a program and comprehensive strategy for re-establishing Toronto’s position as the best cycling city in North America.

Beyond Toronto’s borders, the Municipalities of Mississauga, Markham, Richmond Hill Vaughan, Brampton and Pickering are all at various points in developing their own bikeway systems. It will be important for the City of Toronto to work with these adjacent municipalities to ensure that appropriate links are made to each other’s networks.

2.2 The 1999 Toronto Cycling Survey

As part of the Toronto Bike Plan Study, the City and consultant team retained Decima Research in the Fall of 1999 to conduct a public attitude survey. The overall survey objective was to measure the prevalence of cycling in Toronto with a focus on utilitarian trips. The comprehensive telephone survey of over 1,000 residents, aged 15 years or older, established a

profile of cyclists, and identified which measures are most likely to increase the levels of cycling in the City.

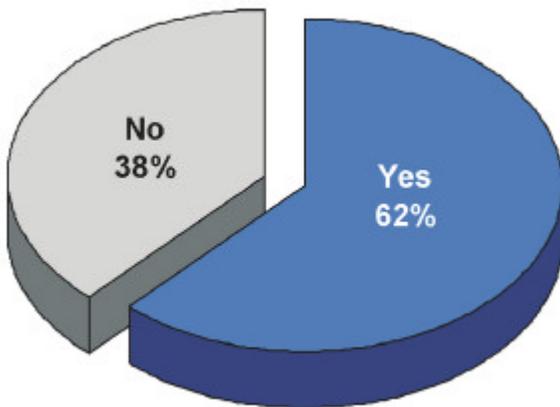
Similar studies were conducted in 1986 and 1991 to address the state of cycling in the City of Toronto. While these previous studies compared results between the former City of Toronto and the rest of Metro Toronto, the 1999 version of the study measured a sample of residents that reflects the entire new amalgamated City.

The results of the 1999 Cycling Survey provide a benchmark for cycling behaviour and attitudes in the new City. A summary of the key findings from this survey is outlined herein.

➤ **Cycling is an Important Mode of Transportation in Toronto**

Cycling is a critical mode of transportation and form of recreation for City of Toronto residents. Approximately 48 percent or 939,000 residents over age 15 are cyclists, and approximately 60 percent of households own a bicycle (see **Figure 2.2**).

Figure 2.2
Households with Bicycles



Question: Do you or does anyone in your household own a bicycle?

Types of Cyclists

Utilitarian – they cycle for transportation purposes such as travelling to work or school, running errands, going shopping or visiting friends. They may also cycle for recreation.

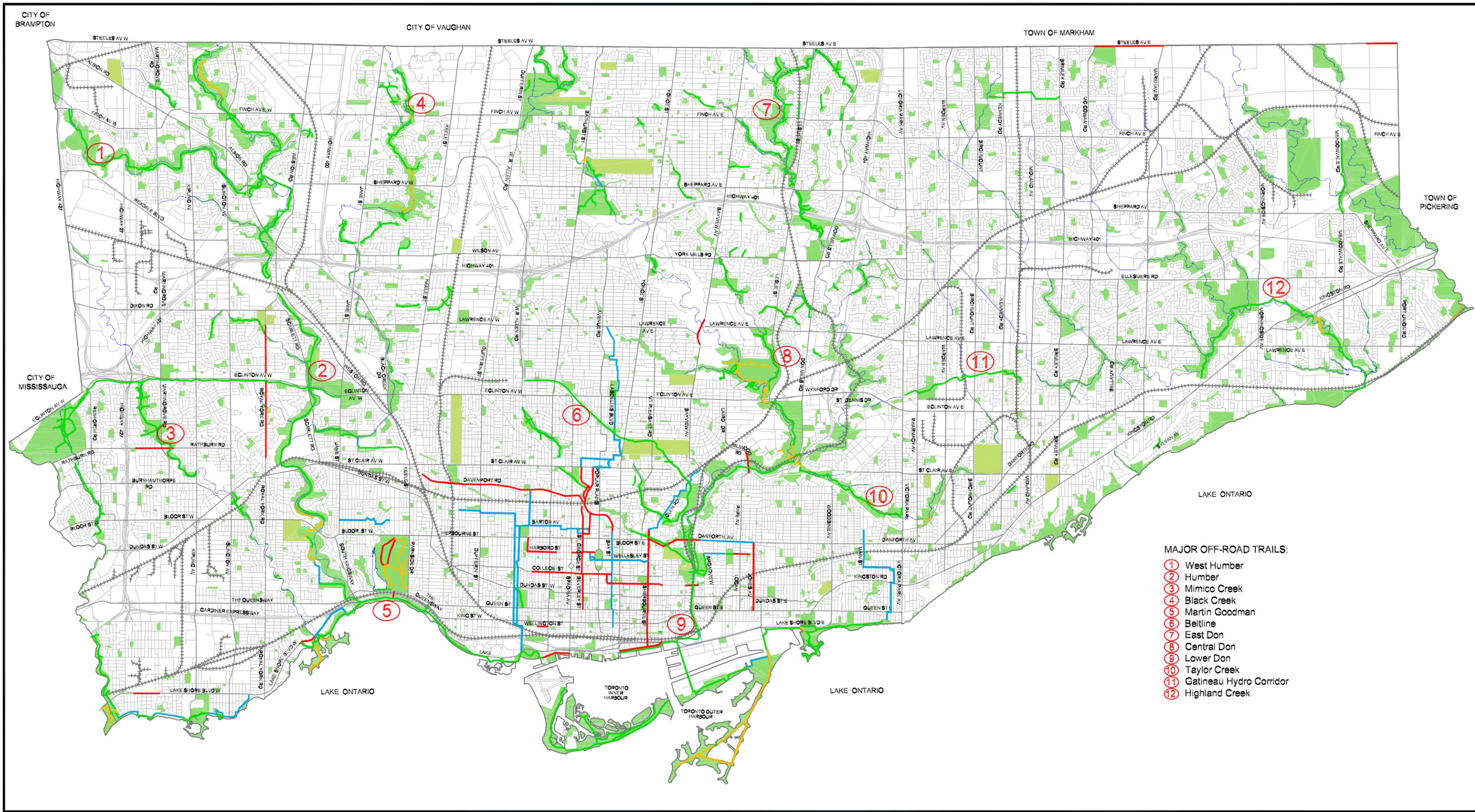
Recreational – they cycle solely for fitness and leisure, and do not use their bike for transportation.

During the peak summer months, cyclists in Toronto made more than three million trips per week, including over 1.6 million recreation trips. Approximately 20 percent of the population (388,000) are utilitarian cyclists, riding to work and school, going shopping, running errands or going visiting. These utilitarian trips can be broken down as follows:

- Work – 8% or 159,000 cyclists making 1,146,000 trips, with the average ride taking 24 minutes;
- School – 3% or 63,000 cyclists making 368,000 two-way trips, with the average ride taking 19 minutes (Note: this does not include school children under 15); and
- Shopping, Errands and Visiting – 17% or 341,000 cyclists making 1,634,000 such trips per week.



St. George Street – University of Toronto



- MAJOR OFF-ROAD TRAILS:**
- ① West Humber
 - ② Humber
 - ③ Mimico Creek
 - ④ Black Creek
 - ⑤ Martin Goodman
 - ⑥ Beltline
 - ⑦ East Don
 - ⑧ Central Don
 - ⑨ Lower Don
 - ⑩ Taylor Creek
 - ⑪ Gatineau Hydro Corridor
 - ⑫ Highland Creek

Legend

- Existing Bike Lane
- Existing Signed Route
- Existing Off-Road
- Existing Park Road
- Public Parkland
- Cemeteries
- ~ Watercourse
- Railway



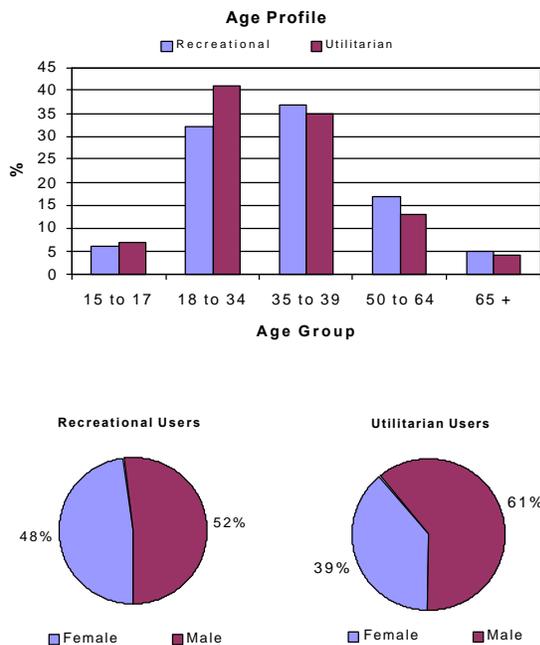
Figure 2.1:
Existing Bicycling Facilities
TORONTO BIKE PLAN

The survey found that 862,000 cyclists ride for leisure or fitness. This includes 314,000 utilitarian cyclists, who also use their bikes for leisure, and 548,000 cyclists who ride solely for recreation.

➤ **Cyclists are “Everybody”**

A profile of cyclists emerged from the survey, which clearly indicates that anyone can be a cyclist. The survey found that 60 percent of males are cyclists, compared to 40 percent of females. As illustrated in **Figure 2.3**, cyclists can fit a wide range of age, gender and purpose profiles.

Figure 2.3



When comparing current results to past surveys, the proportion of utilitarian and recreational cyclists in the City of Toronto has continued to rise regardless of age. The data also reveals that, when compared to previous years, the proportion of Torontonians who continue to be active cyclists as they grow older is increasing. Thus in the context of an ageing population, cycling facilities will need to meet this growing demand.

Toronto cyclists come from a broad spectrum of educational and income levels. However, cyclists are more likely to be university graduates (49%) than non-cyclists (43%). Cyclists are also more likely to belong to a household with total annual income greater than \$80,000 (22%) than non-cyclists (9%).

Only 9 percent of cyclists never have access to a car, while 63 percent always have access. This level of accessibility is consistent with non-cyclists. Recreational cyclists tend to have more access to a car than utilitarian cyclists do.

Those who are younger are more likely to be utilitarian cyclists. As household income rises, so does the probability that one is a utilitarian cyclist. 25 percent of men and 15 percent of women are utilitarian cyclists.



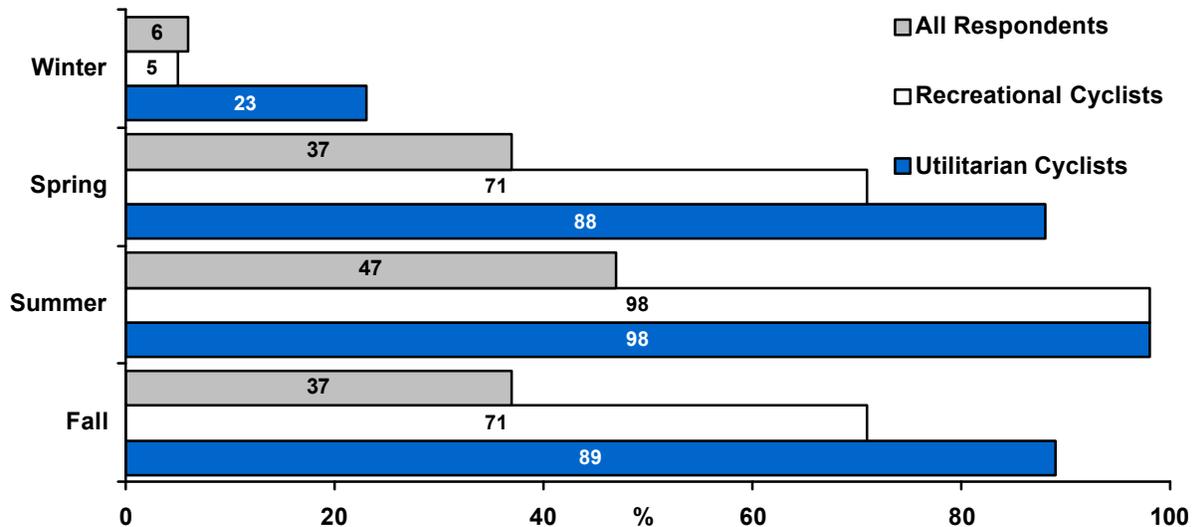
Commuting by Bicycle in Toronto

➤ **Bike Use Varies by Season and Area of the City**

Most cyclists ride their bikes during the Spring, Summer and Fall (**Figure 2.4**). As expected, utilitarian cyclists are more active than recreational cyclists during the winter, spring and fall seasons.

“The results of the 1999 Cycling Survey provide a benchmark for cycling behaviour and attitudes in the new City of Toronto.”

Figure 2.4
Seasonal Cycling Incidence



Question: In what months of the year do you cycle? Would you say...

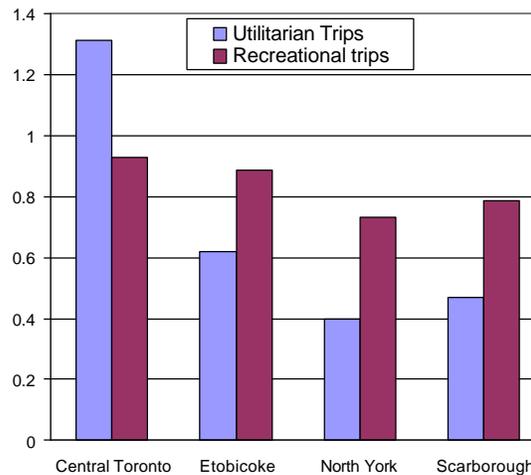
➤ **Bike Use Varies by area of the City**

Bicycle ownership levels are consistent throughout Toronto (2.2 to 2.3 bikes per household), but bicycle use varies greatly. Residents of Central Toronto (comprising of York, East York and the former City of Toronto) take far more utilitarian cycling trips per week than residents of the former municipalities of Etobicoke, North York and Scarborough (Figure 2.5). Recreational trips per capita are less variable by area of the City.

➤ **Comfort Levels Vary by Type of Cyclist**

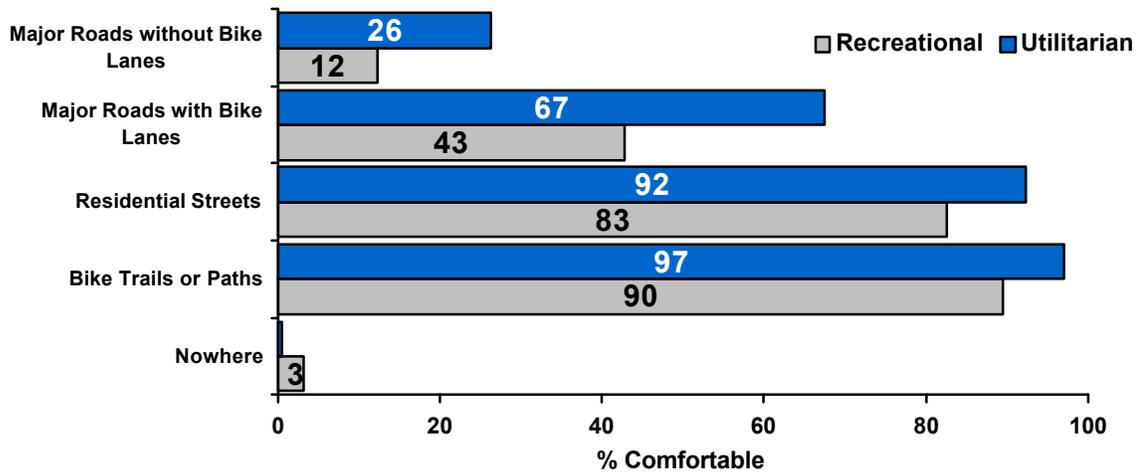
Cyclists are most comfortable riding on bike paths, and least comfortable on major roads without bike lanes (Figure 2.6). In general, utilitarian cyclists are more comfortable than recreational cyclists on all facility types.

Figure 2.5
Weekly Cycling Trips Per Capita²



² Central Toronto includes the former City of York and the former Borough of East York.

Figure 2.6
Cycling Comfort Levels



Question: Would you say you are comfortable cycling on...

➤ **Concerns about Toronto Cycling**

The biggest concern about cyclists or cycling in Toronto is “careless cyclists”, followed by “careless drivers” (Figure 2.7). Utilitarian cyclists are much more concerned about careless drivers, poor road conditions and car doors opening, in comparison to both non-cyclists and recreational cyclists.

There is a perception of a decline in the general respect that motorists and cyclists have for each other. Almost half (49%) of respondents feel motorists’ respect for other road users has decreased in the past five years. A lesser proportion (33%) feel cyclists’ respect for other road users has decreased.

When asked, “what ONE thing could be done to improve cycling in Toronto”, both cyclists and non-cyclists identified bike lanes, bike paths and more cyclist education as the top three improvements (Figure 2.8).

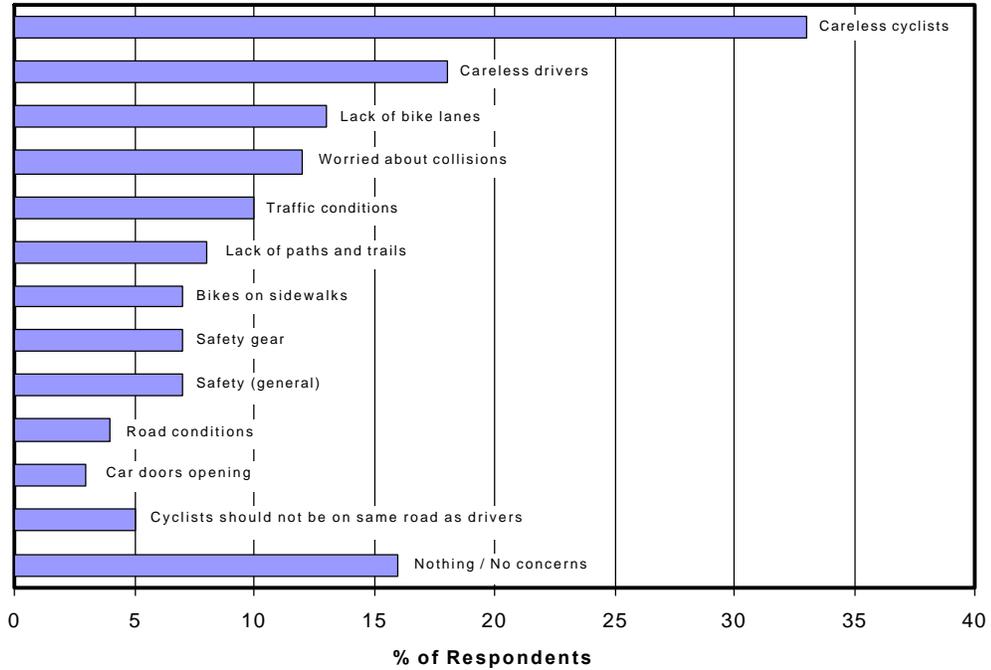
“Distance” is the most frequently cited reason (50%) why recreational cyclists don’t use their bikes for utilitarian trips (Figure 2.9).

One way of addressing lengthy trips is combining cycling and public transit. The survey revealed that 17 percent of cyclists have tried this transportation alternative. It’s much more popular with utilitarian cyclists (30%) than recreational cyclists (8%).

Issues associated with combining cycling and public transit include the provision of secure bike parking facilities and bike racks attached to buses. The survey found that a majority of cyclists would be more likely to try combining with public transit if these conveniences were provided. Linking cycling with transit is discussed in further detail in Chapter 8.

The survey also found that poor air quality is an obstacle to encouraging more cycling. A total of 68 percent of respondents believe smog is a major problem in Toronto. During ‘smog alert’ days, when air pollution reaches unhealthy levels, many cyclists change their travel patterns. Over 42 percent of utilitarian cyclists and 58 percent of recreational cyclists choose not to ride on ‘smog alert’ days.

Figure 2.7
Concerns About Toronto Cycling
 All respondents – cyclists and non-cyclists



Question: What concerns if any do you have about cycling or cyclists in Toronto?

Figure 2.8
Changes That Would Improve Toronto Cycling

Suggested Improvements ¹	Total	Non Cyclists	Recreational	Utilitarian
	%	%	%	%
More bike lanes (on-street)	33	28	35	42
More bike paths and trails (off-street)	13	12	17	11
Better education for cyclists	7	10	2	5
Enforce rules/regulations more	4	5	3	5
More bicycle parking	3	1	4	5
Better education for motorists	3	2	4	2

¹ only reasons named 3% or more of the time in total are shown

Figure 2.9
Reasons Why Recreational Cyclists Don't Cycle
to Work/School

Reason	%
Distance	48
Unsafe traffic conditions	15
Can't carry things on bike	9
Incompatible with work clothes	7
Need car for work	6
Inconvenient (general)	6
Time consuming	5
Too tiring / I'm lazy	3
I'm retired	3

2.3 Bicycle Ridership and Collision Trends

Ridership Levels

Cycling in Toronto has come a long way in the 25 years since Council created the City Cycling Committee. The City's investment in promoting cycling and providing cycling services and infrastructure has paid off through increased bicycle ridership. In North American terms, Toronto has high levels of bicycle traffic, particularly on downtown streets and the major paths.

The common perception is that bicycle traffic is increasing every year, however, it is difficult to accurately quantify cycling levels across the City with the existing data sources. The City of Toronto conducts the central area³ cordon count every two years to measure inbound and outbound vehicle volumes on a typical weekday between the hours of 6:30 a.m. and 11:30 p.m. Between 1987 and 1993, bicycle trips across the central area boundary increased by 75 percent,

³ The City's central area is defined as "the area bounded by Bathurst Street, the Don River, the CPR line, Yonge Street and Rosedale Valley Road on the north and Lake Ontario."

from 16,959 to 29,708. When expressway traffic is excluded from the count totals, bicycles represent about five percent of all vehicles recorded in 1993. Bicycles account for more than 14 percent of all vehicles on Bloor Street West and almost 17 percent on Queen Street West.

The cordon count data does not include the large number of bike trips that begin and end within the central area or take place on weekends. The 1991 Central Area Residents Survey revealed that eight percent of the central area's 140,000 residents use bicycles as their main means of transport to work (a further 12 percent walk and 53 percent take transit). The major paths attract thousands of weekend cycling trips from spring through the fall. The waterfront Martin Goodman Trail regularly records the highest bicycle volumes with over 4,000 cyclists during the seven hour period from 9:00 am to 4:00 pm on a typical summer day.

Increases of up to 42 percent in bicycle traffic have been recorded on streets with bicycle lanes, typically measured two years after bike lane installation (**Figure 2.10**). The average increase in bicycle traffic over the two year period following implementation on all routes was 23 percent.

In order to collect consistent and reliable bicycle traffic data for analyzing trends over time, the City must develop a bicycle specific data collection program. The existing sources of information capture bicycle data as a subset of a larger collection exercise, and therefore are not designed to measure bicycle use in ideal conditions. For example, the Transportation Tomorrow Survey does not measure peak bicycle trips because it is conducted over the fall and early winter months. Bicycle traffic levels recorded by the City's cordon count program vary considerably from year to year because the counts are conducted in all weather conditions. Bicycle volumes, unlike motor vehicle traffic, are substantially influenced by day-to-day weather conditions and by seasons of the year.

Figure 2.10⁴
Before and After Traffic Volumes for Selected Streets with Bicycle Lanes

Facility	Installation Date	Motor Vehicle Traffic			Bicycle Traffic		
		Before	After	% Change	Before	After	% Change
Davenport Road (North of Dupont Street)	May 1995	22,000	22,000	0%	600	850	42%
Gerrard Street (West of Sherbourne Street)	Aug. 1995	18,000	18,000	0%	800	900	13%
Sherbourne Street (North of Gerrard Street)	Sept. 1996	16,000	15,000	-6%	550	570	4%
Harbord Street (West of Bathurst Street)	Aug. 1997	15,000	16,000	7%	1,100	1,500	36%
St. George Street (North of College Street)	Aug. 1993	16,000	16,000	0%	1,500	1,650	10%
College Street (West of St. George Street)	Oct. 1993	20,000	20,000	0%	1,450	1,900	31%
Average		17,800	17,800	0%	1,000	1,230	23%

It is important that data be collected for peak cycling conditions and also account for weather and seasonal fluctuations.

Cycling Collisions

Bicycle/motor vehicle collisions are a serious concern in Toronto, resulting in an average of three cycling fatalities and over a thousand personal injuries per year over the past decade. As many as 20 bicycle collisions are reported to the Toronto Police Service in a single day in the peak summer months. While the number of collisions seems high, cyclists are actually involved in just two percent of all reported motor vehicle collisions, roughly equal to the bicycle’s share of all trips in the City. Nevertheless, they account for seven percent of injuries and five percent of traffic fatalities. As

illustrated in **Figure 2.11**, the number of reported bicycle collisions has been relatively constant over the decade.

Figure 2.11
Cyclist Injuries 1990-1999

Year	Fatalities	Injuries
1990	2	1,175
1991	1	1,356
1992	2	1,254
1993	4	1,247
1994	4	1,120
1995	1	1,144
1996	6	1,144
1997	4	1,397
1998	6	1,181
1999	2	1,029

⁴ MacBeth, Andrew G., *Bicycle Lanes in Toronto*, ITE Journal, April 1999.

Not surprisingly, bicycle collision patterns follow bicycle traffic patterns. As illustrated in **Figure 2.12**, more bicycle collisions occur in the Toronto Community Council District, where the highest number of bicycle trips are made. Collisions are more frequent on streets with high levels of bicycle traffic, such as Bloor, College and Queen. Most collisions occur in dry weather conditions (90%) and daylight (85%), especially during rush hours (particularly between 3 pm and 7 pm).

Figure 2.12
Total Number of Cyclist Collisions by
Community Council District, 1995-99

	Fatalities	Injuries	Other	Total
Central Toronto	12	3,703	751	4,466
Etobicoke	3	481	86	570
North York	1	690	138	829
Scarborough	3	741	124	868
Total	19	5,615	1,099	6,733

During the summer of 1996, two cycling-related fatalities within a ten-day period attracted considerable public attention. Both deaths involved cyclists being run over by the rear wheels of large trucks. In response to these deaths, the Regional Coroner for Toronto, working with City planning and transportation staff, Police, MTO community groups and trucking associations, reviewed cycling fatalities over an 11-year period. The purpose was to draw conclusions and make recommendations aimed at enhancing the safety for cyclists in the City.

In July 1998, the Regional Coroner released his report on cycling fatalities in Toronto. One of the main findings of the Coroner’s review was that larger vehicles, including open trucks,

public transit (TTC), emergency vehicles and tractor trailers, account for a disproportionate number of cycling fatalities. Only 8 percent of non-fatal collisions involved larger vehicles, but they were involved in 37 percent of all collisions resulting in cyclist fatalities. “This difference must be attributed to an increased likelihood of a cyclist fatality in collisions with large vehicles. For example, there was one cyclist fatality for every 125 non-fatal collisions involving large vehicles (Class A, B, C, D and M) as opposed to one cyclist fatality for every 488 non-fatal collisions involving Class G motor vehicles. Thus, it appears that a collision with a large vehicle is approximately four times more likely to result in cyclist fatality than a collision with a Class G vehicle.”⁵

The Coroner made 15 recommendations for improving cycling safety in Toronto, several of which were aimed at improving the collection and analysis of data on cycling collisions and injuries. In response, the City has completed an in-depth analysis of 2,500 police-reported bicycle collisions for the two-year period 1997-98, as part of an effort to develop measures for reducing cyclist injuries and fatalities. The Coroner also recommended an analysis of hospital records, since police reports only tell part of the story. Researchers estimate that more than 80 percent of bicycle collisions go unreported. Half of all collisions that result in a cyclist being treated in hospital are not reported to the police.^{6,7} Still, analysis of collision reports

⁵ W.J. Lucas, Regional Coroner for Toronto, *A Report on Cycling Fatalities in Toronto: 1986 – 1996*. July, 1998.

⁶ Stutts, J. C., and W. Hunter. *Police Reporting of Pedestrians and Cyclists Treated In Hospital Emergency Rooms*. Proceeds of the Transportation Research Board’s 77th Annual Meeting on Pedestrian/Bicycle Safety, January 11-15, 1998.

⁷ Doherty, Sean T., Lisa Aultman-Hall, and Jill Swaynos. *Commuter Cyclist Accident Patterns in Toronto and Ottawa*. Journal of Transportation Engineering. Jan./Feb. 2000.

provides detailed information about the kind of incidents that generally result in the most serious injuries. The 2000 City of Toronto Bicycle Collision Analysis confirmed some of the widely understood facts about cycling collisions, and revealed new information which will influence the development of strategies for improving the safety of cyclists.

Consistent with many other collision studies, the Toronto study found that most bicycle collisions occur at intersections (including driveway and lane entrances), the majority involving various motor vehicle turning manoeuvres. A significant number of incidents involved motorists not yielding properly (driving out prematurely, stopping past the stop line or failing to stop at all) at controlled intersections. Away from intersections, motorists frequently passed too closely while overtaking. In downtown Toronto, the most prevalent collision resulted from drivers opening their door in the path of cyclists.

Figure 2.13 lists the number of reported collisions of each type, between January 1, 1997 and December 31, 1998.

Over 75 percent of the classifiable collisions fell into categories defined by the motorist’s actions, while less than 20 percent were classified as ‘cyclist action’ type collisions. While this may appear to place the responsibility for the majority of collisions on motorists, analysis of other contributing factors involved is informative. It is important to stress that most collisions involve multiple factors, and categorizing a collision does not necessarily mean attributing fault.

The study revealed for the first time the extent to which sidewalk cycling is a contributing factor in bicycle/motor-vehicle collisions in Toronto. Over 30 percent of the cyclists involved in reported motor vehicle collisions were cycling on the sidewalk immediately prior to their collisions. Young cyclists (age 10 to 20) were highly over-represented, although over half the sidewalk riders were adults. Cyclists who

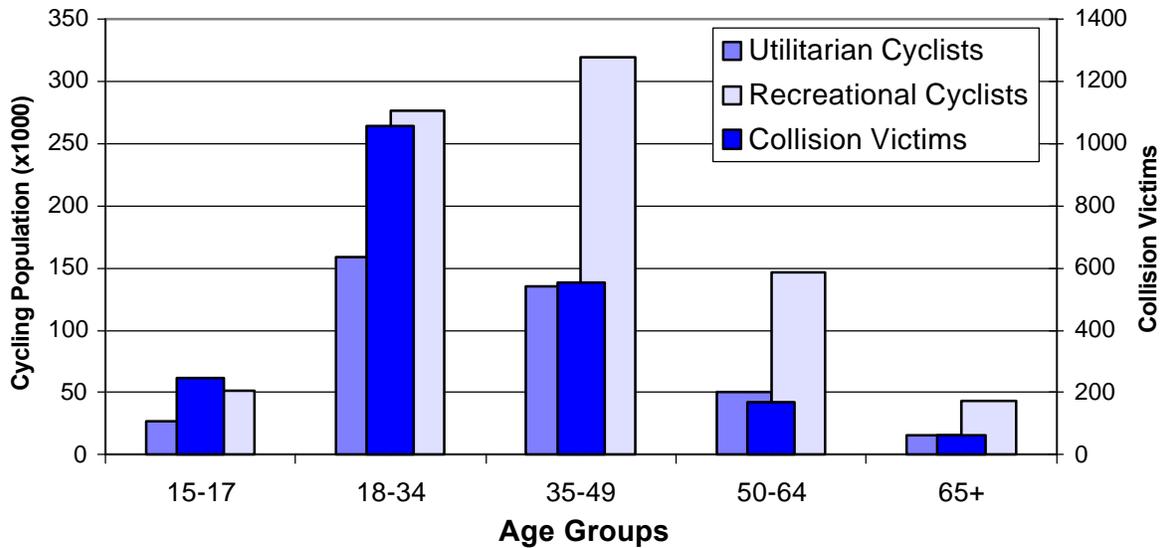
Figure 2.13
Collision Frequency by Type,
1997-1998

Collision Type	Frequency
Drive Out At Controlled Intersection	284
Motorist Overtaking	277
Motorist Opens Vehicle Door	276
Motorist Left Turn – Facing Cyclist	248
Motorist Right Turn (Not at Red Light)	224
Motorist Right Turn At Red Light	179
Drive Out From Lane or Driveway	179
Ride Out At Controlled Intersection	65
Wrong Way Cyclist	59
Ride Out From Sidewalk (Mid-block)	51
Motorist Left Turn – In Front Of Cyclist	48
Ride Out From Sidewalk (at Intersection)	44
Cyclist Lost Control	44
Cyclist Left Turn In Front Of Traffic	41
Cyclist Strikes Stopped Vehicle	39
Motorist Reversing	37
Cyclist Overtaking	31
Cyclist Caught in Intersection	30
Ride Out From Lane or Driveway	29
Drive Into/Out of On-Street Parking	28
Cyclist Left Turn – Facing Traffic	11
Other (Not classified)	101
Total:	2,325

collided with motorists turning right at red lights were most often riding off the sidewalk into the crosswalk (86%). Sidewalk cycling also contributed to 81 percent of collisions in which the motorist was driving out from a lane or driveway, and 51 percent of collisions in which the motorist was driving out at a controlled intersection.

The age profile of cyclists involved in reported collisions is similar to the age profile of Toronto’s utilitarian cyclist population, except that cyclists between the ages of 18 and 34 are over-represented. Cyclists under 18 are only slightly over-represented (**Figure 2.14**).

Figure 2.14
Cyclist Age: Collision Victims vs. City Cycling Population



Males are more often involved in collisions than females, partly because they cycle more, on average. Approximately 60 percent of Toronto’s utilitarian cyclists are male, but males accounted for 77 percent of the cyclists involved in collisions.

More effective safety measures include improved training and education of motorists and cyclists; stricter enforcement of traffic regulations, particularly those that have a demonstrable impact on safety; and infrastructure improvements such as bike lanes. The findings of the collision study indicate that particular age groups are more likely to become involved in certain types of collisions. This information could be used in the development of cycling skills training and public awareness campaigns. Other findings may assist the police, by pointing out the type of driving and cycling behaviour that appears to contribute most significantly to the occurrence of collisions. Geographic analysis of the collision data is expected to highlight specific locations that could benefit from engineering measures.

Chapter 6 provides further discussion on educational measures to reduce the number of cycling collisions.

2.4 Cycling and Other Transportation Modes

The previous section focussed on current levels of cycling in Toronto. Yet cycling is but one of several transportation options available to Torontonians, including public transit, the automobile and walking. Public policies and funding to encourage cycling have a dramatic impact on the popularity of cycling for urban travel. **Figure 2.15** shows the percent of cycling trips in western countries varies from one percent to 30 percent.

The one percent bicycle modal share for Canada is consistent with the 1996 Canada “journey-to-work” census data for Toronto. However, Toronto has a significantly higher proportion of public transit trips (22%) than the rest of Canada, and a correspondingly lower proportion of auto trips (68%).

Figure 2.15
 Modal Split Distributions for Urban Travel in Europe and North America⁸

Country (ranked by bicycle use)	Percent of Trips by Travel Mode (all trip purposes)				
	Bicycle	Walking	Public Transport	Auto	Other
Netherlands	30	18	5	45	2
Denmark	20	21	14	42	3
Germany (Western)	12	22	16	49	1
Switzerland	10	29	20	38	3
Sweden	10	39	11	36	4
Austria	9	31	13	39	8
Germany (Eastern)	8	29	14	48	1
England and Wales	8	12	14	62	4
France	5	30	12	47	6
Italy	5	28	16	42	9
Canada	1	10	14	74	1
U.S.A.	1	9	3	84	3

Several explanations for the high variability in cycling popularity among countries are worth reviewing:

- Weather – Toronto’s winter weather is often cited as an insurmountable barrier to making cycling a significant transportation option. Yet, Sweden and Denmark both have similar, if not harsher, winters.
- Auto Ownership – Does the low level of cycling in North America simply mirror the high level of auto ownership? This explanation assumes a strong correlation between access to a car and low cycling activity. However, auto ownership in Western Europe has approached North American levels, yet cycling still remains a significant travel option.

- Trip Length – North Americans typically travel further to work, reflecting the lower densities of Canadian and American cities. This reason could explain part of the discrepancy since urban trips in the U.S.A. are some 50 percent longer than in Western Europe.⁹ (This factor is further discussed in Chapter 8 – Cycling and Transit.) Yet, even in the United States, 40 percent of all trips are three kilometres or less.¹⁰

A recent review of cycling popularity in North America summarizes these issues as follows:

All these [Western] European countries have very high standards of living, and all have experienced rising incomes, growing auto ownership, and rapid

⁸ Pucher, J., *Bicycling Boom in Germany: A Revival Engineered by Public Policy*, Transportation Quarterly 51(4), 1997, 31-46.

⁹ Kenworthy, J., F. Laube, P. Newman, & P. Barter, *Indicators of Transport Efficiency in 37 Global Cities*, (Washington, D.C., The World Bank, 1997).

¹⁰ U.S. Department of Transportation, *Nationwide Personal Transportation Survey*, (Washington, D.C., 1992).

*suburbanization. Yet cycling is thriving in this environment, primarily due to long term commitments to enhance the safety, speed and convenience of cycling while making driving more difficult and expensive.*¹¹

Munich, the third largest city in Germany, provides a good example of the importance of public policy for increasing cycling as a travel mode.¹² Its cycling modal share has more than doubled from 6 percent in 1976 to 15 percent in 1992. Munich achieved this increase partly through the doubling of the bikeway network to 644 kilometres and other bicycle-friendly initiatives. Other cities, such as Muenster with a cycling modal share of 32 percent, have installed priority signals for bicycles and extensive facilities for combined bicycle/transit trips.

The other key to the high German cycling popularity is the extensive use of auto-reduction measures, including:

- traffic calming in most residential neighbourhoods;
- auto-restricted zones in the old town centres and major shopping districts;
- expensive and rare auto parking; and
- taxation policies which penalize auto use.

The “carrot and stick” approach used by German cities to encourage cycling has yet to be applied in North America. The passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991 initiated a new era of spending on bicycle infrastructure in the United States. From 1991 to 1997, \$972 million in federal funds were spent on cycling facilities,

primarily off-road paths.¹³ Only \$41 million had been spent on bicycle and pedestrian facilities in the previous 20 years.

The American “carrot-only” approach has not yet resulted in significant gains in cycling as a transportation mode. One explanation for this may be the pre-eminent place of the car in American urban life, with 84 percent of all trips made by auto. This auto-dependence poses three challenges to increases in cycling:

- No culture of cycling – cycling is simply not considered to be a transportation option by most Americans. Utilitarian cyclists are rare and, with the increase in off-road paths, rarely seen by motorists.
- Auto-based urban form – city designs that serve the motorist, such as expressways and strip malls, often create barriers for cyclists.
- Political reluctance to penalize auto-use – when unrestricted auto use is viewed as a basic freedom by the electorate, lawmakers are hesitant to enact measures to limit this freedom.

With an auto modal share of 68 percent, Toronto’s auto-dependence lies halfway between European and American cities. This unique position allows Toronto to become a North American leader in public policy initiatives to improve cycling. Such initiatives can build on European successes, while remaining sensitive to Toronto’s different culture, urban form and political support.

¹¹ Pucher, J., C. Komanoff, P. Schimek, *Bicycling Renaissance in North America? Recent Trends and Alternative Policies to Promote Bicycling*, Transportation Research A 33(7/8), 1999, 625-654.

¹² Pucher, 1997.

¹³ Pucher, 1999.

3 Plan Overview

3.1 The Toronto Bike Plan

The Toronto Bike Plan (TBP) has been designed to be a living document that is flexible and capable of evolving over time. It will serve to manage and maintain existing programs and infrastructure, while guiding the development and implementation of new and or improved cycling programs and facilities. Implementation of the TBP 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 TBP, a clear direction for cycling in Toronto has emerged. This direction has been captured in a Plan that the City is confident will re-establish Toronto's position as the best cycling city in North America.

The Plan

The Toronto Bike Plan is more than a proposed network of bikeway facilities. It sets out a vision for cycling that is supported by a comprehensive set of principles, objectives and recommendations that address the need for education and promotion as well as the provision of facilities.

Vision

The vision for the Toronto Bike Plan is to create a safe, comfortable and bicycle friendly environment in Toronto, which encourages people of all ages to use bicycles for everyday transportation and enjoyment.

Primary Goals

The primary goals of the TBP are:

-  to double the number of bicycle trips made in the City of Toronto, as a percentage of total trips, by 2011; and
-  to reduce the number of bicycle collisions and injuries.

The Plan is structured along six key components, which is analogous to "six integral spokes". The six spokes are integrated through a common implementation strategy, represented by the hub of the wheel. Like the spokes of a bicycle wheel, all six spokes must work together to achieve the two primary goals and realize the vision of a Bicycle Friendly City.

Principles and Objectives

The City's physical environment as well as social and economic factors influence the ways people choose to get around. To achieve the vision of a more Bicycle Friendly City, the six spokes detail a multi-faceted strategy to build both physical and social infrastructure to support cycling. Each spoke is based on a guiding principle, which describes the overall importance of this component to the whole plan. Each principle is supported by a set of objectives to measure success.

“The Toronto Bike Plan has been designed to be a living document that is flexible and capable of evolving over time.”

The Six Spokes

- Bicycle Friendly Streets
- Bikeway Network
- Safety and Education
- Promotion
- Cycling and Transit
- Bicycle Parking



Bicycle Friendly Streets (Chapter 4)

Principle:

Every Toronto Street is a Cycling Street.

Objectives:

The City of Toronto will:

- Ensure that transportation policies, practices and regulations support increased bicycle safety and access for intersections, roadways, bridges and underpasses;
- Expand and improve road maintenance programs to enhance cyclist safety, access and comfort; and
- Ensure that cyclist safety, access and comfort are maintained through or around construction zones.

Bikeway Network (Chapter 5)

Principle:

All Toronto residents will be within a five minute bicycle ride to the bikeway network.

Objectives:

The City of Toronto will:

- Complete the bikeway network in 10 years;
- Ensure the safe and comfortable year round operation of bikeways through design, signage, enforcement and maintenance; and
- Connect Toronto’s network to bikeways in adjacent municipalities.

Safety and Education (Chapter 6)

Principle:

Through education, create an environment where people can cycle on Toronto streets without the fear of injury.

Objectives:

The City of Toronto will:

- Develop innovative ways, such as public/private partnerships, to fund and sustain safety education programs;
- Expand the CAN-BIKE program, including developing a unit for drivers;
- Establish a protocol in response to cycling collisions; and
- Work co-operatively with outside agencies to deliver messages about safe cycling in Toronto.

Promotion (Chapter 7)

Principle:

Every bicycle trip improves the quality of life for all Torontonians.

Objectives:

The City of Toronto will:

- Encourage cycling for everyday transportation;
- Promote cycling to a wide audience via effective use of media and public outreach;
- Demonstrate leadership through innovative policies and facilities that encourage City employees to cycle; and
- Market Toronto as a cycling tourist destination.

Cycling and Transit Links (Chapter 8)

Principle:

Bike-and-ride expands the choices for non-auto trips.

Objectives:

The City of Toronto will:

- Improve bicycle accommodation on transit vehicles;
- Improve bicycle parking facilities at transit stations;
- Improve bicycle access to transit stations; and
- Increase promotion of bike-and-ride.

Bicycle Parking (Chapter 9)

Principle:

Secure and convenient bicycle parking must be available at all cycling destinations to encourage and support cycling.

Objectives:

The City of Toronto will:

- Expand the basic bicycle parking program to serve all public cycling destinations;
- Develop and provide enhanced bicycle parking facilities which provide security from theft and protection from the elements;
- Require and encourage the private sector to provide bicycle parking at their buildings; and
- Develop effective strategies to prevent bicycle theft.

Strategies for achieving the objectives for each of the spokes are outlined in detail in the following six chapters.

4 Bicycle Friendly Streets

4.1 Guiding Principle and Objectives

Bicycles are recognized as vehicles under the Highway Traffic Act, and as such, should be afforded the same consideration as motor vehicles on the City's street system. In addition, characteristics that make bicycles so environmentally friendly and practical for short trips, also make cyclists more vulnerable to collisions and injuries, particularly when sharing roads with motor vehicles. The 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.

As part of the Toronto Bike Plan, the City will be developing and implementing a bikeway network system, as outlined in Chapter 5. This network is comprised of facilities that are specifically designed to encourage cycling and enhance the safety of cyclists. While the bikeway network will go a long way towards improving the cycling environment in Toronto, the City's efforts will not be focused solely on these principal cycling routes. With the exception of expressways, cyclists use all the streets in the City, including arterial, collector and local roads. Every street should be made as safe and comfortable for cyclists as possible.

Therefore, the guiding principle for this component of the Toronto Bike Plan is:

Every Toronto Street is a Cycling Street.

This effort to make streets more bicycle friendly is consistent with the transportation vision for the City articulated by the Official Plan report, Toronto at the Crossroads (2000) and the

emerging Waterfront Plan. One of the key attributes of the vision is "traffic engineering and street design that encourage walking and cycling."

The achievement of the City's new transportation vision will require changes to the City's day-to-day transportation practices and policies. Our system has evolved over the past several decades in response to increasing car use, longer trip distances and suburban development. Over this period, facility planning, design, construction and operations have generally favoured the movement of motor vehicles over other forms of transportation.

The City's accommodation of bicycles on the road has also evolved over the past two decades. Prior to amalgamation, the former municipalities had adopted a variety of operating practices and policies to make their streets more bicycle friendly. These include bike lanes, wider curb lanes, safer catchbasin grates, exemptions to some traffic regulations and traffic signals that detect and respond to bicycles.

In the 1999 Cycling Survey, just over half of the cyclists rated Toronto's cycling routes and facilities as good, very good or excellent. However, cycling comfort levels on the overall road system does not rate as highly. Only 12 percent of recreational cyclists and 26 percent of utilitarian cyclists are comfortable on major roads without bike lanes. Cyclists' perception of safety and comfort directly affects where and how frequently they cycle.

To achieve the two primary goals of the plan, doubling bike trips and reducing cyclist injuries, the design and operation of all roads must be made as safe and comfortable for cyclists as possible. The Toronto Bike Plan sets out a comprehensive approach to ensure that "best practices" are both expanded and extended city-wide. The rest of this chapter will outline the strategy for achieving the following objectives in creating bicycle friendly streets:

Objectives:

The City of Toronto will:

- Ensure that transportation policies, practices and regulations support increased bicycle safety and access for intersections, roadways, bridges and underpasses;
- Expand and improve road maintenance programs to enhance cyclist safety, access and comfort; and
- Ensure that cyclist safety, access and comfort are maintained through or around construction zones.

4.2 Transportation Policies, Practices and Regulations

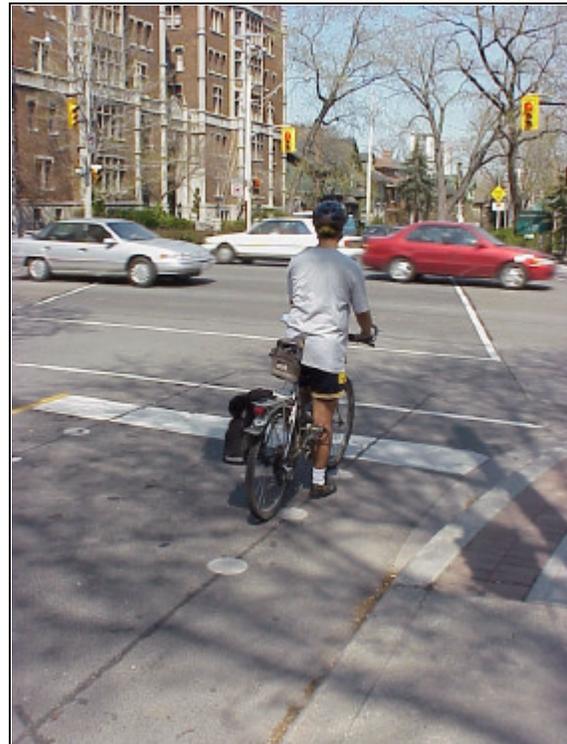
Bicycle friendly policies and practices focus on enhancing safety for cyclists and maintaining or improving access for bicycles. The special characteristics of the bicycle must be considered to ensure that cyclists are provided with the same level of service as drivers. Where appropriate, cyclists must also receive enhanced treatment not only on the roadway but also at intersections and especially on bridges and in underpasses.

Bicycle Actuated Signals

More than half of the existing 1,880 intersections that have traffic control signals are semi-actuated. At a semi-actuated intersection, 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. The majority of detectors are not set at a sensitivity level to detect the presence of a bicycle. This forces cyclists to either wait for a motor vehicle to arrive in order to actuate the

detector, or to dismount and depress the pedestrian push button.

The former Metro Transportation Department initiated a program in 1995 to adjust the sensitivity of the detectors at all semi-actuated intersections to detect bicycles. In the first phase of the implementation the sensitivity was adjusted at approximately 35 intersections that were located on existing bike routes. Three small white dots were also applied to the roadway to inform cyclists where to place their bicycle to be detected by the sensor loop. Since 1995, all new semi-actuated signals have been installed with the sensitivity set to detect bicycles.



Pavement Markings indicating Bicycle Actuation location

However, feedback from the Toronto Cycling Committee and the cycling public indicates that most cyclists 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 the loop detectors for bicycles is required to determine where improvements can be made. This might include the use of more distinct pavement markings or at least an improved promotion of the three “dots”. Alternative methods of detection should also be investigated as part of this review. Options which might be considered 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.



Bicycle Push-Button – Vancouver, BC

Recommendation

4-1: Improve Bicycle Detection at Traffic Signals

That the City continue to install bicycle actuation at all semi-actuated traffic signals, and investigate options for improving the effectiveness of bicycle detection.

Exempting Bicycles from Some Traffic Regulations

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



In the former City of Toronto, all intersections with traffic regulations intended to restrict motor vehicle access on local streets were reviewed in 1996, and the by-laws were amended to exempt bicycles where it was safe to do so. The signage was also changed to include a “bicycles excepted” tab. Across the rest of the City, revisions to these kinds of restrictions have been made on a case-by-case basis, usually as a result of a request from the public. In the interest of improving bicycle access, all existing restrictions will be reviewed and, where it is safe to do so, the by-laws will be amended to exempt bicycles. In addition, bicycle exemption will be provided at the time of implementation of any new restrictions.

Recommendation

4-2: Amend By-laws to Exempt Bicycles

That the City review existing turn and entry restrictions and, where it is safe to do so, amend the by-laws to exempt bicycles.

Roadway Design and Operation

When dealing with the design and operation of a roadway section, there is no single solution for making them bicycle friendly. One 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 section generally influences the measures that should be implemented.

As a first step in developing overall strategies for the roadway system, the Transportation Services Division has developed a road classification system based on function. Roads in the City have been classified in a hierarchical manner into five basic groups: local, collector,

minor arterials, major arterials and expressways. This hierarchy provides for a gradation in service with high traffic service levels and no access to abutting properties for the highest order roads (expressways), and conversely low traffic service levels but full property access for local roads.

Two of the primary criteria for the City’s roadway classification system are speed and volume of motor vehicles, both of which have a direct impact on the comfort level for cyclists. Generally, the higher the speed or volume of motor vehicles on a roadway, the less comfortable the environment is for cyclists. So as traffic service levels increase on the higher order roadways, they should be matched with a focus on improving the environment for cyclists.

Local and Collector Roads

Of the approximately 5,400 km of streets in the City, local and collector roads make up over 75 percent of Toronto’s street network (3,500 km local and 700 collector). With daily motor vehicle volumes of 2,500 or less, local residential streets are generally very comfortable for cyclists and do not require any special bicycle treatments. This is confirmed by the 1999 Cycling Survey in which 92 percent of utilitarian cyclists and 83 percent of recreational cyclists rated residential streets comfortable to ride on. Collector roads have volumes ranging from 2,500 to 8,000 vehicles per day, and are generally comfortable for most adult cyclists. Bicycle facilities are generally not required on lower volume collector roads but may be desirable on some higher volume roads.

There is tremendous pressure from residents to lower traffic speeds in residential areas of the City. The posted speed limits on local and collector roads are typically 40 or 50 km/h. Many parts of the former municipalities of East York, Toronto and York already have area-wide 40 km/h speed limits on local residential and collector roads. Slower traffic is intrinsically safer for pedestrians and cyclists, particularly for

children and inexperienced cyclists. Ongoing efforts to reduce speeds on these streets will make them more bicycle friendly.

Traffic calming measures are sometimes introduced to restore these streets to their intended function by reducing vehicle speeds, discouraging through traffic and generally improving the neighbourhood environment.



Moore Park Traffic Calming with Bicycle Access Maintained

Traffic calming can be in the form of traffic prohibitions or physical changes to road geometry such as speed humps, chicanes or raised medians. The overall objective of traffic calming is to reduce the negative effects of motor vehicles while improving conditions for other modes. All traffic calming measures should be sensitive to the needs of cyclists. Different traffic calming policies in the former municipalities provide a variety of measures that have been tried and implemented across the City.

The City is currently developing a new traffic calming policy to harmonize the best practices of the former municipalities. The design of future traffic calming measures will be based on the Transportation Association of Canada (TAC) Guidelines for Neighbourhood Traffic Calming. While these guidelines are 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 calming projects to ensure that alterations to the roadway have positive benefits for cyclists.

Recommendation

4-3: Enhance Safety and Maintain Access Through Traffic Calming Projects

That the City ensure that all new traffic calming projects enhance safety and maintain access for cyclists.

In the more urban areas of the City, designating local streets for one-way operation has often been used as part of traffic management strategies. These strategies are often inconvenient for local residents and can also be a barrier to cycling. Similar to turn and entry restrictions, the overall objective in these strategies is to reduce and manage the negative effects of motor vehicles and should not necessarily apply to bicycles. Providing safe and convenient bicycle access in downtown neighbourhood streets is very important. In many European cities, two-way bicycle traffic is permitted on local one-way streets.

In Ontario, the Highway Traffic Act does not permit two-way bicycle traffic on one-way streets except with the implementation of contra-flow bicycle lanes. Contra-flow bicycle lanes have been used in many jurisdictions, including a local example of Strathcona Avenue in Toronto, to provide two-way bicycle access on one-way streets. There is a need to further research regulatory and design options for prioritizing two-way bicycle access on one-way local streets.



Strathcona Avenue Contra-flow Bicycle Lane

Recommendation

4-4: Investigate Two-way Bike Access on One-way Streets

That the City investigate and implement solutions for allowing two-way bicycle access on one-way local streets that experience a low volume of motor vehicle traffic.

Arterial Roads

Minor arterial roads comprise approximately 400 km of roadway in the City, and typically have traffic volumes between 8,000 and 20,000 vehicles per day and speed limits of 50 to 60 km/h. Some downtown minor arterials have 40 km/h posted speed limits. As noted previously, most cyclists do not feel comfortable cycling on arterial roads without bike lanes due to the higher traffic speeds and volumes on these roads. As the speed differential between a car and bike increases, so does the level of discomfort for cyclists. But arterial roads also provide the most 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.

Major arterial roads comprise approximately 700 km of roadway in the City, and 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 lanes is difficult. While there are some sections that can be restriped to provide bike lanes while maintaining a suitable cross section for motor vehicles, for the most part a widening of the roadway would be required to provide bike lanes.

Where existing widths do not accommodate bike lanes, restriping lanes to provide more space in the curb lane is a cost effective measure to improve cycling conditions on arterial roads. A 4.0 m to 4.3 m width gives cyclists and drivers more space to share the curb lane. For arterial roads where parking is permitted in the curb lane in off-peak hours, this extra width also provides more space for cyclists to ride well away from the parked cars, and avoid doors being opened into their path.



Wide Curb Lane on Jarvis Street

Roadway reconstruction/rehabilitation projects provide good opportunities to improve the cycling environment on a roadway section. Depending on the available road right-of-way width, minor widenings would be possible to achieve wider curb lanes or potentially even bike lanes. The former Metro Transportation Department had a standing policy on any road resurfacing or reconstruction project to provide wide curb lanes (4.0 m to 4.3 m) wherever possible. This policy should be extended to all arterial roads, along with any other opportunities to provide wider curb lane widths for cyclists.

Recommendation

4-5: Provide Wide Curb Lanes on Arterial Roadways

That, during road resurfacing or reconstruction projects on arterial roadways, the City provide wide curb lanes, where possible.

Bridges and Underpasses

Bridges and underpasses are an important focus of improvements for cyclists. These structures provide the crossing points of major barriers for cyclists (rivers, rail corridors and expressways). By their nature and design, these structures are less bicycle friendly than the typical roadway



Example of a Narrow Underpass

section. Underpasses often have abutment walls in close proximity to the curb area. Higher crosswinds and 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 bikeway network. For many existing structures, providing a bicycle lane within the available width may be difficult to achieve. Some extra width in the curb area may be achievable at the time of reconstruction. Where width is not available for a bicycle lane, restriping should be considered to gain as much additional space in the curb lane as possible.

The construction/rehabilitation of all underpasses should also 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 to avoid these areas. A detailed review of all bridges and underpasses is required to determine where bicycle friendly features can be implemented.

Recommendation

4-6: Provide Bicycle Friendly Features for Bridges/Underpasses

That the City incorporate bicycle friendly features in bridge and underpass projects as part of the annual capital works program.

Road Maintenance and Repair Programs

As noted previously, the characteristics of bicycles (lightweight, narrow tires) make them more susceptible to irregularities in the roadway conditions than motor vehicles. Deterioration of the roadway surface (potholes or cracking) or even 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 cyclists.

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. Repairs of this nature cannot wait for a general resurfacing of the roadway.

The current practice for identifying these locations for repair relies mostly on requests from the public. Pothole and pavement repair requests can be reported through the Transportation Services Division's Road Information line (416-392-7737), with the investigation and repair of the problem completed as expeditiously as possible. However, the 1999 Cycling Survey showed that 63 percent of utilitarian cyclists and 60 percent of recreational cyclists felt that pothole and pavement repair by the City could be improved a great deal.



Example of Poor Pavement Repair – Gerrard at Sherbourne

The City is prepared to take advantage of cyclists' input to help identify pavement problems, but most cyclists do not know whom to call to report a problem. Other cities, such as Ottawa, produce wallet-sized cards with the appropriate numbers for cyclists to call to report problems. Portland and Chicago have an on-line reporting system on their City web-sites for reporting pothole/pavement problems. These and other means should be considered to both promote and improve the pavement repair process.

Recommendation

4-7: Develop a Pavement Repair Reporting System

That the City develop a pavement repair reporting system designed specifically to include cyclists.

Street Cleaning

The "sweeping" action of passing motor vehicles tends to push the debris from the travel lanes to the edge of the pavement. Since this is the area utilized by cyclists, they are most likely to encounter and be affected by this debris. Currently, roads are scheduled for cleaning based on roadway function as well as the potential for activity adjacent to the roadway to generate debris. For the most part, higher order roads in the downtown core are swept on a daily basis with major streets outside the downtown core swept on a weekly basis. The street cleaning program is in effect from April 1st to November 30th, however streets are also periodically cleaned during the winter months as weather permits. Although the streets are scheduled for fairly regular cleaning no priority is given to higher volume cycling streets.



Example of a Bike Lane Requiring Debris Removal

have the newer bicycle friendly catch basin grates. In addition, the former City of Toronto had an annual program to replace old style grates on all streets beginning with important cycling routes and in response to complaints by cyclists.

However, there is no accurate city-wide inventory of roads that are still in need of conversion. There is a need to develop an inventory so that this program can be harmonized across all Districts of the City. Catchbasin grates will continue to be replaced when roads are resurfaced or reconstructed. In addition, higher volume cycling streets would be addressed on a priority basis, beginning with roadways on the bikeway network.

The scheduling program is currently under review for harmonizing practices across the entire City. One of the objectives of this review should be to recognize and prioritize higher volume cycling streets for cleaning, especially roadways identified as part of the bikeway network.

Recommendation

4-8: Ensure Street Cleaning Practices Respond to Cyclists’ Needs

That the City ensure that the scheduled revision of street cleaning practices recognize and respond to the needs of cyclists.



Catchbasin Cover – former City of Toronto configuration

Bicycle Friendly Catchbasin Covers

Since the mid-1980’s, the City has been replacing old style catchbasin grates which could trap a bicycle wheel with bicycle friendly grates. These are routinely replaced (or, as in The Former City of North York, rotated 90°) when roads have been resurfaced or reconstructed. Most major arterial roads now



Catchbasin Cover – former Metro configuration

Recommendation

4-9: Continue Catchbasin Grate Replacement Program

That the City continue to replace catchbasin grates in all construction projects and on all City streets beginning with the bikeway network and popular cycling streets.

4.3 Accommodating Bicycles in Construction Zones

During construction/rehabilitation of a roadway, the environment through the construction zone, featuring rough pavement, narrow or restricted lanes and heavy machinery, can be particularly uncomfortable for a cyclist.

When reconstructing a roadway section, especially ones that have high bicycle volumes, it is important to maintain a safe and convenient access for bicycles through the construction zone. As a general principle, if access is maintained for motor vehicles, then access should also be maintained for bicycles. Ideally, the contractor should provide a temporary facility for bikes if space is available within the road allowance. While this is not always possible, alternatives to accommodate cyclists should always be considered. If phasing of the construction requires that access to the roadway is closed to vehicular and bicycle traffic at any time during construction, a well-signed detour route should be provided.

Temporary road conditions through the construction zone that are compatible with motor vehicles may not be compatible with bicycles. For example steel plates and timber decking are typically used to cover holes in the roadway. Steel plates should be coated with a non-slip surface and timber decking should be placed at right angles to prevent a bicycle wheel

from falling into the cracks. The current policy in the City of Ottawa is that the edge of any road cuts, whether for a resurfacing or for a utility cut, should be ramped to prevent falls or tire punctures by cyclists. This should be done immediately after the asphalt has been lifted.

Appropriate signage is also important in providing information to cyclists and drivers. Both the former City of Toronto and the former Metro Transportation Department developed signage to warn cyclists of construction conditions and also to direct cyclists through any detouring during construction. A review of this signage to determine both appropriate and consistent signage for construction projects across the new amalgamated City is required.

Recommendation

4-10: Review Practices for Cyclist Safety during Road Construction

That the City ensure the accommodation of cyclist safety and access during all road construction activities. This should include, but not be limited to:

- *construction notices posted on the City’s website;*
- *advance signing for construction activities;*
- *temporary conditions that are compatible with bicycles such as non-slip surfaces, ramped utility cuts and timber decking placed at right angles to direction of travel; and*
- *bicycle specific detours where appropriate.*

5 Bikeway Network

5.1 Guiding Principles and Objectives

As detailed in Chapter 4, one of the guiding principles of the Toronto Bike Plan is to make every Toronto street “bicycle friendly”. The bikeway network presented in this chapter takes this one step further by establishing priority routes with a formal bikeway facility to provide a higher level of comfort for cyclists. The proposed network routes, because they are very visible through their design, pavement markings and signage, will have an important role in encouraging cycling.

The 1999 Cycling Survey highlighted the critical importance of bikeways for achieving the Toronto Bicycle Plan goal of doubling the number of trips by 2011. More than nine in ten Toronto cyclists (93%) are comfortable cycling on bike trails or paths, more than eight in ten (87%) on residential streets, and more than five in ten (53%) on major roads with bike lanes. Less than two in ten cyclists (18%) are comfortable cycling on major roads without bike lanes.

The preference of many cyclists for bikeways was also clear from the survey response to the question, “What ONE thing do you feel the City or your employer or school could do to improve cycling in Toronto?” The top two responses requested more bikeways. Almost four in ten Toronto residents (38%) volunteered that adding more on-street bike lanes is the number one thing that would improve Toronto cycling. About one in seven (14%) of survey respondents believe that adding more off-street bike paths is the number one thing that would improve cycling.

The extensive use of existing bike lanes in the City of Toronto also confirms the popularity of bikeways. Before and after bicycle volume

counts on these facilities have shown an average 23 percent increase two years after installation. A 1994 survey of 767 cyclists using the bike lanes revealed that 85 percent felt that the lanes had made cycling on the affected street safer.¹

Given the importance of bikeways in encouraging more bicycle trips, the guiding principle of this spoke of the Toronto Bike Plan is:

All Toronto residents will be within a five minute bicycle ride to the bikeway network.



Bike Lane on St. George Street

¹ City of Toronto, Department of Public Works & the Environment, “Summary of Bike Lane Survey”, October 1, 1994.

The bikeway network will consist of three basic bikeway types:

- 1) **Bicycle Lanes** - these lanes are typically 1.5 m to 2 m wide, and designate a space on the roadway exclusively for the use of cyclists. Motor vehicles are not allowed to drive, park or stand in the bike lane, but right turning cars and trucks can enter the lane at intersections to complete their turn. Currently there are about 35 kilometres of bike lanes in the City.



On-Street Bike Lane

- 2) **Off-Road Paths** - these paths include trails through parks, along the boulevards of major arterial roads, and within hydro or rail corridors. Cyclists, in-line skaters and pedestrians often share these paths. There are 121 kilometres of existing major off-road paths in the bikeway network. Many other paths, while important, have not been included in the network because they generally serve only a particular neighbourhood or local area.
- 3) **Signed Routes** - Signed routes are typically installed on quiet, residential, local/collector streets. Such streets have a single lane in each direction, and daily traffic volumes generally less than 8,000 vehicles. Apart from 'bicycle route' signs, there are generally no physical changes made to the roadway. However, complementary measures to slow or divert motor vehicles

can be introduced at the same time. Where these streets intersect with an arterial road, traffic signals are typically provided to enable cyclists to cross safely.

Toronto already has some 166 kilometres of bikeways throughout the City (see **Figure 2.1**). The majority of these are off-road paths, which feature a considerable variety of pavement surfaces, pavement widths, terrain, lengths and lighting. The bikeway network will include these existing facilities, upgrading the paths to current standards, where feasible, to ensure a comfortable cycle.

The primary objectives of the Network component of the Toronto Bike Plan will have the City of Toronto:

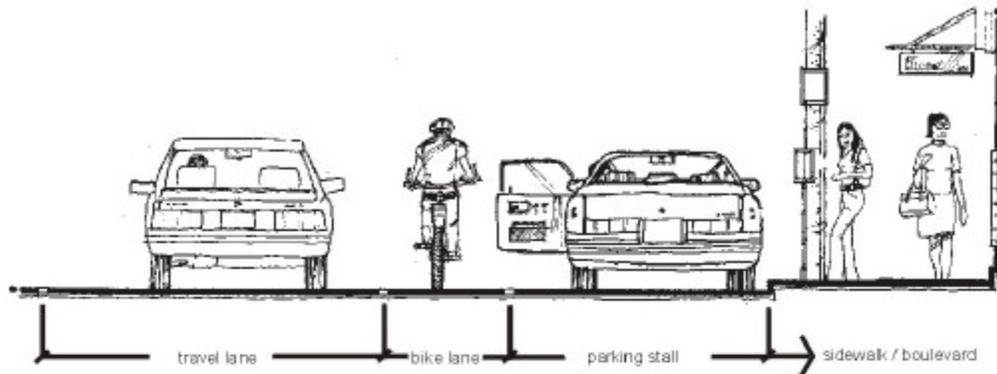
- Complete the bikeway network in 10 years;
- Ensure the safe and comfortable year round operation of bikeways through design, signage, enforcement and maintenance; and
- Connect Toronto's network to bikeways in adjacent municipalities.

The following sections will describe these objectives in detail and present specific recommendations.

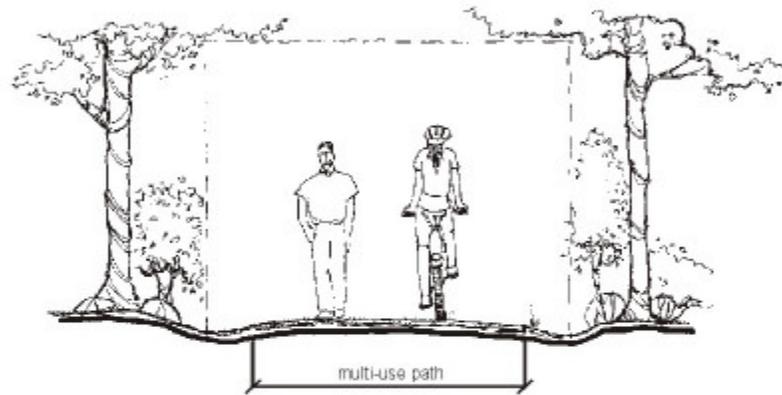


Martin Goodman Trail

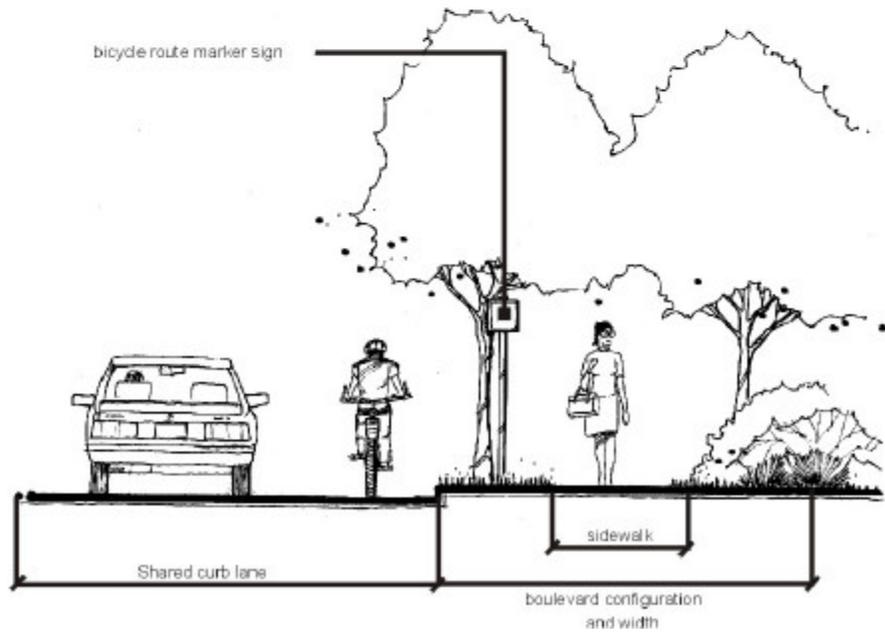
Bicycle Lanes



Off-Road Paths



Signed Routes



5.2 Complete the Bikeway Network in 10 years

A key element of the Toronto Bicycle Plan is the completion of the bikeway network, shown in **Figure 5.1**, by 2011. The proposed network will comprise approximately 1,000 kilometres of bikeways, consisting of:

- 495 kilometres of bike lanes;
- 249 kilometres of off-road paths; and
- 260 kilometres of signed routes.

Appendix A contains more detailed maps of the west, north, east and central parts of the bikeway network, as well as tabular information on each route.

The topology of the network reflects two complementary strategies:

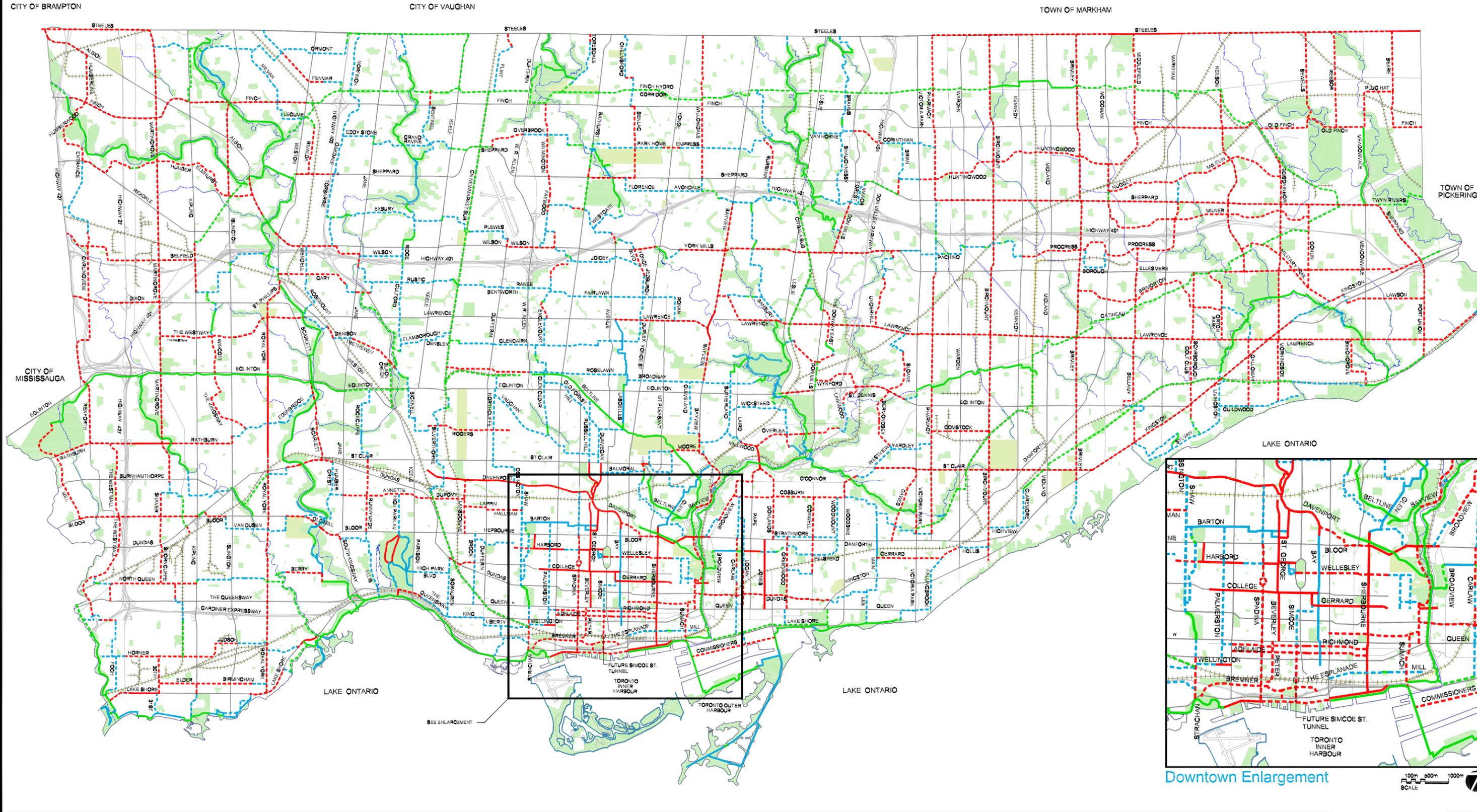
- 1) **Enhance the attractiveness of the existing major recreational off-road paths.** Toronto is blessed with several major off-road paths, including the Martin Goodman Trail plus the Humber and Don River trails. These function both as destinations for recreational cyclists and commuter routes for utilitarian cyclists. Their attractiveness can be improved by providing seamless connections to on-street components of the bikeway network. They can also be enhanced through facility upgrades such as widening and separation between bicycle and pedestrian use, where feasible.
- 2) **Develop a two kilometre grid of north-south and east-west routes.** As noted above, the guiding principle for the bikeway network is that it be accessible within a five minute bike ride from all residences. Assuming a moderate cycling speed of 12 km/h, a five minute ride would cover one kilometre. The proposed network has been designed with two kilometre spacing between parallel east-west and north-south routes.

The identification, assessment and selection of routes for the two kilometre grid involved a significant amount of data collection, field investigation and consultation. The following criteria were used in this process:

- **Connectivity/Continuity:** Does the route connect with major destinations in the area, such as a subway station, and does it connect with other routes in the network?
- **Directness:** Does the route provide a fairly linear or direct way for the cyclist to travel in a north-south or east-west orientation?
- **Safety:** Does the route provide protected crossings, such as traffic signals, at arterial roads? Does the route avoid situations where cyclists may feel unsafe or uncomfortable, for example, interchanges with the 400 series highways, or does it provide a safe crossing of such barriers?
- **Roadway Characteristics and Operation:** If the route travels along an arterial or collector street, can the existing cross-section accommodate bike lanes, taking into consideration pavement width, traffic volumes, parking demand and the number of traffic lanes?
- **Visibility:** Is the route visible to non-users so that they will be tempted to try it? A bike lane has the highest visibility, with its distinctive signs and pavement markings.



Waterfront Trail with Separate Cycling and Pedestrian Surfaces



Legend

- Existing Bike Lane
- - - Proposed Bike Lane
- Existing Signed Route
- - - Proposed Signed Route
- Existing Off-Road
- - - Proposed Off-Road
- Public Parkland
- Cemeteries
- ~ Watercourse
- - - - - Existing Rail Line



Downtown Enlargement

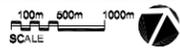


Figure 5.1:
Proposed Bikeway Network
TORONTO BIKE PLAN

The Toronto Cycling Committee and City staff were consulted extensively in the development of the bikeway network. Two series of public open houses were held; the first helped to identify candidate routes, and the second provided comments on the draft bikeway network. A summary of the consultation process is provided in Appendix B; details are included in the Technical Appendix, under separate cover.

Some 120 kilometres of new off-road paths are included in the bikeway network. Most of these paths have been identified and reviewed as part of the Inventory of Cycling Trail Opportunities in Rail and Hydro Corridors.² The second phase of this study, recently completed, has developed recommended alignments and cost estimates, and identified implementation issues with the higher priority locations.

One of the off-road path issues that requires additional investigation is the crossing of arterial roads at currently unsignalized locations. The provision of protected crossings is essential to the safe operation of these paths. As the existing signal warrant process employed by the City of Toronto does not address path/arterial intersections, one option is to develop a new warrant to assess the need for traffic signals at such locations.

Another path issue raised at several of the Toronto Bicycle Plan public meetings is a desire to physically separate bicycle and pedestrian traffic. This is an important consideration in high activity areas, such as along the waterfront and in some of the major valley paths. This study did not attempt to identify specific locations where parallel paths should be considered. This issue should be reviewed on an individual basis when new paths are designed and when existing paths are upgraded.

As can be expected in a built-up urban environment, the development of bike lanes within the constraints of existing roadways is a major challenge. In most instances, the City has taken a pragmatic approach, recommending bicycle lanes where they can be installed with minimal impacts on other road users. In these cases, bicycle lanes can be achieved either by reducing the number of traffic lanes or narrowing traffic lanes. As a general principle, widening roads to provide bike lanes is not practical in the downtown core or in residential areas. However, on some roadways, minor widenings may be feasible at the time of reconstruction.

Despite attempts to minimize impacts on other road users, there are inevitably going to be some locations where providing a continuous bike lane will involve trade-offs. For example, at some signalized intersections the reduction of traffic lanes may affect motor vehicle capacity and result in a lower level of service for drivers. In such instances, it has been City practice to discontinue the bike lanes in the vicinity of the intersection to maintain sufficient motor vehicle capacity.

In several of the Toronto Bike Plan public meetings, cyclists advised that these discontinuous bike lanes significantly reduce their comfort level and detract from the attractiveness of the entire bikeway route. As noted in Chapter 2, bicycle lanes are a key component in improving cycling in Toronto, and thereby achieving the goal of doubling the number of bicycle trips. In light of this, and the very small number of the city's 1,880 signalized intersections that would incur a lower level of service for motorists, the current practice should be reviewed with a goal of providing the highest possible level of service for cyclists on bikeway streets.

There were also a handful of locations in the City of Toronto where the two kilometre grid was not achieved. One example is the area south of Harbord Street and west of Ossington

² City of Toronto, 1998.

Avenue. The continuous east-west roads feature narrow four-lane cross-sections with streetcars and on-street parking. Such roads cannot accommodate bike lanes without a negative impact on public transit. Signed routes are also difficult to establish, given the labyrinth of one-way local streets and dead-ends caused by the rail corridors which divide the neighbourhoods. These locations will be further investigated as opportunities arise.

It should be emphasized that the proposed bikeway network is a planning tool. The network will evolve as new opportunities and challenges present themselves. Moreover, the bikeway type and alignment of each route will require more detailed design and analysis, as well as consultation with affected residents and businesses, before actual installation.

“...the bikeway type and alignment of each route will require more detailed design and analysis, as well as consultation with affected residents and businesses, before actual installation.”

Two routes in the bikeway network merit special attention because they satisfy important cyclist needs, and are representative of the different challenges in building a city-wide network:

**Finch Hydro Corridor Off-Road Path
(Route # N-15)**

This proposed hydro corridor path extends for approximately 30 km from Kipling Avenue in the City’s west end to Neilson Road in the east, situated some 500 metres north of Finch Avenue over most of this distance. The corridor typically consists of green space up to 100 metres wide with hydroelectric towers spaced every 250 metres. An off-road path in this corridor will provide connections across the “top” of the City to the Humber River, Black Creek and Don River trails. It will also serve

commuter cyclists travelling to and from York University, the Finch subway station, Seneca College and the office towers in the vicinity of Highway 404 and McNicoll Avenue. A path along the Finch Hydro corridor would also provide an important link for existing residential and commercial developments in the Finch corridor as well as future developments, including the mixed use Morningside Heights development.



Finch Hydro Corridor

The completion of this route will require new cyclist/pedestrian bridges over Highways 400 and 404, and new signalized crossings of major arterials such as Bathurst Street. The City of Toronto will need to work closely with Hydro One Networks, owners of the corridor, to complete this critical bikeway.

**Richmond – Adelaide Bicycle Lanes
(Route # T-42, T-43)**

The downtown core, probably the most important destination in the City, already attracts a high number of bicycle commuters. The 1993 Central Area Cordon Count showed some 15,000 cyclists travelling to and from the downtown on a weekday in good weather. Yet there is currently no other east-west bikeway between the College/Gerrard bike lanes and the Martin Goodman Trail along the waterfront. More downtown commuters will be encouraged to cycle if an east-west bikeway in the Richmond-Adelaide corridor were provided.

One design option which has been successful in Montreal is the installation of a two-way bicycle facility in the curb lane of one of these streets. The bicycle lanes are separated from motor vehicle traffic by a raised median, and cyclists are provided with a separate signal phase.

It is proposed that a separate study be undertaken by the City to determine the need and justification for an east-west bikeway in the Richmond-Adelaide corridor. This proposed study should identify issues, consult with the public and stakeholders and develop, assess and cost potential route and design alternatives.

The completion of the bikeway network by 2011 is a major undertaking by the City of Toronto's Transportation Services Division as well as the Parks and Recreation Division and the Policy and Development Division of Economic Development, Culture and Tourism. Included in this effort are:

- the installation of 460 kilometres of new bicycle lanes (\$11.6 million);
- the designation of 260 kilometres of signed routes (\$1.5 million);
- the construction of 31 kilometres of off-road paths within road rights-of-way and boulevards (\$14.3 million);
- the construction of 82 kilometres of off-road paths within utility corridors (\$26.6 million);



Railway Bridge over Dupont Street, east of Dundas Street

- the construction of 15 kilometres of off-road paths within the City's parks system (\$12.8 million); and
- the ongoing maintenance of off-road and on-road bikeways.

The upgrading of existing off-road paths will include some or all of the following:

- changing the path surface to asphalt;
- widening the path to at least 3.5 metres; and
- installing a separate path/sidewalk for pedestrians along heavily used routes.

The lighting of off-road paths is an important step in increasing utilitarian cycling trips. For a large part of the year, cyclists commute to work either before the sun rises or after it sets. At these times, a well-lit path provides an attractive option. However, the vast majority of existing paths do not feature lighting. The installation of lighting for both new off-road paths and existing off-road paths would be a major cost component of the network. If it was determined that all paths in the network should be lit, this effort would cost in the order of \$25 million.

In addition to the significant costs, there are some major unresolved policy issues associated with path lighting, including:

- impact on the security of path users; and
- impact on nocturnal wildlife in the vicinity of the paths.

These, and other issues, need to be resolved before a path lighting policy for the off-road paths in the bikeway network can be approved. The projected cost estimates for implementing the bikeway network do not include lighting. In the interim, bikeway lighting costs will be determined on a project by project basis.

The total cost for completing the bikeway network is estimated to be \$66.8 million.

Recommendation

5-1: Implement a Bikeway Network

That the City of Toronto implement a 1,000 km bikeway network.

The implementation of some elements of the bikeway network will entail innovative designs. The TBP proposal to include two-way bike lanes on Adelaide and/or Richmond Streets is one example of an innovative design solution. The experiences of European and other North American cities will be reviewed to help resolve the various design challenges at specific locations.

One example of such innovative designs is the coloured bicycle lane, a treatment used extensively in Denmark and the Netherlands, and to a lesser extent in Montreal. The City of Portland, Oregon has recently completed a detailed assessment of “blue” bicycle lanes for defining the right-of-way when right-turning vehicles cross a bicycle lane. The Portland study showed a significant improvement in the number of motorists yielding to cyclists.



Blue Bike Lanes – Portland, Oregon

Vancouver, BC has an innovative treatment which increases the cycling comfort of signed routes on local streets. Only cyclists are allowed to travel straight through at selected intersections, while motorists must turn left or right. This technique still allows motorists to access all residences and business within a block, but prohibits them from using the signed bike route as a continuous through route. Thus motor vehicle volumes are kept very low.

Other instances where innovative designs may be required are:

- intersections of off-road paths and arterial roads;
- bicycle lane crossings of expressway ramps;
- intersections which require the cyclist to turn left to continue in the bikeway; and
- bicycle lane locations with frequent illegally parked and stopped vehicles.

The prevalence of parked and stopped vehicles in many of the downtown bicycle lanes seriously undermines the effectiveness of these facilities. While enforcement, discussed later in this chapter, can reduce the problem somewhat, the design of the bike lanes can also be modified. Such modifications can either strengthen the message that motor vehicles are not allowed to park, or make it physically impossible for such vehicles to enter the bicycle lane.

Recommendation

5-2: Demonstrate Innovative Designs

That the City research, design and demonstrate innovative measures to enhance the bikeway network.

In order for cyclists to effectively use the bikeway network, their information needs must be met both before and during a trip.

Pre-trip information needs include:

- assistance in planning a route in relation to the trip’s origin and destination;
- warnings of unusual route features such as steep grades;
- identification of particularly scenic routes for primarily recreational purposes;
- up-to-date listings of route detours or closures; and
- identification of the bikeway type (e.g. signed route).

Enroute information needs include:

- selecting the correct direction at an intersection;
- determining distance travelled and distance still to go;
- locating amenities, such as washrooms;
- identifying major destinations and landmarks; and
- locating network connections to enable easy change-of-trip destination or routing.

The most basic component of a bikeway information system, a map, can satisfy many of the pre-trip and enroute information needs. A second component, bikeway signs, will complement the information on the map, yet ‘stand alone’ for bikeway users who do not have a map. The information system can also include information boards at major entry points or bikeway intersections, and a website containing detailed maps and up-to-date route status reports. For example, the City of Houston,

Texas maintains a website for its bikeway network, and produces a quarterly update newsletter.



Source: City of Houston Website
<http://www.ci.houston.tx.us/departme/works/bikeways>

Recommendation

5-3: Develop Bikeway Network Information System

That the City develop a bikeway network information system, including maps, signs, information boards and the City’s website.

5.3 Maintain Bikeways to Ensure Safe Operation

The physical condition of bicycle lanes, off-road paths and signed routes is a key factor in any decision to ride a bike for utilitarian or recreational purposes. If, for example, an off-road path remains littered with broken branches for several days after a windstorm, many potential users will either chose a different travel mode or a less comfortable, but cleared, cycling route.

As detailed in Chapter 4, on-street maintenance needs for cyclists are more stringent than for motorists because a cyclist is riding on two narrow, high-pressure tires. What may appear to be an adequate roadway surface for automobiles (with four wide, low-pressure tires) can be treacherous for cyclists. Fairly small rocks or a small patch of ice can deflect a wheel, a minor ridge or expansion joint in the pavement can cause a spill, a pothole can cause a wheel rim to bend, and glass can puncture a tire. Wet leaves are slippery and can cause a cyclist to fall. The gravel that is blown off the travel lane by traffic accumulates against the curb in the area where cyclists are riding.

Many North American cities have adopted a reactive approach to bikeway maintenance. Cyclists are encouraged to contact City staff and report potholes, worn pavement markings, missing signs, etc. While a similar program will be adopted in Toronto, it needs to be supplemented by a more proactive strategy based on the City’s approach to road maintenance. City of Toronto staff or contractors perform the following duties in maintaining the road network:

- regular sweeping and flushing of the road surface;
- winter snow clearing and salting;
- pothole inspection and repair; and
- leaf collection.

A similar maintenance commitment is required for the 1,000 kilometre bikeway network to ensure that cycling becomes an attractive year-round travel option.

The maintenance of the bikeway network will consist of three distinct functions:

1) Ongoing inspection and repair of pavement surfaces, bikeway signs and amenities

For off-road paths, this will include:

- ❑ regular sweeping of the surface;
- ❑ removal of overgrown vegetation;
- ❑ replacement of damaged or missing signs;
- ❑ replacement of broken lighting; and
- ❑ a re-painting program for any pavement markings.

For bicycle lanes and signed routes, such maintenance will be incorporated in the overall street maintenance program, with special emphasis given to the two metres adjacent to the curb. Special priority for leaf removal in the fall will be given to streets with bikeways.

2) Quick restoration of the bikeway after an adverse event

Adverse events are typically weather-related, such as a major snowfall. The City of Toronto’s Snow Removal Plan does not currently include maintenance of bikeways. Most off-road paths are not cleared of snow or ice. Streets with bike lanes or signed routes receive no special snow removal priority.

With improved winter maintenance, bikeways could perform an important transportation function for year-round cyclists. Clearing snow from bike lanes can be incorporated into the City’s existing roadway winter maintenance program. Transportation Services will review current

practices with a view to establishing a new policy for winter maintenance of on-road bike lanes. However, Parks and Recreation and Transportation Services currently do not clear snow and ice from most off-road bikeways.

Several policy issues must be resolved before a new snow clearing policy for off-road bikeways can be approved. Clearing snow from all off-road paths would be a major new operating cost for the network. Is this a cost-effective practice for paths which may have low winter use? In addition to the significant costs, there is a concern that it may be very difficult to maintain a safe path surface in the winter months, particularly in more remote areas of the network. The use of salt is not recommended in park settings for environmental reasons. Any change in the current policy must respect the interests of all park users. Clearance of snow from a bike path, for example, may negatively affect cross-country skiers.

One option may be to provide winter maintenance only on the off-road facilities which serve a major bicycle commuter function, such as the waterfront Martin Goodman Trail. As with the current sidewalk clearing policy, it may be desirable to prioritize the bikeway network routes, to ensure high-demand sections are cleared of snow first. All of the above issues will be considered as part of a review of winter maintenance policies for both on-road and off-road bikeways.

Special inspections of the bikeway are also required after a windstorm or major rainfall. As was demonstrated in May, 2000, a major rainfall can make the river valley paths impassable and, in some instances, destroy the paths and bridges. There is a strong need to restore such paths quickly, as there is often no obvious alternative routing available to path users. Until the restoration

is completed, path users should be provided with information on detours and restoration completion dates.

Further review is required by Transportation and Parks staff to establish appropriate policies respecting maintenance of on-road and off-road bikeways. This review must address all issues, including cost implications.

3) Special consideration during and after construction activity

When a bike lane or signed route is closed for construction, the needs of cyclists must be given special consideration to ensure bicycle access is maintained at all times. This may result in a separate detour route for cyclists.

As noted previously, cyclists are more sensitive to pavement conditions than motorists. As a result, special care is required when pavement patches or utility cuts affect a bike lane or a signed route. Toronto should adopt guidelines similar to the following employed by the State of Oregon:

Utility Cuts

Utility cuts can leave a rough surface for cyclists if not back-filled carefully. Sidewalk cuts should be finished as smooth as a new sidewalk.

Recommendations

- *Wherever possible, place cut line in an area that will not interfere with bicycle travel;*
- *Back fill cuts in bikeways flush with the surface (humps will not get packed down by bicycle traffic);*
- *Ensure that cuts parallel to bicycle traffic don't leave a ridge or groove in the bicycle wheel track; and*

- *Back fill cuts in sidewalks with concrete, flush with the sidewalk grade.*³



Source: *Bicycle Detour Sign, Bikeway Traffic Control Guidelines for Canada, TAC, 1998*

Recommendation

5-4: Improve Bikeway Maintenance to Ensure Safe Operation

That the City maintain the bikeway network throughout the year, including:

- *ongoing inspection and remediation of pavement surfaces, bikeway signs and amenities;*
- *quick restoration of bikeways after an adverse event; and*
- *the review and development of policies for winter maintenance of bikeways on the roadway and off-road paths.*

While the 1999 Cycling Survey demonstrates the popularity of bicycle lanes and off-road paths, special efforts are necessary to ensure that they operate safely. A 1995 survey of some 1,200 Toronto commuter cyclists included questions about where (road, sidewalk or path) and how (collision or fall) they were injured.⁴

These cyclists were two times more likely to be injured while travelling on a kilometre of path than if they were travelling on a kilometre of road. Studies in other jurisdictions have also revealed higher injury rates for cyclists using off-road paths.

The higher injury rate on off-road paths is a combination of several factors:

- paths have a higher percentage of inexperienced cyclists;
- many paths are shared with pedestrians and in-line skaters;
- the rules of the road (e.g. keep to the right) are often ignored on paths;
- paths are often not wide enough or have poor sightlines; and
- path/roadway intersections often do not identify the right-of-way.

Cyclist injuries on off-road paths are not included in the Police Collision Database unless they involve a motor vehicle, typically at a path/roadway intersection. As a result, it has been estimated that over 80 percent of bicycle injuries on paths are not reported. Alternative methods of recording such path injuries need to be investigated. This may be as simple as providing a telephone number for cyclists to log the location of path injuries and contributing conditions.

³ Oregon Department of Transportation, Bikeway & Walkway Maintenance, www.odot.state.or.us/techserv/bikeplan/plan_text/maintenc.htm

⁴ Aultman-Hall, L., Kaltenecker, M.G., *Toronto Bicycle Commuter Safety Rates, Accident Analysis and Prevention*, Vol 31, pp. 675-686, 1999.

Once high injury and/or collision locations in the bikeway network have been identified, they will be the focus of a detailed safety review. A broad range of countermeasures will be considered, including:

- widening a path or constructing a separate path for pedestrians;
- installing signage and pavement markings to identify the proper position on a path or provide warning of unusual conditions (e.g. steep grade); and
- installing traffic signals to assist path/roadway crossings.

Recommendation

5-5: Identify High Collision and Injury Locations

That the City establish a mechanism for identifying high cycling collision and injury locations in the bikeway network, review such locations on an annual basis, and implement counter-measures.

The success of the bikeway network in attracting more cycling trips will be assisted by Toronto Police Services in two distinct ways:

1) Enforcement of Bicycle Lanes

On City streets where parking spaces are at a premium, parking in the bicycle lane becomes very tempting to some motorists. The resultant blockage in the lane requires cyclists to merge into the adjacent, often busy, traffic lane. Additional parking enforcement resources are required to keep the bicycle lanes free of parked and stopped vehicles. The effectiveness of more stringent enforcement practices, including the towing of vehicles and higher fines, also needs to be examined.

2) Off-Road Path Patrols

At the Toronto Bicycle Plan public meetings, several attendees expressed concerns about cycling on “isolated” off-road paths. The security of these paths can be increased through regular patrols by bicycle police officers. However, given the number of off-road paths, it is unlikely that the Toronto Police Service could provide a level of patrol that would ensure cyclist safety. Personal safety issues should be assessed as part of the study to review lighting issues.

Recommendation

5-6: Increase Police Resources

That the Toronto Police Service be requested to increase the enforcement of illegal parking/stopping in bicycle lanes, and increase off-road path patrols.

5.4 Connect to Bikeways in Adjacent Municipalities

While Toronto’s bicycle network is a major undertaking, it can also be viewed as only part of a bikeway system throughout the Greater Toronto Area (GTA) and beyond. This view is closer to how the average cyclist would experience their trip. Municipal boundaries are usually invisible and do not function as trip destinations. In many instances, however, a municipal boundary becomes the “end of the road”, simply because a proper bikeway connection has not been made to the neighbouring city.

The cities and regional governments adjacent to Toronto are in various stages in the installation of their bikeway networks. Furthest along is the City of Mississauga, west of Toronto. Mississauga is completing a Multi-use

Recreational Trail Study which proposes a bikeway network throughout the City. One of the key routes in this network is the existing Waterfront Trail along the north shore of Lake Ontario. This route provides an excellent connection to the Toronto bikeway network. In addition, there are plans to extend the existing Etobicoke Creek Trail, which straddles the border between the two cities. Further work is required to ensure good east-west connections north of Dundas Street.

Recommendation

5-7: Establish Seamless Connections with Neighbouring Municipalities

That the City work with neighbouring municipalities to create seamless bikeway connections across municipal boundaries.



Waterfront Pedestrian / Cycling Bridge over the Humber River

6 Safety and Education

6.1 Guiding Principles and Background

Cycling in the City is perceived by many people as a high-risk activity. While nine out of ten Toronto cyclists may be comfortable riding on bike trails or paths, the 1999 Cycling Survey shows that this drops to less than two in ten cyclists on major roads without bike lanes. This fear of injury on the road keeps cyclists from riding as often as they might like and is a major barrier to new cyclists.



CAN-BIKE Training

Bicycle and motor vehicle collisions are a serious concern, resulting in an average of three cycling fatalities and over 1,200 personal injuries per year over the past decade. As many as twenty bicycle collisions are reported to the Toronto Police Service in a single day in the peak summer months. While collisions involving cyclists represent just two percent of all collisions reported to Police, they account for seven percent of injuries and five percent of fatalities. On a positive note, the number of reported bicycle collisions has been relatively constant over the decade, despite an increase in bicycle traffic.

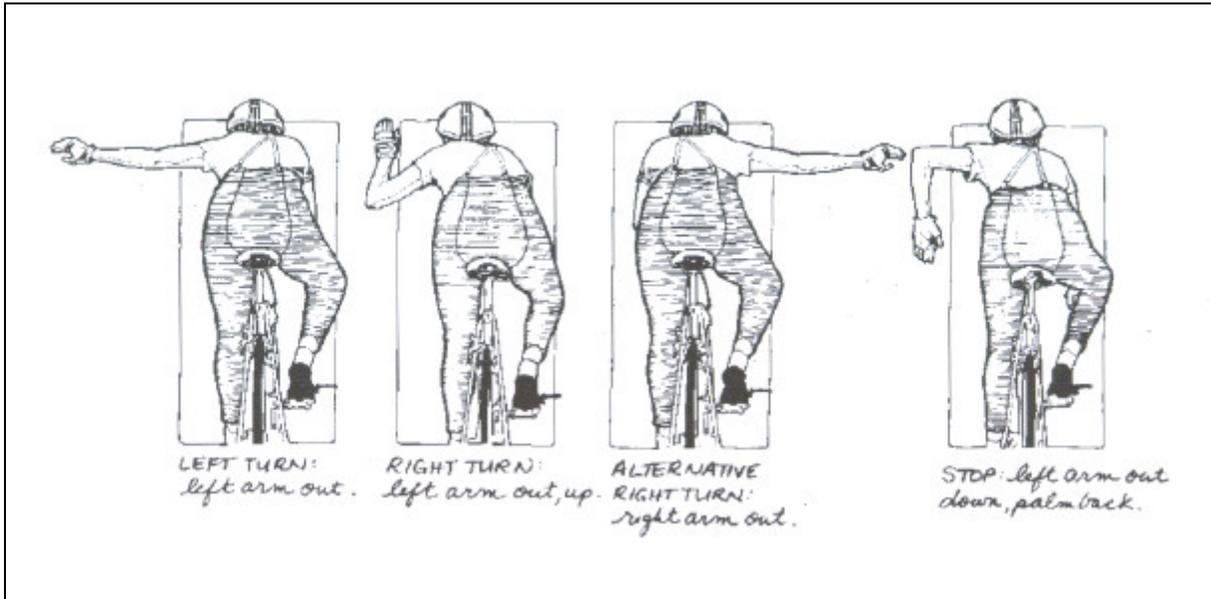
The Bike Plan's two goals, doubling bike trips and decreasing cyclist injuries, are intrinsically linked. To encourage more cycling depends on cyclists feeling safe on the street and in parks. What does that mean? A completely safe road is one in which no collisions will ever take place. Given a myriad of environmental conditions, including that of the road itself and the mix of road users, expecting a "completely safe road" is not reasonable. However, we all have our own sense of personal safety. The perceived level of safety will be different for different cyclists, even if the environment is the same.

Improving driving and cycling skills, attitudes and behaviours through education is an important part of a strategy to make streets as safe as possible. Therefore, the guiding principle for this spoke of the Toronto Bike Plan is:

Through education, create an environment where people can cycle on Toronto streets without the fear of injury.

There is broad public support for road safety education programs. In the 1999 Cycling Survey, 59 percent of people surveyed responded that "better education of cyclists" would improve cycling in Toronto. Almost half (48%) feel better education for motorists is also needed. Furthermore, survey respondents noted an increasing trend toward lack of respect for other road users. Cyclists and motorists share common concerns about collisions. All of these point to the need for education programs to increase skill and foster co-operation among roadway users.

The City's commitment to cycling education began in 1985 when the City hosted the Cycling and the Law Conference. The Conference concluded that a major barrier to safe cycling is a lack of knowledge on the part of motorists, cyclists and other road users about their rights and responsibilities to share the road. Some Conference recommendations (such as a right arm extended as a legal right turn signal)



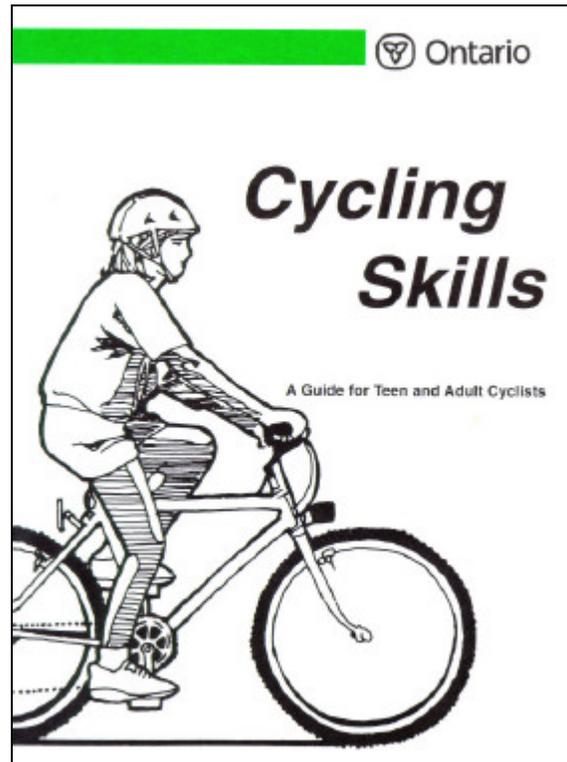
Cycling Skills booklet produced by City of Toronto (1985), and adopted by MTO (1995)

resulted in changes to the Highway Traffic Act (HTA). However, most recommended HTA changes were not adopted by the Ministry of Transportation (MTO).

Following the conference, the City produced Cycling Skills booklets for adults and children that were eventually distributed Province-wide by the MTO.

The City has also developed a number of programs to get the message out about bicycle safety. The CAN-BIKE program provides on-bike training for cycling on city streets. Both the Toronto Police Services and the Toronto School Board require staff to have this training when using bikes on the job. The City continues to develop and deliver CAN-BIKE courses with the goal of making courses available in every neighbourhood. More CAN-BIKE courses are taught in Toronto than anywhere else in Canada.

Recognizing that not everyone will enrol in a cycling course, the City has developed an impressive number of other bicycle safety initiatives. One of the strengths of this



Cycling Skills – MTO, 1995

education program is its flexibility to address new and emerging safety issues. The following are examples of safety messages developed by the City to reduce common conflicts between cyclists and vehicle drivers:

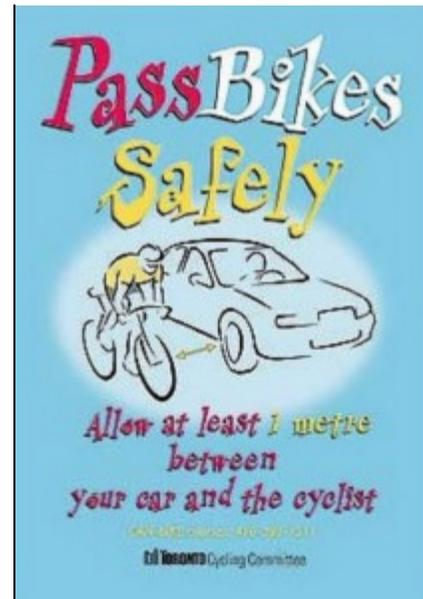
- **Large truck campaign:** invites the public to “sit in the drivers seat and learn through first-hand experience the vastness of blind spots on large vehicles” and how to safely manoeuvre around them. The ‘Large truck campaign’ was developed immediately following the Coroner’s report on the high number of cycling fatalities involving large vehicles;



Educating Cyclists about Large Vehicle Blindspots

- **“Please walk your bike on the sidewalk” campaign:** stickers placed on post-and-ring bike stands encourage cyclists to walk their bikes on the sidewalk;
- **Right turns and bikes campaign:** presents strategies for avoiding common motorist and cyclist errors at intersections;
- **Pass bikes safely campaign:** urges drivers to allow at least a metre of space between the car and the cyclist when passing;
- **Bicycle helmet campaigns:** provides helmet-fitting kiosks (for example, on bike paths) and low cost helmet sales fairs; and

- **Watch for Bikes campaign:** stickers placed on car door mirrors to remind motorists to watch for bikes before opening their vehicle doors (in partnership with the Canadian Automobile Association).

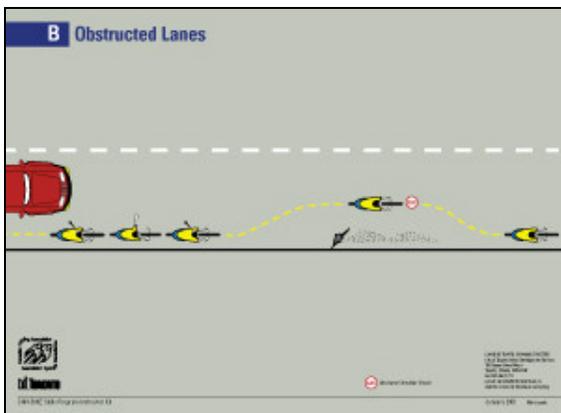


Pass Bikes Safely Campaign – Toronto, Ontario

The City uses a variety of delivery mechanisms for these safety and education programs. Posters and pamphlets are handed out at special events every year. Transit shelter advertising, radio/tv public service announcements, the City’s website and the Cyclometer newsletter get the message out to a variety of audiences. The Road and Trail Safety Ambassador program was developed by the City to respond to the large number of requests for cycling safety information. The “Ambassadors” are young cyclists who visit neighbourhoods to promote safe cycling. Specific events such as the S.P.A.C.E. (roadside) and O.A.S.I.S. (park-side) events provide safety experts to talk to road and trail users about their concerns in real-life situations. Efforts to get the message out to a wider audience are constrained by the limited resources in recent years.

Licensing of Cyclists:

The City has also examined policy issues related to cycling safety. For example, licensing cyclists in the City has been debated and rejected by Council on several occasions. Licensing is often proposed as a method to increase compliance with traffic laws and to increase enforcement capabilities. The City, in co-operation with Toronto Police Services and the MTO, explored the feasibility and effectiveness of licensing cyclists and concluded it was not an effective solution. The reasons for this finding are that it is difficult to license children, there is a high cost to administer and implement such a program and jurisdictional issues exist. The HTA for Ontario already empowers Police to obtain cyclist identification and issue tickets. It has been concluded that resources required for issuing licenses, testing cyclists and enforcing the licensing program would be better allocated to enforcement of existing laws and promotion of bicycle education courses.



Toronto is a leader in developing cyclist training materials

Over the last two decades, education courses and programs have been created and have evolved to improve skills, attitudes and behaviour of people using City roads. Programs encourage cyclists and drivers to find a common understanding of how to safely share space on the road in order to reduce conflicts between different road users.

The rest of this chapter sets out an education and safety strategy for achieving the following four objectives:

- Develop innovative ways, such as public/private partnerships, to fund and sustain safety education programs;
- Expand the CAN-BIKE program, including developing a unit for drivers;
- Establish a protocol in response to cycling collisions; and
- Work co-operatively with outside agencies to deliver messages about safe cycling in Toronto.

6.2 Funding Safety Education Programs

With an increase in both public concern about safety and requests for bicycle safety programming, the City must find a way to develop, deliver and sustain effective safety education programs.

Limited funding and staff resources are the largest impediments to expanding safety and education programs. This has become more apparent following amalgamation as limited resources are now spread over a larger population and geographic area.

Clearly, Toronto has to increase its flexibility in the ways it funds and delivers programs. The City alone cannot afford to fund all of the necessary safety programs. If the City can bring new partners to the table by initiating a Bicycle Safety Partnership, it can use its resources to encourage an on-going public/private partnership on bike safety. Insurance companies, bicycle manufacturers, police, driver trainers, health care professionals and numerous other organizations all have a vested interest in bicycle safety. By inviting these stakeholders to work together and to pool resources and expertise, safety programs can be developed and implemented that would be beyond the resources

of any one organization. An active Bicycle Safety Partnership would result in an increase in effective bicycle safety programming across Toronto.



Recommendation

6-1: Establish a Bicycle Safety Partnership

That the City establish a broad-based City of Toronto Bicycle Safety Partnership to develop and implement bicycle safety programming.

Toronto must also build on its current investment in bicycle safety campaigns. The City has been a leader in North America in the development and provision of innovative programming. Toronto's safety campaign materials are in high demand by injury prevention agencies, police, schools and community groups. Evidence from successful awareness programs, such as campaigns against smoking, drinking and driving, and seatbelt safety, indicate that exposing the public to messages and campaigns over a long period of time builds momentum and can change attitudes. The City must continue to fund the development and delivery of existing safety and education programs. A stable level of funding should be clearly identified in the annual operating budget for the City.

The City must also support an entrepreneurial approach to cost recovery in order to support bicycle safety programming. This proposed review is a critical step in making the City's programs self-supporting.

It is also important to investigate new, innovative approaches for delivering bicycle safety. Through public consultation for the Toronto Bike Plan, new program ideas were put forward that should be reviewed for potential future development.

One example of an innovative approach is to develop a Bike Bus Program similar in nature to the Toronto Library Bookmobile, Toronto Fire Services' mobile Safety House and the East Scarborough Boys' and Girls' Club mobile youth centre. A mobile unit (trailer, truck or bus) could be stocked with approximately 30 bicycles (in a variety of sizes), as well as helmets, teaching materials and staffed by CAN-BIKE certified instructors. This bus could be made available for community events, providing resources for an instant Bicycle Rodeo. It could also be used at corporate offices for staff training and employee development.

In addition, the Bicycle Bus can provide a venue to work co-operatively with the Toronto District School Board and the Separate School Board, both of which face similar difficulties in providing practical cycling education for students even though they recognize the need to do so. A pilot project with grade 5 students, for example, might provide a good opportunity to develop and refine a suitable program. The City should investigate the program benefits and cost-recovery potential of this idea.

A multi-faceted communications strategy is needed to expand our reach into the community. The communication strategy should address both the content of the message itself and how that message is delivered. We should take care to broaden our approaches to getting the message out. Previous efforts have included advertising bicycle safety messages in community

newspapers and periodicals such as NOW magazine, transit shelter advertisements, the Toronto Bicycle Map, booths at the Toronto International Bike Show and other community events. Many of these programs target utilitarian cyclists specifically rather than the general public.



Toronto Bike Show Display, 2000

The City needs to develop a multi-media public education campaign that would expand its reach. By developing television public service announcements, instructional videos for cyclists and motorists, as well as computer games for home and school uses, the City would more effectively communicate safety messages to the whole community. The intent is to have bicycle safety information accessible to a wide variety of audiences.

The City recognizes that existing programs do not adequately serve some audiences, such as young people, women, seniors, motorists and economically disadvantaged citizens. As the baby boom generation ages, the number of seniors will increase dramatically. The City's programs should address their needs to keep them actively involved in cycling. Women, as a group, are more likely to be non-cyclists when compared to men. Women who do cycle are less likely to be utilitarian cyclists (15%) when compared to men (25%). Personal safety has been cited as a reason for women not cycling. If the number of cycling trips is to increase, women's safety concerns must be addressed.

Citizens who use English as a second language (ESL) represent 30.6 percent¹ of the City's population. Experiences in their country of origin may have an influence on their perspective on traffic and traffic safety. The City must translate information and distribute it through non-English press outlets. Training is required for multi-lingual cycling experts who can deliver CAN-BIKE programs.

Recommendation

6-2: Develop and Implement Safety Programs

That the City maintain its commitment to bicycle safety programs by:

- *providing a stable level of core funding in the annual operating budget;*
- *supporting an entrepreneurial approach to generating revenue for the expansion and sustainability of programs; and*
- *investigating new, innovative programs to make bicycle safety information and training more accessible to specific target audiences.*

6.3 Expand the CAN-BIKE Program

The CAN-BIKE program provides practical information about bicycle safety for cyclists of every age and ability. Courses cover collision-avoidance techniques, bicycle-handling skills, safety equipment, the Highway Traffic Act (the "rules of the road") and lane positioning. Cyclists practise skills to anticipate possible conflict and to take preventative action. The

¹ Home language data, 1996 Census.

program emphasizes communication with other road users. CAN-BIKE is nationally certified through the Canadian Cycling Association with an instructor-certification process.



CAN-BIKE course

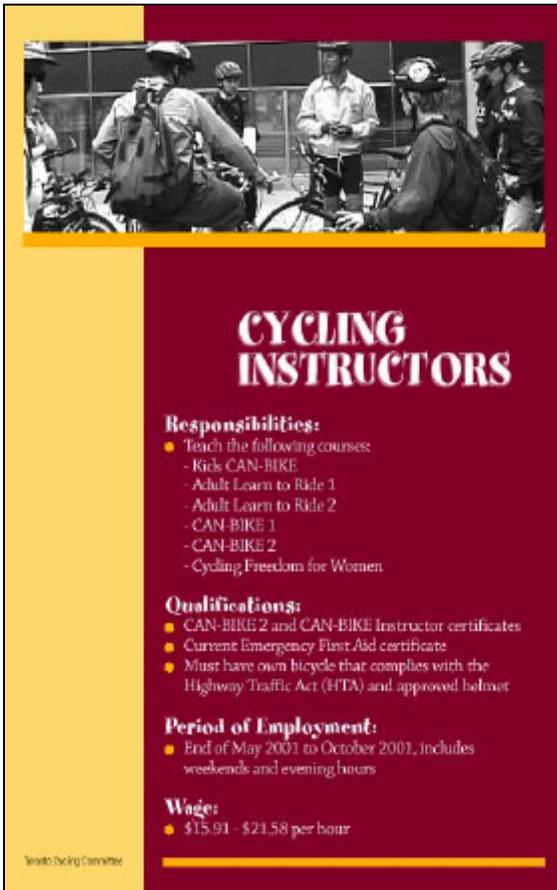
The City has made a significant investment in developing CAN-BIKE cycling courses in Toronto, and is now at a point where programs are becoming more accessible to the public. In 1999, the City began to move CAN-BIKE course delivery from Urban Development Services to Parks and Recreation. In doing this, the City has the opportunity to provide CAN-BIKE courses for all age groups at local community centres. Eight community centres offered CAN-BIKE courses in 1998, and fifteen Centres will offer them in 2001. This number is expected to grow each year, with the goal of eventually making courses as readily available as swimming classes.

The City should also investigate the possibility of developing and offering other cycling programs within Parks and Recreation. Public feedback confirms that a demand exists for other related cycling education courses, including bicycle-mechanic courses, learn-to-mountain-bike, learn-to-tour and for recreational day tours. The City should add these activities to the schedule of CAN-BIKE courses it already offers. These “how to” courses may be incentive for new cyclists to begin riding or to increase the number and types of trips made by cyclists.

To realize this objective, the City must take several steps, including:

- Expansion of CAN-BIKE program delivery in Community Centres across Toronto;
- increasing investment in instructor development and developing a larger pool of qualified instructors to meet the increasing demand for courses;
- identifying qualified instructors to teach special groups of cyclists. This implies a greater number of female instructors, instructors who can teach in other languages and instructors with special interests in teaching children, teens, people with disabilities and seniors;
- developing the role of CAN-BIKE instructors within City of Toronto departments and agencies (driver trainers, police, paramedics and Parking Authority staff). The City will accomplish this by developing Cycling Trainer positions as ongoing roles in appropriate departments. CAN-BIKE 2 certification (2 day course) is mandatory training for City staff using bikes on the job; and
- increasing publicity and advertising about CAN-BIKE courses.





CAN-BIKE Recruitment Poster

At present, the City offers CAN-BIKE courses to the public on a cost-recovery basis. Fees in 2000 for Adult Learn-to-Ride programs were \$50; Kids CAN-BIKE; CAN-BIKE 1 and Cycling Freedom for Women courses were \$75 and CAN-BIKE 2 courses were \$100. For some members of the community, however, these fees are not affordable. The City needs to maintain and publicize methods of providing subsidies or fee waivers to ensure more universal access to these valuable programs.

This should include continually updating teaching materials, delivering programs through Parks and Recreation and Community Centres, developing CAN-BIKE courses in English as a Second Language communities, in co-operation with school boards, recruiting and certifying

new instructors (including City staff) and providing adequate publicity about the program.

Recommendation

6-3: Expand and Improve Access to CAN-BIKE Courses

That the City continue to improve access to, and the delivery of, CAN-BIKE courses.

Training cyclists and informing them about appropriate cycling techniques is not enough to prevent collisions. Motor vehicle drivers *must* become more skilled at sharing the road with cyclists. Motorists need to learn new skills and attitudes to safely “share the road” with cyclists.

Reviewing driver-training manuals and talking with professional driver trainers reveals a clear lack of appropriate cycling materials available for driver education. The Urban Development Services Department has begun to work on a driver-training unit to meet that need and has completed a draft curriculum. Resources will be required to finalize the unit, to perform and evaluate a test pilot, and to train program instructors. The City needs to develop and refine additional teaching materials, including producing a workbook and video. A large audience, including driver trainers, fleet and transit operators, professional drivers (e.g. couriers and taxi-drivers) and injury prevention groups, would benefit from this program.

Recommendation

6-4: Complete CAN-BIKE Driver-Training Unit

That the City complete the new CAN-BIKE driver-training material, and develop an instructor-training program.

6.4 Respond to Cycling Collisions

Creating a safer environment where people can ride without fear of injury goes beyond injury prevention programs. There is a real need to respond to collisions in a way that mitigates the factors that led to a collision. This can be done in three ways. The City can begin by encouraging cyclists to report their concerns about road safety. Secondly, analysis of collision data should be undertaken to identify and then implement improvements in infrastructure, education programs and enforcement programs. Finally, the City can provide information to cyclists involved in collisions. By establishing a protocol to respond to cycling collisions, the City can improve the cycling environment.

In 2000, the City's Works and Emergency Services Department carried out a study of 2,572 cyclist-motorist collisions between January 1, 1997 and December 31, 1998. With this study, the City has the ability to evaluate its programs to ensure that they are responding to common causes of collisions.

The 1998 Coroner's report recommended an annual review of collision data and fatalities. Dr. Lucas, Regional Coroner for Toronto, recommended establishing a multi-disciplinary team involving City staff, including traffic engineering, bicycle facility planning and bicycle safety training staff, as well as police and ambulance personnel. Staff from Public Health and Parks and Recreation have similar mandates and should be included.

This team could set up a process whereby collision data is routinely analyzed and shared with all agencies concerned. The 2000 Collision Study should serve as the basis for developing a process for ongoing review of bicycle collision trends.

This review will also serve as a mechanism to exchange information between groups and Departments working on bicycle safety. This

exchange should allow City staff to identify trends, and to work co-operatively on existing or new initiatives.

Recommendation

6-5: Review Bicycle Collisions

That the City establish a process to review cycling fatality and collision data on an ongoing basis, and determine education, enforcement and infrastructure priorities for improving bike safety.

The threat or experience of being involved in a bicycle collision has a huge impact on whether people ride, how often they ride and where they will ride. While improving roadway conditions and adding safety equipment (like air bags) to automobiles can help reduce injuries to car drivers, few advances protect the cyclist in collisions.

Police reports only tell part of the story. Researchers estimate that more than 80 per cent of bicycle crashes go unreported to the police². Cyclists are more likely than motorists to sustain injuries in a collision. Those who emerge uninjured from a collision can thus consider themselves fortunate. While they may decide not to report their collision to police, the experience can leave a lasting impression, and inhibit them from riding as often as they might like.

There is a need to improve the collision reporting process, since cyclists express concern that "their side of the story" is often unheard.

² 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 77th Annual Meeting on Pedestrian/Bicycle Safety, January 11-15, 1998.

Extra effort, on the part of investigating officers, to collect complete information from the cyclists in collisions would give the impression that cycling collisions are treated as a serious concern. It would also assist in the analysis of collision data.

Moreover, cyclists receive little information or help about what to do in a collision. For instance, cyclists do not have to go to collision reporting centres as drivers have to, but often are misinformed about where to report their collision. Cyclists also report having difficulty in dealing with insurance companies after a collision. Police, insurance companies and agencies like the Canadian Automobile Association (CAA) are used to dealing with motorists' concerns. There is no parallel supportive structure available to cyclists.

Cycle Watch, a community non-profit group that formerly provided that service to cyclists, no longer exists. Cycle Watch provided a bicycle collision hotline that provided support, information and referrals on legal, insurance and bicycle safety issues. A wallet-sized card provided a checklist for cyclists to use at the scene of a collision. The City should develop similar educational material for both cyclists and those agencies that have special responsibilities related to bicycle collisions. During public consultation for the Toronto Bike Plan, cyclists indicated that they would appreciate assistance and support after a collision.

Recommendation

6-6: Develop Educational Material to Assist Cyclists Involved in Collisions

That the City work with the Toronto Police Service to develop materials to assist cyclists involved in collisions, as well as other agencies that have, or could share, responsibilities related to bicycle collisions.

6.5 Work with Outside Agencies

To double the number of bicycle trips in Toronto within 10 years, the City must invest in creating a safe, comfortable and bicycle-friendly environment. To be successful, the City must approach other agencies, such as the Toronto Police Service, School Boards and the MTO to play a role in this process. Many of these agencies have similar mandates in terms of safety, education, environment and quality of life. Working co-operatively will make sure that messages are consistent and that the participants can avoid duplicating initiatives.

Outlined below are some proposals and suggestions the City can offer to the appropriate agencies.

Toronto Police Service

The Police have been very active in developing the Police Bicycle Patrol as a major community-policing initiative. This has a beneficial affect on how the community views cycling. Police officers on bicycles are approachable and know the street from a cycling point of view. The Police Vehicle Operations unit has trained over 500 officers in CAN-BIKE and the City should continue to encourage this initiative. The Police should also expand bicycle patrols in every Division, as a cost-efficient and environmentally friendly method of policing.



Toronto Police Service Bike Squad

In recent years, the Police have developed a renewed focus on traffic safety. They are deploying resources for enforcing traffic violations by drivers, cyclists and pedestrians. Working in co-operation with City staff and cycling experts will make sure that they base their enforcement priorities on collision and crash-research, so that enforcement will target collision reduction and injury prevention.

Recommendation

6-7: Continue Toronto Police Service Role in Bicycle Safety

That the Toronto Police Service be requested to continue their active role in bicycle safety by:

- *increasing the number of bicycles and bicycle patrol officers in every Division;*
- *working with City staff to establish enforcement priorities based on collision research;*
- *continuing to play a co-ordinating role in CAN-BIKE training for parking enforcement officers and paramedics; and*
- *providing representation on the City’s Bicycle Safety Staff Team.*

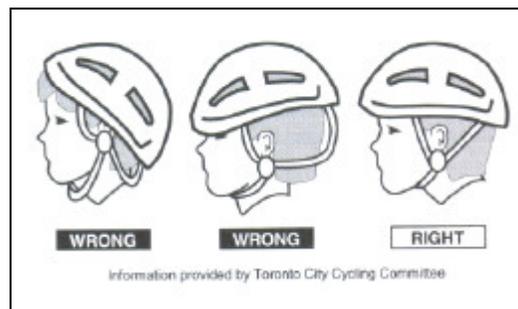
School Boards

School-aged children in Toronto need to learn and be encouraged to ride their bikes safely. This is a basic life skill that should precede learning to drive a car. Encouraging children to ride to school and in their neighbourhoods will result in a generation capable of making healthy choices about transportation. Today, many parents drive their children to school. Parents,

afraid for their children’s safety, often discourage them from cycling. School officials also discourage children from riding to school because of safety concerns and liabilities associated with bicycle theft. On the other hand, students are affected by smog and lack opportunities for physical activity. Cycling should become an integral part of life in schools. School boards should provide all elementary school children with quality bicycle-user education.

Some potential initiatives that the City should explore with school boards include:

- developing a plan to offer a Kids CAN-BIKE program to every child between grades 4 – 6;
- developing bicycle safety material targeted for school age children;
- partnering with the City of Toronto on the Bike Bus Program;
- developing bicycle-helmet education programs;



How to properly wear a bike helmet

- providing Parents Advisory Groups with bicycle safety training; and
- membership on the City of Toronto Bicycle Safety Partnership.

Recommendation 7-2 of Chapter 7 commits the City to work with school boards to develop a bike-to-school program which would include cycling education programs for students.

Ministry of Transportation of Ontario (MTO):

According to the 1998 Coroner’s report on cycling fatalities, the Ministry of Transportation of Ontario should take a lead role in improving bicycle safety and encouraging greater use of bicycles in urban areas.

Changes to the HTA are critical to improving safety for cyclists and lie within the purview of MTO. Recommendation #12 in the Coroner’s Report states that “the MTO establish an expert review process (involving provincial and municipal representatives, cycling organizations and police) to recommend changes to the Provincial Highway Traffic Act and Municipal By-Laws so that they are more consistent and understandable with respect to cycling and cyclists and therefore easier to promote and enforce.”³

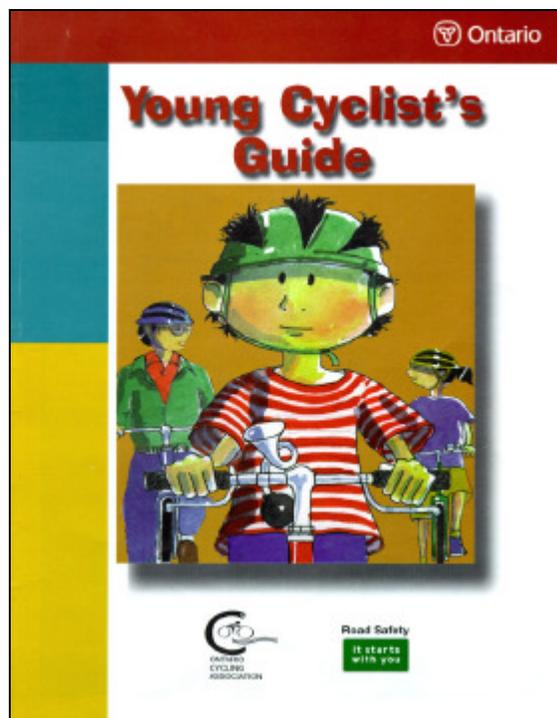
The Ministry can and should play a key role in linking cycling initiatives throughout the province. Many communities face similar problems with traffic safety issues and do not have the resources to address them on their own. Recommendations in the Coroner’s report urged MTO to provide additional cycling safety information in all driver-training handbooks and to establish or enhance the criteria for cycling content in driver training. All driver-training examiners in the province should have practical training in cycling safety through a certified course (e.g. CAN-BIKE).

Recommendation

6-8: Request MTO to Develop/Implement Bicycle Safety Strategies

That the City request the Ministry of Transportation of Ontario to take a lead role in developing and implementing bicycle safety strategies by undertaking to:

- *set up an expert review panel to make changes to the Highway Traffic Act;*
- *improve cycling safety content in all publications and driver training courses;*
- *include cycling safety material in training programs for driver examiners, police recruits and other officials;*
- *provide funding for bicycle promotion and safety programs to assist Toronto and other municipalities in reducing cycling injuries; and*
- *become a member on the City of Toronto Bicycle Safety Partnership.*



Young Cyclist's Guide, MTO

³ W.J. Lucas, 1998.

7 Promotion

7.1 Guiding Principle and Background

The 1999 Toronto Cycling Survey indicated that 48 percent of all Toronto adults are cyclists. In addition, the survey revealed that there is a high concentration of bicycle ownership in the City (2.3 bicycles per household in all areas of the City).

Despite high bicycle ownership, many cyclists still do not think of cycling as a transportation option. Recreational cycling is popular with residents across all areas of the City, while the number of commuter or utilitarian cyclists is much lower and tends to be concentrated in the central area of the City. Reasons given for these lower numbers include lack of infrastructure, parking and end of trip facilities as well as concerns about safety.

The survey results suggest that approximately 550,000 of the current 2.5 million population of the City of Toronto are recreational cyclists. Of these, 69 percent of Toronto's recreational cyclists are between the ages of 18 and 49, in their prime working years and 63 per cent of



Bloor Street Bicycle Lanes

them drive to work or school, compared with 23 per cent who use transit. The survey results also suggest that encouraging recreational cyclists to choose cycling for utilitarian/practical uses (even in combination with transit) can potentially increase the number of cycling trips.

Encouraging occasional recreational cyclists to leave their cars at home more often and commute or use their bikes for other purposes has significant benefits for the health of our City. While the Toronto Bike Plan aims to encourage all types of cycling trips, one of the most important objectives is to encourage Toronto's recreational cyclists (550,000) to use their bikes more frequently for everyday transportation. The key to achieve this important objective is promotion, which is really about changing attitudes and behaviour towards cycling and generally about all personal transportation.

The European Cycling Federation states that "The first aim of any measure must be to prevent the loss of existing supporters. It is also important to stabilize existing demand. The last aim is finally to gain additional demand."¹

Events, communications and programs re-inspire and motivate existing cyclists, and encourage them to make more bicycle trips, thereby stabilizing the cycling sector. Promotion and marketing are crucial to gain additional cyclists (i.e. to attract the non-cyclist), encourage the recreational cyclists to commute and to change attitudes and behaviour towards cycling as everyday personal transportation.

The guiding principle for promoting cycling is:

Every bicycle trip improves the quality of life for all Torontonians.

¹ Social Data, 1994.

How does it improve the quality of life for everyone?

- Every auto trip converted to bicycle contributes to improvement of air quality and a reduction of greenhouse gases;
- Regular physical activity improves health and fitness, and lowers health care costs;
- Fewer motorized trips mean less traffic congestion and stress; and
- Cycling puts people in touch with their neighbourhoods.

The City must combine new infrastructure amenities and education with policy development and promotion so that all residents of the City are aware of their transportation choices, including the cycling network. Promotion and marketing will change attitudes and behaviour towards cycling and personal transportation, and encourage people to choose cycling as a convenient way to get around.

As outlined in Chapter 2, the City of Toronto benefits from a long history of cycling advocacy and promotion. Twenty-five years ago the first City Cycling Committee was formed under the direction of Council. Since that time the Toronto City Cycling Committee and City staff have worked together to make cycling a more attractive transportation choice. Part of this effort has been directed toward developing and delivering promotional and educational material, and collaborating to sponsor promotional events throughout the year. A few of the most successful promotional initiatives have been the annual Bike Week, Cyclometer newsletter, cycling maps, Bicycle User Groups (BUGs), Bike Friendly Business Awards and the Road and Trail Safety Ambassador Program.

Promoting cycling in Toronto has been an evolutionary process. Evaluating existing programs, building on their strengths and establishing new directions are necessary steps

to achieving the Toronto Bike Plan’s goal of doubling the number of bicycle trips.

The promotion strategy set out in this plan is designed to meet the following four objectives:

The City of Toronto will:

- Encourage cycling for everyday transportation;
- Promote cycling to a wide audience via effective use of media and public outreach;
- Demonstrate leadership through innovative policies and facilities that encourage City employees to cycle; and
- Market Toronto as a cycling tourist destination.

Each objective and its accompanying recommendations are outlined in greater detail in the following sections:

7.2 Cycling for Everyday Transportation

While it is important to promote cycling in general, there is a specific need to encourage more bicycle commuting. New cycling infrastructure, bike lanes and bike parking, for example, will influence these practical trips. Just as important, promotion needs to begin by changing attitudes, reinforcing that bicycle commuting can be both practical and enjoyable. This section describes two programs which focus on shifting attitudes and behaviour towards cycling to work and school.

Events and Programs

Bike Week

Bike Week is an annual event that began in 1988 as Bike-to-Work Day. Initially it focused on bicycle commuting but has since evolved to include different cycling themes. Bike Week takes place in late May or early June and

culminates with the Heart and Stroke Foundation’s Ride for Heart. This event is held on the final Sunday of Bike Week and is a charitable event that attracts over 12,000 cyclists. Bike Week expanded geographically with amalgamation but has struggled to increase participation to reflect the new City of Toronto. The resources previously available in the old City of Toronto have been stretched to cover the much larger population and geographical area in the new City post amalgamation. The resources and participation levels need to increase as the City boundaries have.



Ministers of Transportation and Environment – Bike Week, 2001

Since 1988, the Toronto Cycling Committee has been helping to support, develop and co-ordinate Bike Week with other individuals, bicycle user groups and organizations. The Toronto Cycling Committee hosts a group ride and a free pancake breakfast every year that have become popular events.

Part of the success of previous promotional efforts have been the ability of the City, the public and the Toronto Cycling Committee to work together to organize communications and events. Communications include posters, a calendar of events and media outreach. By networking with individuals, community groups, organizations, local businesses, sponsors and

volunteers, the City seeks to increase participation. Since most Bike Week events still occur downtown, increasing the involvement of communities outside of the downtown area is important. Additional resources are needed to promote Bike Week across all City Districts. The challenge of the future is to inspire new individuals and organizations to participate by organizing, facilitating, donating or assisting with Bike Week events.

Bike Week 2000 featured forty events, four of which were City of Toronto events. Twenty-one different community groups, local businesses and individuals organized the remaining events, which City staff helped facilitate.

Recommendation

7-1: Expand Bike Week

That the City continue to expand Bike Week and ensure that events are available in all City Districts.

Bike-to-school program

Over 400,000 students attend Toronto’s 820 elementary, senior and secondary schools, located in every neighbourhood in the City. Hundreds of thousands of short distance automobile trips to schools create traffic safety and congestion problems because many parents drive students to school.

In the last two decades, more sedentary lifestyles have resulted in an increase in the proportion of overweight children ages 7 to 13. Short-distance automobile trips to schools are ideal candidates to switch to cycling trips. School boards or the City of Toronto have done little to encourage cycling as one of the ways to solve the problems that short-distance automobile trips to schools create.

A recent survey (2000) by Greenest City, a non-profit environmental group, reveals that less than one percent of Toronto school children cycle to school. The same study, however, showed that there is a demand among these children to cycle, and 90 percent own a bicycle. Two main barriers discouraging these potential cyclists are concerns about traffic safety and bike theft. Some schools actively discourage cycling to school because they do not have secure bike parking and are concerned about related liabilities.



School bicycle parking

To address the health and environmental concerns associated with short automobile trips to schools, Greenest City operates a very successful Active and Safe Routes to School program in more than 60 Toronto schools. They work with the school principals, teachers and parent council groups to promote the benefits of walking as well as encourage parents and children to walk together in a safe environment. They consult with traffic engineers, police and local councillors to assess safety issues at the school and implement the necessary infrastructure changes. Over 160 Toronto schools participated in the October 4, 2000 International Walk to School Day.

The City should work with School Boards and groups such as Greenest City to develop bike-to-school and bike parking pilot programs, research bike-to-school activity in selected schools and develop criteria and an ongoing process

(including funding) for providing bike parking at all schools.

Recommendation

7-2: Develop a Bike-to-School Program

That the City work with school boards and other agencies to develop a bike-to-school program, which will identify safer routes to schools, and provide secure bicycle parking, CAN-BIKE training and incentive programs for students and their parents.

7.3 Communications and Public Outreach

Promotion of cycling occurs through two major streams: cycling-related events and programs, and the dissemination of cycling information through a comprehensive communication program that includes a variety of materials and delivery methods. Set out in this section is a review of some recent programs, and recommendations on how to build upon their success.

New Events

Currently, the City spends a significant amount of time and energy on Bike Week, the City’s premier cycling event. As a result, Bike Week enjoys a great deal of media coverage and public attention. To ensure that cycling is recognized as a year-round activity for an increasing number of people, and to reach the goal of doubling the number of cycling trips in the City over the next ten years, the City should develop new activities and events for other times of the year.

There should be cycling promotional events in every ward of the City. Although the size and focus of new activities and events can vary, they should connect to existing events such as Bike

Week and recognize the diversity of Toronto’s cycling community. The City should work in co-operation with clubs, organizations and the media to develop more events over the greater part of the year. The City could assist in the promotion of events and services by developing a calendar of events for the full year. This would be a guidebook to bicycle events in the City for all residents and visitors.



Bike Parking in North York

Communications

Effective communication is a very important component of a promotion plan that seeks to educate, inform and increase awareness on matters concerning cyclists in the City. If the City’s goal is to change attitudes, communication must be ongoing and not restricted just to media covering specific cycling-related events. Nevertheless, media coverage remains a very effective method to reach a large number of Toronto’s citizens. The City cannot overlook the importance of communicating in a number of languages other than English to reach the City’s diverse multicultural communities.

Communications includes promotional materials that are available through a variety of means to the citizens of Toronto. Some past and present communications initiatives to promote cycling in Toronto include:

- **The City of Toronto website:** www.city.toronto.on.ca/cycling provides information on cycling-related topics and programs.



- **Cyclometer:** First published in 1989, *Cyclometer* is a monthly City of Toronto newsletter that acts as the voice for the Toronto Cycling Committee (TCC). Its goal is to increase bicycle trips in the City. It is a forum to educate, inform and increase awareness on matters concerning cyclists in Toronto, such as transportation, health and economic issues and encourages citizen involvement. The City of Toronto’s Urban Development Services Department and its Corporate Communications Division are responsible for producing *Cyclometer* while the TCC is largely responsible for its contents. *Cyclometer* is now accessible on-line at: www.city.toronto.on.ca/cycling.

CYCLOMETER

- **Safety Education Advertising/Bike Map:** Since 1983 the City of Toronto (and the former Metro) have produced bicycle route maps that were distributed free-of-charge

through bike stores, libraries and community centres.

The bicycle route map is a valuable educational and promotional tool. In addition to being useful for navigating the City, the map also provides an effective means of disseminating cycling-related information focusing on safety, events, organizations and City initiatives.

- **Annual Cycling Guide:** Other cities have taken the initiative to promote cycling through mass media such as major newspapers. The City of Ottawa, for example, has developed an annual promotional insert in *The Ottawa Citizen* which is a very effective method of reaching a wide audience to promote cycling events, routes and safety in Ottawa. There are periodic cycling guides published in local newspapers in Toronto, but the City has little or no input regarding their content or message. The City should investigate developing its own cycling guide to services and programs similar to the City of Ottawa guide.

Recommendation

7-3: Promote Cycling Programs, Facilities and Events

That the City work with other groups and agencies to promote cycling facilities, programs and events through a variety of media, including:

- *an annual cycling guide;*
- *bike maps;*
- *the City's website; and*
- *special cycling events throughout the year.*



Bike Week Bus Shelter Ad

Road and Trail Safety Ambassador Program

Started in 1995 as the Cycling Ambassadors, the program has provided the City of Toronto with a group of young, trained individuals who reach out to communities with programs and campaigns to deliver safety messages and encourage cycling. The program was started to meet the many requests from the community for cycling experts and is based on the premise that the best way to change behaviour is to have expert cyclists talking directly to people.

The Road and Trail Safety Ambassador Program promoted using roads safely and responsibly in the past through community educational events directed at all road and trail users. The Ambassadors delivered programs to reduce injuries and fatalities on the roads and paths through community events and festivals, community outreach rides, on-street and on-path safety events and the CAN-BIKE training program. In 2000, the program delivered a total

of 350 events across the City and had events in every ward.

The Road and Trail Safety Ambassadors are a very effective vehicle to promote and implement a wide range of programs.



Road and Trail Safety Ambassadors – Toronto, Ontario

For example, the Road and Trail Safety Ambassadors provide assistance at events, deliver safety messages and liaise with the public during Bike Week. The Ambassadors attend events and collect information as part of the evaluation process. They have played a key role in expanding Bike Week into the communities of Etobicoke, North York and Scarborough.

The Road and Trail Safety Ambassador Program is a delivery mechanism that can deliver a wide range of cycling related initiatives. The City can call on the Ambassadors to work on bicycle safety and to encourage cycling.

Recommendation

7-4: Maintain the Road and Trail Safety Ambassador Program

That the City continue to maintain the Road and Trail Safety Ambassador Program as a cost-effective vehicle to deliver educational and promotional campaigns.

7.4 The City of Toronto as a Leader

Encouraging the use of bicycles for everyday transportation is an effort that will require more resources and influence than those of the City alone. Every employer has a role to play in encouraging and supporting cycling among its own work force. The City of Toronto must also play an important leadership role in encouraging and supporting the City’s many other employers in participating in this initiative. To be a credible leader, the City must do much more than encourage others; it must lead by example. Being a leader means providing high-quality parking, shower and change facilities for bicycle commuters at all work places, and establishing innovative policies for encouraging City employees to cycle.

The City should explore a number of initiatives to demonstrate leadership. Some of these include:

- maintaining a pool of bicycles available for staff to conduct City business by bicycle rather than by car;
- compensating employees who choose to use their own bicycles for City business, just as it compensates employees who drive their own cars for City business;
- making CAN-BIKE training courses available to City staff on staff time, to minimize risk associated with using a bicycle during the workday and to enhance the cycling skills necessary to commute safely by bicycle;
- creating an incentive program for employees who cycle to work;
- developing contests among departments to encourage increased ridership;
- installing bike parking facilities outside of all City buildings (police stations, parks and

recreation centres) and indoor parking facilities wherever possible;

- encouraging a bicycle mentoring or linking program (so cyclists can find a colleague with whom they can ride to work);
- installing shower and change facilities for employees; and
- providing lockers in offices for storing clothes.

Recommendation

7-5: Encourage and Support Cycling by City Employees

That the City take a leadership role in encouraging and supporting cycling as a mode of transportation for City staff, including:

- *developing a plan for providing high quality bicycle parking and shower/change facilities at all civic work places;*
- *offering CAN-BIKE training to all City employees through the regular employee training and development programs;*
- *providing a pool of bicycles for City employees to use in conducting City business; and*
- *compensating City employees (through kilometre disbursement) for using their own bicycle to conduct City business.*

Encouraging other Employers to Promote Bicycle Commuting

Having established leading facilities and policies, the City should document and promote these to other employers. Promotional materials explaining the benefits of encouraging bicycle commuting, accompanied by incentive programs and friendly competition, will significantly increase bicycle commuting across the City.

For example, the recently formed Black Creek Regional Transportation Management Association develops and implements strategies to encourage sustainable transportation among its member employers. The City can work with organizations like this to ensure that cycling is included in their transportation strategy.

Bicycle User Groups

The City will facilitate and provide support for the creation of Bicycle User Groups within institutions and corporations to facilitate cycling within their area of influence. Their efforts to increase the number of bicycle trips will compliment those of the City, and provide opportunities for partnerships to share responsibility and resources.

A Bicycle User Group is a formal or informal group of people in a workplace, school, community or neighbourhood, who come together to improve conditions for commuter cycling, or to enjoy cycling together.

More BUGs will lead to more bicycle trips and will help to reach the Toronto Bicycle Plan’s goal of doubling the number of bicycle trips in the next ten years.

The purpose of the Bicycle User Groups Network is to link one BUG to another. It will support people in choosing bicycle transportation in every workplace, neighbourhood, school and community, increase the number of bicycle trips and reduce the number of motorised trips in Toronto.

The Network will be developed in three parts:

- 1) Researching and developing a five-year plan (2001);
- 2) Implementing the plan (2002- 2005); and
- 3) Launching the Bicycle User Groups Network (2005- 2006).

Bicycle User Groups will be linked through digital, print and personal communications. A web-based directory will link formally registered BUGs. Groups will be brought together with special events, seminars and meetings.

After the development phase, the Bicycle User Groups Network will be an established City program.

Bicycle-Friendly Business Awards

The City will recognize and honour leading-edge bicycle promotion by other agencies and private corporations through the Bicycle Friendly Business Awards.

The Awards recognise small and large businesses and corporations for their efforts in promoting cycling. These awards arose from the Bikes Mean Business Conference in 1993. The City presented the first awards in 1994.

Any type of business can be bicycle-friendly. Using bicycle courier or delivery services, providing secure bicycle parking or participating in Bike Week events such as the Ride for Heart are good examples. Some employers have provided employees with training in bicycle safety and repairs.

The Bicycle-Friendly Business Awards remind the private sector that it has a unique opportunity to facilitate the use of a healthier, more sustainable and more enjoyable method of transportation.

Recommendation

7-6: Encourage Employers to Promote Bicycle Commuting

That the City encourage other employers in Toronto to promote and support bicycle commuting, including:

- *providing information and technical advice on the provision of bicycle parking facilities;*
- *developing a plan for establishing Bicycle User Groups; and*
- *continuing the annual Bicycle-Friendly Business Awards program.*

7.5 Marketing Toronto as a Cycling Tourist Destination

Tourism is the world’s largest industry with estimated revenues of US \$3.1 trillion and 130 million employees in 1992.² Over 16 million visitors come to the City of Toronto every year.³ In 1998, when 2,675,000 people visited Toronto for pleasure, 719,000 of those participated in sports or outdoor activities. No current statistics indicate how many cyclists visit Toronto. New surveys, or adding cycling to current statistics collected, could help answer the question of how many cyclists visit this City.

Developing bicycle tourism can have significant benefits for both the economy and the environment. The concept of sustainable tourism is growing. Sustainable tourism is based on the combination of ecological, economic, ethical and social equality for local communities.

² World Travel and Tourism Council, 1991.

³ CTS and ITS 1998; The Cities Project 1998.

“Sustainable development is a guided process, which envisages globally managing resources so as to ensure their viability, thus enabling the City to preserve their natural and cultural capital, including protected areas. As a powerful instrument of development, the tourism industry can and will participate actively in the sustainable development strategy. A requirement of sound management of tourism is that the sustainability of the resources on which it depends must be guaranteed”.⁴

The environment for bicycle tourism in the City of Toronto will improve as the six components of the Toronto Bike Plan are implemented. People who visit Toronto for other reasons (conferences, etc.) will be encouraged to cycle if the infrastructure makes it easier for them to do so, as it does in other cities such as Amsterdam and Copenhagen. By year 10 of the Toronto Bike Plan, the City will have built a foundation for bicycle tourism. The City knows that many cyclists come into Toronto to cycle on paths, therefore a full bikeway network will make the City more attractive as a cycling destination.



Amsterdam City Bike Tour

Events

Events and facilities that encourage cyclists to stay longer will result in increased economic benefits. The economic benefits resulting from bicycle events are well documented. Bicycling is the number-one recreational activity in the United States where people spend \$3.1 billion on cycling every year.⁵

The best example of this in Toronto today is the BeceI Ride for Heart, Canada’s largest charity cycling event. Now entering its 14th year, the event raises more than \$1 million annually to fund heart disease and stroke research as well as health promotion. In addition to attracting local riders, the Ride for Heart attracts thousands of cyclists from outside of the area, resulting in an average spending of \$237.00 per out-of-town participant.

The City is a member of Tourism Toronto, the organization that promotes Toronto as a tourist destination. Promoting bicycle tourism is a long term objective of this plan, and the City should work with Tourism Toronto to incorporate cycling information in its tourism promotion.

Recommendation

7-7: Encourage Bicycle Tourism in Toronto

That the City work with Tourism Toronto to explore opportunities with other interest groups, agencies and governments to promote bicycle tourism in Toronto.

⁴ The Charter for Sustainable Tourism was developed at the World Conference on Sustainable Tourism, in Lanzarote, Canary Islands, Spain on 27-28 April 1995.

⁵ Mountain Bike, 2000.



Cycling and Transit

8.1 Guiding Principle and Background

Bicycling and public transit both provide transportation alternatives to the private automobile. But for many travellers, neither form of transport alone can compete with the car's range, flexibility and convenience. However, if bikes and transit work as a team, they make a formidable alternative to the car – just as flexible and convenient, more relaxing and often faster; and without the automobile's environmental impacts.

In the 1980's, Toronto was a leader among North American cities in encouraging the combination of cycling and public transit. At that time, the Toronto Transit Commission (TTC) was one of very few major transit agencies that permitted bicycles on transit vehicles. However, in the 1990's, many major urban areas, such as San Francisco and Seattle, eclipsed Toronto. These days, bicycle accommodation and encouragement are common features of both large and small transit agencies.

Given the goal of doubling the number of cycling trips in Toronto by 2011, the City needs to take better advantage of the cycling/transit connection. The guiding principle for this spoke of the Toronto Bike Plan is:

Bike-and-ride expands the choices for non-auto trips.

As noted in Chapter 2, almost half (48%) of recreational cyclists cite “distance” as the major reason they didn't use their bicycles to travel to work or school, or for other utilitarian purposes. The combination of cycling and public transit – bike-and-ride – offers an excellent way to extend the practical trip distance for cyclists. Travellers can ride their bike to the nearest TTC subway or

GO Transit station and continue their journey on transit, either with or without their bicycle. This travel option is very popular in some major European cities, but has not yet become popular in Toronto. **Figure 8.1** compares the bike and ride modal shares for several cities¹.

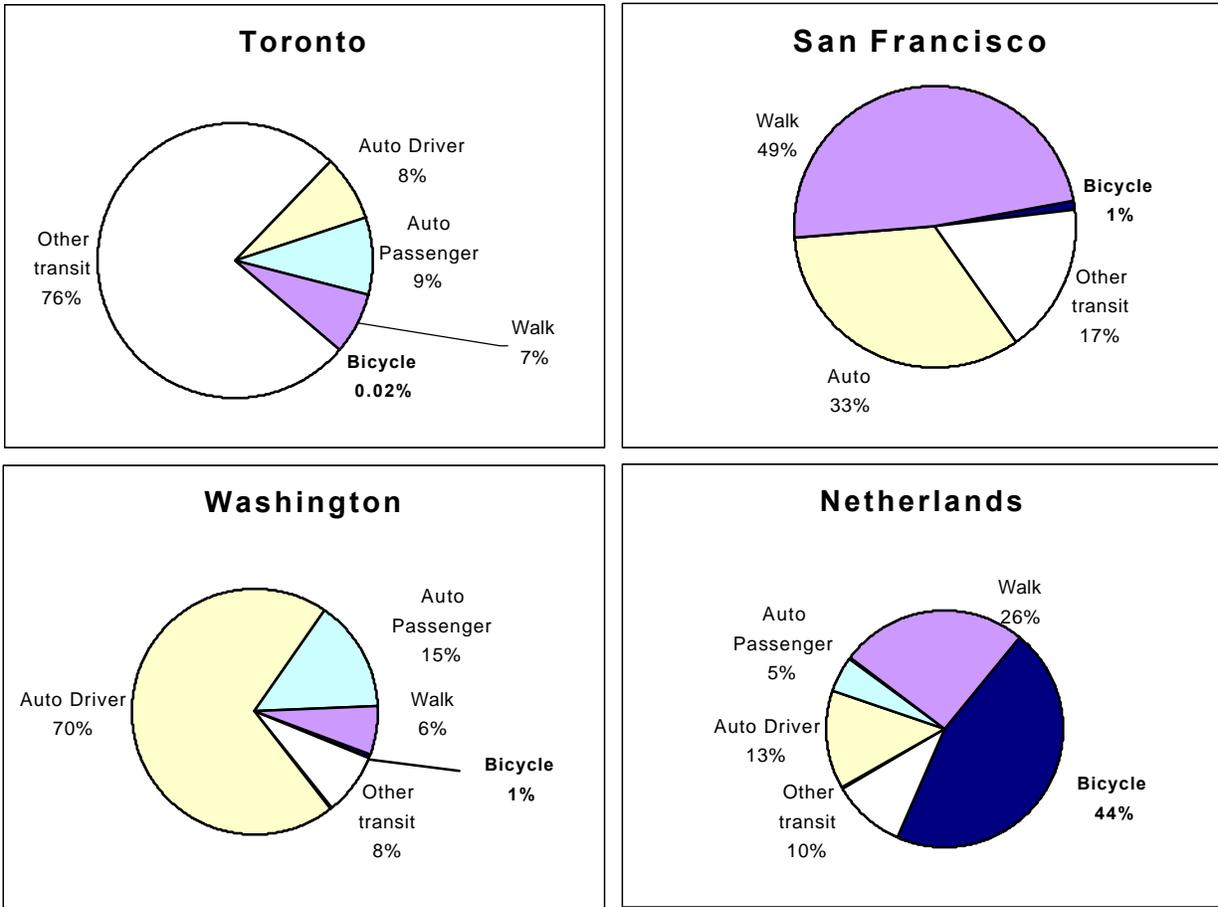
While daily bike and ride activity is very low in Toronto, the 1999 Cycling Survey revealed that 17 percent of Toronto cyclists have tried this travel option. Utilitarian cyclists are much more likely to have tried bike-and-ride (30%) than recreational-only cyclists (8%). In a 1986 survey, only 12 percent of utilitarian cyclists in the former City of Toronto had combined cycling and public transit, while a 1991 survey revealed 23 percent had used this travel option. This more than doubling of bike and ride activity over the past fifteen years, without any significant infrastructure improvements or encouragement, provides further support for the high potential of this transportation alternative.

The TTC and GO Transit are the major public transit operators in the City of Toronto, with GO Transit focusing on commuters in the GTA. The TTC network features 68 subway and Scarborough Rapid Transit (SRT) stations, including the four new Sheppard stations. GO Transit has 16 train stations in the City of Toronto. **Figure 8.2** shows the location of these stations, as well as the portion of the City located within 3 kilometres of a station, equivalent to a 15 minute bicycle ride. (The 1999 Cycling Survey revealed that 80 percent of work-related bicycle trips are 15 minutes or longer.) According to the 1996 Canada Census data, two million Toronto residents live within a 15 minute bicycle ride of a transit station, representing 84 percent of the City's population.

The recent initiative by the Federal government to provide a rail link between Pearson International Airport and Union Station in downtown Toronto offers an exciting

¹ TTC Bike and Ride Study – Final Report, Toronto Transit Commission, May 1994, pg. 14

Figure 8.1
Rapid Transit Station Access Modal Splits



opportunity to improve cycling links to air, inter-city rail, commuter rail and urban transit. Coupled with planned improvements to Union Station itself, Toronto could become a North American model for integrating cycling with other travel modes.

The Bikeway Network described in Chapter 5 will, over the next ten years, complement the already dense network of high quality transit routes in the City. One of the criteria in evaluating candidate routes for the network was the quality of the connection to rapid transit stations. While the Bikeway Network, by itself, will increase the number of bike-and-ride trips,

the Plan includes four objectives to further strengthen the cycling/transit connection:

- Improve bicycle accommodation on transit vehicles;
- Improve bicycle parking facilities at transit stations;
- Improve bicycle access to transit stations; and
- Increase promotion of bike-and-ride.

Figure 8.2
Area of the City of Toronto within 3 kilometres of a GO or TTC station



The following sections will describe these objectives in detail and present specific recommendations. The final section of this chapter addresses the funding and implementation of the recommendations.

The 1999 Cycling Survey provided a general sense of bike-and-ride activity, but it did not ask detailed questions on this area. A more detailed survey is required to establish a benchmark to assess the effectiveness of the bike-and-ride initiatives included in the Toronto Bike Plan. In addition to questions about bike-and-ride trip frequency, the survey will also identify and rank various policies and facilities for increasing this transportation alternative. The survey will be repeated every two years to provide ongoing feedback on the measures implemented to date. A bike-and-ride survey every other year will also help address a serious lack of North American research on the effectiveness of measures to increase this travel mode.

Recommendation

8-1: Undertake Bike-and-Ride Survey

That the City, in co-operation with GO Transit and the TTC, undertake a detailed survey of bike-and-ride activity, and repeat this survey every two years.

8.2 Improve Bicycle Accommodation on Transit Vehicles

While many bicycle/transit trips can be accurately described as “bike-and-ride”, there is a significant portion of travellers who use a “bike-and-ride-and-bike” combination by taking their bicycles on the transit vehicle. Having a bike at both ends of the trips provides greater

flexibility and convenience and, in some instances, can reduce the time and cost of travel.



Cyclists exiting Scarborough LRT – Midland Station

Current policies for both TTC and GO Transit make it difficult to use a bicycle at both ends of a trip during rush hours. For the TTC, bicycles are permitted on buses, streetcars, and subways at all times except weekdays from 6:30 am to 9:30 am, and from 3:30 pm to 6:30 pm. GO Transit allows bicycles on all trains except those arriving at the downtown Union Station from 6:30 am to 9:30 am, and leaving Union Station from 3:30 pm to 6:30 pm. Bikes are not permitted on GO buses at any time.

For Toronto cyclists, bicycle accommodation on transit can be improved in many ways. This section reviews two improvements requested by cyclists during the study process – bike racks on buses, and permitting bikes on TTC vehicles in the non-peak direction during peak periods.

Bike Racks on Buses

Over the past ten years, many North American transit agencies have equipped part or all of their bus fleets with bike racks on the front of the vehicle. The standard rack holds two bicycles.

Bike racks on buses provide benefits for both cyclists and non-cyclists using transit. For cyclists during peak periods, the racks enable the bike to accompany the traveller, a benefit currently prohibited in Toronto. During off-

peak periods, TTC bus drivers have the discretion to disallow a bike in the bus if it is crowded. With the racks, this is no longer an issue. At all times, storing a bike on a rack is easier than negotiating it along the narrow, and sometimes crowded, aisle of a bus. This is also the major benefit to non-cyclists, who do not have to manoeuvre around a bike stored inside the bus.

The 1999 Cycling Survey included questions on ways to encourage more bike-and-ride trips. Cyclists who had already tried bike-and-ride were asked if bike racks on buses would increase the number of trips using this mode. 79 percent of utilitarian cyclists noted that the racks would increase their bike-and-ride trips, compared to 75 percent of recreational-only cyclists.

The survey also asked cyclists who had not tried bike-and-ride whether racks on buses would encourage them to try this travel mode. 59 percent of utilitarian cyclists and 45 percent of recreational-only cyclists would consider combining cycling and transit if the racks were provided.



Bike Racks on Buses – Seattle, Washington

In 1999, the Ottawa area transit agency, OC Transpo, did a bike rack pilot project on one of its major long haul routes. The bike racks were heavily promoted, including summer students

hired to demonstrate loading/unloading to the lunchtime crowd on busy downtown streets.

Users of the OC Transpo bike racks were surveyed as part of the pilot project. During weekdays, the majority of users (52%) were commuters, while on the weekends, recreational users predominated. Users were asked how they would have made their trip if the bike racks were not available:

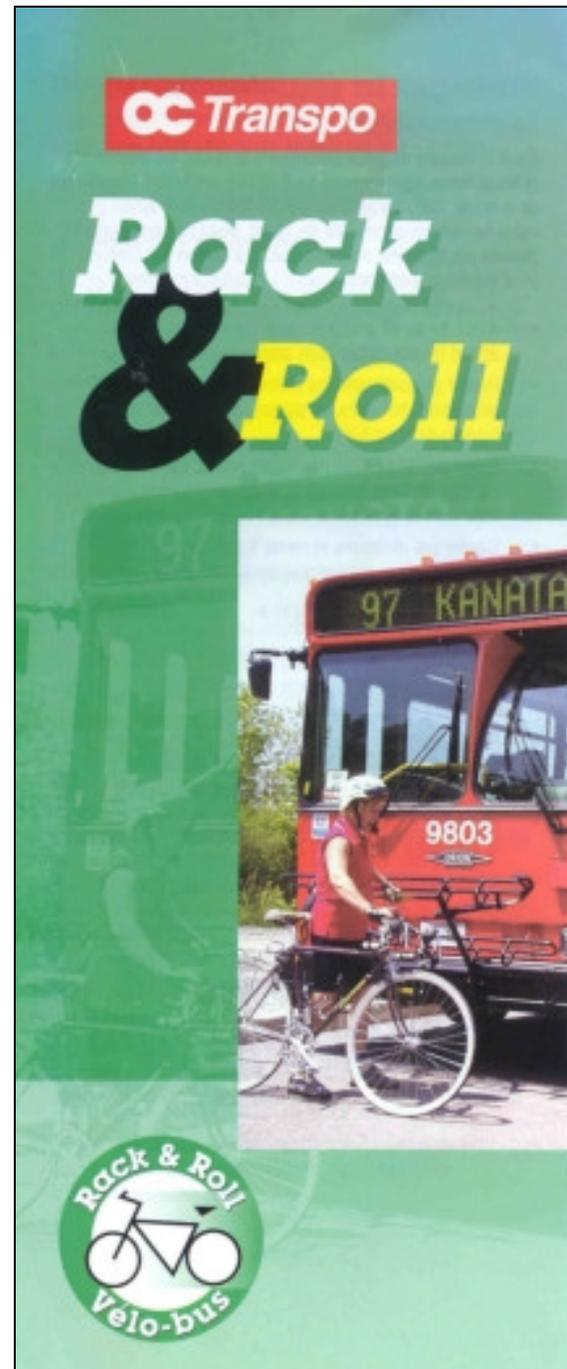
- 33 percent would still have used the bus;
- 28 percent would not have made the trip; and
- 11 percent would have taken a car or taxi.

OC Transpo bus drivers were also surveyed. 78 percent felt the additional time needed to load and unload a bike did not have an impact on their ability to keep on schedule.

Other North American cities with racks on buses include Vancouver, Seattle and Phoenix. The Seattle transit system now carries 60,000 bicyclists a month.

TTC staff have identified several challenges with bike racks on buses. A primary concern is the additional time required for bike loading and unloading and the impact this will have on buses being able to keep on time. GO Transit staff note that the use of various bus types on the same routes will make a pilot project difficult. In addition, the *Public Vehicles Act*, which governs buses crossing municipal boundaries, prohibits any public vehicle from carrying luggage, trunks or other loads on the outside of the vehicle.

The benefits and potential impacts of bike racks on buses can best be evaluated in detail via a demonstration project. Bike racks would be installed on a few buses to serve a route or several routes. Routes would be selected for evaluation which minimize impacts on the TTC schedule, while providing a valuable service to



Source: OC Transpo, Ottawa

cyclists (e.g. crossing a barrier such as Highway 401 or providing access to a major off-road path). The decision on whether to develop a bike rack on bus program will be based on the results of the evaluation.

Recommendation

8-2: Undertake Demonstration of Bike Racks on Buses

That the TTC undertake a demonstration project of bike racks on buses, in consultation with the Toronto Cycling Committee.

Bikes on TTC Vehicles in Non-Peak Direction

As noted previously, GO Transit allows bikes on trains during the peak period if the train is travelling in the non-peak direction (i.e. away from the downtown in the morning and into the downtown in the evening). The TTC prohibits bikes on vehicles during peak periods regardless of direction.

There are a significant number of Toronto commuters who travel in the non-peak direction. A bike-and-ride-and-bike trip can be an attractive option for such travellers, especially if the trip is lengthy or entails difficult cycling, such as steep upgrades or expressway crossings.

The 1994 TTC Bike-and-Ride Study Final Report included a recommendation to investigate a revision to TTC Bylaw 1, Section 17, to:

“permit bicycles on vehicles travelling in the non-peak direction during the prohibited period, with the exception of the heavy use subway area defined as St. George, Bay, Yonge/Bloor and all stations to the south.”

The investigation by TTC staff concluded that the above revision was not acceptable. The major concern is that cyclists would also be able to travel in the peak direction at many subway stations, especially those with a centre waiting platform. There are also sections where the ridership in the off-peak direction is heavy enough that bicycles could become an obstruction to other transit riders (e.g. northbound on the Yonge line from Eglinton to Finch during the morning peak period). For these reasons, the Toronto Bike Plan does not recommend that bikes be permitted on TTC vehicles in the non-peak direction.

8.3 Improve Bicycle Parking at Transit Stations

Both the TTC and GO Transit provide bicycle parking at most of their subway/train stations. Of the 64 TTC subway and SRT stations, 48 have bike racks. Stations without racks are typically in the downtown core, where the TTC has no space available at street level. Where feasible, the City has installed racks nearby on sidewalks/boulevards.

The TTC stations with racks have sufficient capacity for approximately 550 bicycles. A September 2000 survey showed 357 parked bicycles, with several stations at capacity. The number of parked bikes is a 32 percent increase over surveys done in 1993 as part of the TTC Bike-and-Ride Study. While this is still a relatively small number of bikes, it does suggest that bike-and-ride activity is increasing even without any promotional efforts.

Fourteen of the sixteen GO Train stations in Toronto have bicycle parking, with a total capacity of 166 bikes. A July 2000 usage survey noted 49 parked bikes. The Rouge Hill station, at the east boundary of the City, was the most popular location for bike-and-ride, with fifteen bikes.

At some of the TTC and GO Train stations, bicycle parking is close to or at capacity. At

these locations, there is a significant risk of a cyclist having no place to lock the bicycle and, thereby, making the bike-and-ride travel option much less attractive. An ongoing program of monitoring bicycle parking during the peak season (May to September) is required to ensure parking demand does not exceed supply. At stations where the number of parked bikes exceeds 75 percent of the capacity, additional racks will be installed. The City’s Transportation Services Division already installs bike racks throughout the City, and these locations can be added to the existing program.



Bicycle Parking at Spadina Subway Station

Recommendation 9-1 of Chapter 9 commits Transportation Services to the management of a city-wide bicycle parking program. This program will include the monitoring of bicycle rack usage at transit stations and the installation of additional racks when required.

The 1999 Cycling Survey also included questions on bicycle parking at transit stations. Cyclists who had already tried bike-and-ride were asked if “convenient and secure” parking would increase the number of trips using this mode. 78 percent of utilitarian cyclists noted that such parking would increase bike-and-ride trips, compared to 87 percent of recreational-only cyclists. The survey also asked cyclists who had not tried bike-and-ride whether “convenient and secure” parking would

encourage them to try this travel mode. 63 percent of utilitarian cyclists and 58 percent of recreational-only cyclists would consider combining cycling and transit if such parking were provided.

The importance of enhanced bicycle parking for encouraging bike and ride activity was also revealed in a recent American survey of avid recreational cyclists. Respondents were asked to rank the importance of several factors, such as trip length, when deciding how to get to work. The study authors conclude, “One of the best incentives to promote bike and ride is the provision of bicycle lockers or a similar option, such as guarded/covered parking.”²

There are several ways to improve bicycle parking at transit stations. The remainder of this section will focus on two measures – bicycle lockers and sheltered racks. A third measure, the Bikestation, is discussed in Chapter 9.



Bike Parking Garage – Central Train Station, Amsterdam

Bicycle Lockers

Bicycle lockers are a significant improvement in the level of security for bike-and-ride travellers. This measure is used at a number of North

² Taylor, D., and Mahmssani, H., *Analysis of Stated Preferences for Intermodal Bicycle-Transit Interfaces*, Transportation Research Record 1556, pp. 86-94.

American transit agencies, including those in Vancouver, Washington D.C., Minneapolis, Chicago and Portland.

Most lockers are key-operated and rented for a nominal fee for a month at a time. A pilot project conducted in Vancouver several years ago concluded that the use of bike lockers is effective in switching auto commuters into bike-and-ride commuters. When users of the new lockers were asked about their previous travel mode, 25 percent had travelled to work by car.



Bicycle Lockers – Suburban Chicago Train Station

Sheltered Bicycle Racks

One of the simplest ways to improve the quality of bicycle parking at transit stations is locating the racks in a sheltered area. This gives users the assurance that their bikes are protected from adverse weather. One option is to make use of existing space inside the GO Transit or TTC station. A few stations have underused space inside, but most do not. A second option, where indoor space is not available or practical, is to erect a separate structure to store the bicycles. The initial installations of sheltered bike racks will include both of the above options to assess their relative merits. Additional installations will proceed based on the lessons learned from the initial installations.

Recommendation 9-2 of Chapter 9 commits Transportation Services to research and develop demonstration projects for enhanced bicycle parking facilities, including bicycle lockers and bicycle parking shelters. The City expects several of the initial demonstrations will be conducted at TTC and GO Transit stations.

8.4 Improve Bicycle Access to Transit Stations

The TTC and GO Transit bike parking surveys both show a high variability in the current popularity of bike-and-ride. For example, Lawrence and Lawrence West subway stations both have approximately 16,000 users on a typical weekday. Yet Lawrence station had 18 parked bikes, while Lawrence West had only 4 parked bikes.

One possible explanation for this variability is the quality of the bike ride in the vicinity of the station. (The detailed survey of bike-and-ride activity, Recommendation 8-1, will investigate this issue.) The north entrance to Lawrence subway station is on a quiet residential street, allowing cyclists a comfortable ride to and from the station. The bike ride to Lawrence West station is much less comfortable. The station sits atop the heavily congested Lawrence and Allen Road interchange. Cyclists must negotiate through a high number of turning vehicles, as well as buses entering and leaving the station.

The importance of bicycle access was also revealed in the previously noted American survey. Potential bike and ride commuters ranked the provision of bike lanes between home and the transit station as the second most important inducement.

Transit stations themselves can contain barriers to travellers with bikes. Probably the most common barrier is a staircase, requiring the bike to be carried up or down. Over the past decade, as part of their accessibility programs, the TTC and GO Transit have eliminated this barrier through the installation of elevators at many

stations. This program is expected to continue until all stations are equipped.

Secondary entrances to TTC subway stations are often more attractive to cyclists because they are located on quieter residential streets around the station. However, the crash gates used at many secondary entrances make them inaccessible for those who wish to take their bike on the subway.

Improving road conditions for cyclists has been addressed in Chapters 4 and 5. Some links in the Bikeway Network will provide a direct connection to a transit station (e.g. Kipling). Additional investigation is required to review access to all TTC and GO stations in the City. Potential barriers, such as unprotected crossings on major roads, will be identified, countervailing measures will be reviewed and the most effective ones installed. The initial focus of the review will be more suburban stations, where access to the station is typically more difficult.

Recommendation

8-3: Review Access to Transit Stations & Implement Improvements

That the City of Toronto undertake a comprehensive review of bicycle access to all transit stations in the City and implement improvements wherever possible.

8.5 Increase Promotion of Bike-and-Ride

As noted at the start of this chapter, the combination of cycling and transit makes a formidable alternative to the automobile for many urban trips. However, bike-and-ride remains a relatively new concept in North America, and will achieve its full market penetration with active promotion and marketing.

To date, this option has received little promotion in Toronto. The TTC's website does not include any mention of combining cycling and transit. The only information aimed at users of the system is contained in signs at subway and SRT stations which advise when bikes are prohibited. Signs near the bike parking areas note that the TTC is not responsible for damaged or stolen bikes.

The GO Train schedule booklet includes a small sidebar, focusing on when bikes are prohibited on the trains, while the website has a "Bicycles" section on its Frequently Asked Questions page noting permitted times. GO Station descriptions on the website identify whether bicycle racks are present.

Many North American cities are further ahead in encouraging bike and ride by:

- providing a "bike-and-ride" page on their transit agency web site (Tri-Met in Portland, Oregon);
- providing a "bicycle" page on a regional web site for several transit agencies (San Francisco Bay Area Transit);
- producing "go green" promotional material which describes the benefits of bike and ride (Houston); and
- distributing brochures to promote bike-and-ride, and providing detailed information on rules, requirements and time (Eugene, Oregon).

In addition to these measures, the profile of bike-and-ride can be raised in the vicinity of transit stations through the use of signs and posters.

Marketing and promotion strategies must be targeted to specific audiences for maximum impact. An Australian report on combining cycling and transit listed the following characteristics of the most likely convert to bike-and-ride:

- the trip must be of some length, where fuel and other costs become a factor;
- the trip may involve severe traffic congestion giving rise to unpredictable delays, perceived dangers and considerable irritation;
- there are at least moderate parking problems or costs at the end of the trip;
- the family is, ideally, a single-car family living in an area with infrequent or not easily accessible public transport, so there is pressure for the car to be available to other household members;
- the individual lives more than a 6 – 7 minute walk from the transit stop or station but no more than a 10 minute bicycle ride away;
- the individual already owns a bicycle and is disposed to cycling; and
- there are no steep hills or serious hazards that the individual would have to negotiate going to and from the station.

One of the main purposes on the survey proposed in Recommendation 8-1 is the development of a Toronto-specific profile of the potential bike-and-ride convert.

Because the promotion of bike-and-ride involves two travel modes, there is a need for strong co-operation among the road authority, the City of Toronto and the transit operating agencies, TTC and GO Transit. This will entail jointly sponsored “GO GREEN” advertising campaigns, as well as joint publications and special events.

Recommendation

8-4: Develop Bike-and-Ride Promotion Strategies

That the City of Toronto, GO Transit and the TTC develop a co-ordinated bike-and-ride promotion strategy and related initiatives.

9 Bicycle Parking

9.1 Guiding Principle and Objectives

Cyclists who bike to work, to school or for other practical purposes need more than a network of safe and convenient routes to their many destinations. Equally important, they need a secure place to park their bicycles when they arrive, whether it is for five minutes or the whole day. Bicycle commuters also need convenient access to shower and change facilities. The absence of these supportive facilities is a deterrent to more widespread use of bicycles for everyday transportation in Toronto.

Most Toronto cyclists (93%) claim that they have convenient and secure parking at home, according to the 1999 Cycling Survey. However, less than 60 percent of utilitarian cyclists indicated they have convenient and secure parking at their workplace or school. Even fewer (38%) have access to convenient shower and change facilities at their workplace or school. Cyclists who don't bike to work or school report less access to these supportive facilities. 45 percent of recreational cyclists have secure bike parking, and only 23 percent have shower and change facilities at their work or school destination.



Post-and-Ring Bicycle Parking

When recreational cyclists were asked what improvements would encourage them to bike to work or school, nine percent of respondents (representing 49,000 cyclists) identified secure bicycle parking as their second most important need, second only to more bike lanes. Six percent of recreational cyclists (representing 33,000 cyclists) also identified access to shower and change facilities as an important measure to encourage them to commute by bicycle.

Given that bicycle parking is essential to most bicycle trips, the guiding principle for this spoke of the Toronto Bike Plan is:

Secure and convenient bicycle parking must be available at all cycling destinations to encourage and support cycling.

A comprehensive bicycle parking program must provide two levels of parking to match cyclists' needs. Basic bike parking is typically a bike stand on the sidewalk suitable for short-term parking, ideally no more than 10 to 15 metres from the building entrance. Short-term parking will accommodate customers, visitors, couriers and other cyclists who are parking for no more than one or two hours. An enhanced level of service is required for long-term bike parking, geared to employees, students, residents and others who will be parking for more than two hours. This parking will be provided in a secure, weather-protected location on the building site. These facilities can include bicycle racks in a monitored area, a limited-access room or garage and bicycle lockers.

One of the most visible symbols of the City's support for cycling is the post-and-ring bicycle stand. Beginning as a small program in 1984 with the first 25 installations, the program has expanded to meet the growing demand for bicycle parking. To date 6,800 post-and-ring stands have been installed on city sidewalks, largely in response to requests from cyclists and businesses.

The City has implemented a variety of other bicycle parking initiatives which complement the basic bike stand request program. In 1993, the former City of Toronto adopted a new zoning by-law which required large new developments to provide bicycle parking and shower and change facilities for cyclists. The Toronto Parking Authority has installed bike racks in some of its facilities in locations where space cannot be used for car parking. Bicycle racks have also been installed at the civic centres and some recreation centres and parks facilities. However, there has not yet been a systematic program for providing bike parking at all civic facilities and buildings.

While short-term bicycle parking has been provided on streets and at civic destinations since the early 1980's, most of this effort has been concentrated in the former City of Toronto. Many other areas of the City have very poor access to quality bike parking. A comprehensive approach is needed to ensure that all cycling destinations in the City have an appropriate level of bike parking within the next 10 years.

The rest of this section of the Plan will outline a bike parking strategy for achieving the following four objectives:

- Expand the basic bicycle parking program to serve all public cycling destinations;
- Develop and provide enhanced bicycle parking facilities which provide security from theft and protection from the elements;
- Require and encourage the private sector to provide bicycle parking at their buildings; and
- Develop effective strategies to prevent bicycle theft.

9.2 Expanding the City's Basic Bike Parking Program

The post-and-ring bicycle parking program has a long history. This made-in-Toronto design was a response to the City's dissatisfaction with the bike rack designs available in the early 1980's. The original post-and-ring concept was proposed by the City Cycling Committee and developed by the City's urban designers.



Post-and-Ring Bike Stand

As mentioned above, 6,800 post-and-ring stands have been installed and maintained on sidewalks and boulevards, free of charge by the City's Transportation Services Division. In 2000, the first year that the bike parking program was expanded to serve the amalgamated city, about 2,800 post-and-ring stands were installed. Of these, 880 new stands were installed in response to requests by businesses and cyclists, and a further 98 were paid for by developers. Another 1,900 post-and-ring stands were installed to replace on-street parking meters removed as part of the Toronto Parking Authority's conversion to pay-and-display parking.

The primary challenge facing the program is to provide better bike parking coverage in all areas of the City, particularly in districts which, historically, have had few bicycle facilities. This will require more aggressive promotion, making the application process more accessible to more people and taking a pro-active approach in identifying locations where bicycle parking is

needed. Based on Toronto's experience since amalgamation, the City anticipates installing approximately 1,000 new stands per year for the next 10 years at locations requested by businesses, cyclists, Councillors and staff. The former City of Toronto program had grown to approximately 500 new stands per year prior to amalgamation.

In addition to the request program the City needs to replace parking meters with bike parking as the Toronto Parking Authority rolls out the on-street pay-and-display system across the city. Approximately 3,000 meters were removed from downtown streets in 2000 and replaced with about 400 of the Toronto Parking Authority's new pay-and-display machines. Although parking meters were never intended for bicycle parking, they have been an invaluable parking resource for cyclists for many years. The removal of parking meters means fewer parking opportunities for cyclists.

Transportation Services and the Parking Authority will continue to work together to ensure a smooth transition from parking meters to bike parking. The Authority will continue to fund a portion of the cost of the replacement bicycle parking. Transportation Services will survey parking meter routes slated for conversion, determine appropriate bicycle parking locations and install and maintain the new stands. Where practical, existing parking meter posts will be re-used; otherwise new posts will be installed. Replacement bike parking will be installed prior to the removal of meters to minimize disruption to cyclists.

The post-and-ring design is particularly well suited to Toronto's urban sidewalks where there are many competing demands for the limited space. The design concept has been reproduced by commercial bike rack manufacturers in Ontario and copied by cities in the U.S. and as far away as Copenhagen, Denmark. However, in some parts of the city it is challenging to provide enough bike racks to meet current needs. Bicycle parking on sidewalks will

always be secondary to their primary purpose, to provide safe access for pedestrians. Therefore, the City must begin looking at innovative approaches to bicycle parking. European cities have developed very space efficient bicycle parking racks which could serve as a model for a new "made-in-Toronto bicycle rack design. Some on-street parking spaces could be more efficiently converted to bicycle parking – several bicycles can be parked in the space required for one car.

Very few recreation facilities, community centres and libraries outside the central area of the city have sufficient bicycle parking. All of the civic centres and other civic buildings require bicycle parking. A multi-year program will be developed for the provision of bike parking at all civic facilities over the next 10 years. The first step is to produce an inventory of bicycle parking needs at all city facilities, and develop a process and criteria for determining priorities for new bike parking.

In the past, each City department was responsible for installing bicycle parking at facilities under their management. As a result, the availability and quality of bicycle parking at civic properties is inconsistent. In an effort to streamline the bike parking program, ensure consistently high quality parking facilities and enable more cost-effective purchasing of equipment, installation and maintenance, Transportation Services will administer the city-wide bicycle parking program, in consultation with all of the affected agencies. Having one agency responsible for all civic bicycle parking will also make it easier for the public to make requests for bike stands.

Recommendation

9-1: Manage City-wide Bicycle Parking Strategy

That the City’s Transportation Services Division manage a comprehensive city-wide bicycle parking program, which will:

- *install 1,000 new post-and-ring bicycle stands per year at requested locations;*
- *provide replacement bike parking when parking meters are removed with joint funding by the Toronto Parking Authority;*
- *install bicycle parking at all civic centres and work sites, recreation facilities, libraries, transit stations and other civic buildings; and*
- *develop alternative bike rack designs appropriate for a variety of public spaces.*

Toronto schools and universities have a responsibility for providing bike parking for their students and staff. The City has a role in encouraging universities to promote cycling within and to their campuses, and assisting them in developing effective bicycle parking programs.

There has been little work to date by the school boards or the City to encourage cycling to school. There are two main barriers to encouraging cycling in Toronto schools – concerns about traffic safety and bike theft. Some schools actively discourage cycling to school because they do not have secure bike parking. Clearly, increasing the bike-to-school trips will require more than bike parking. This

issue is dealt with in detail in Chapter 7 – Promotion.

The City has installed post-and-ring bike stands on the sidewalks outside of several schools in the past few years; however, in 2000 only two schools requested bike stands from the City. The City will work with the School Boards to ensure the provision of secure bicycle parking at all schools.

Toronto’s universities and colleges have been more active in providing bicycle parking for their students and staff, although it appears there are still not enough bike racks to meet current demand. The downtown campuses have also benefited from City installed bicycle stands on the nearby public streets.



Bicycle Parking in front of Robarts Library, University of Toronto

9.3 Developing Enhanced Public Bike Parking

Toronto’s post-and-ring bike stand program has been very successful in providing convenient short-term parking, primarily on city sidewalks. The City needs to expand the range of service for cyclists by developing enhanced bike parking facilities which offer higher levels of security against theft and better protection from the elements at key locations. These kinds of facilities typically include bicycle lockers and bicycle shelters.

Bicycle locker rental programs are offered by many North American cities. Lockers are typically located at transit stations to encourage bike-and-ride (see Chapter 8). Several cities such as Portland and Minneapolis also provide lockers downtown and at other bike commuter destinations. Lockers provide a very high level of security as well as protection from the elements. Cyclists pay a key deposit and rent a locker by the month or for longer periods. Rental fees range from \$15 per month to \$90 per year. Start-up funding will be required for the initial purchase and installation. Rental fees are generally set at a level to fund long-term administration and maintenance costs and recover the initial start-up costs over several years. This type of secure bike parking is particularly suitable for locations where there is no indoor secure parking available for commuters and could be situated in city-owned open space or parking lots. Lockers can also be purchased by property owners for private use.

Providing protection from the elements is an important amenity for cyclists who ride in all kinds of weather. The City of Ottawa has recently provided covered bicycle parking at a few key destinations. There are many examples of covered bicycle parking in European cities, ranging from simple inexpensive shelters to multi-level bicycle storage facilities. The transit shelter commonly used in Toronto may provide a simple prototype for a new bicycle parking



Covered Bicycle Parking – Ottawa

shelter. Some research is needed to develop simple design concepts, identify potential shelter locations, and investigate the potential for cost-recovery through advertising revenue or sponsorship.

Recommendation

9-2: Research Enhanced Bicycle Parking Facilities

That the City research and develop demonstration projects for enhanced bicycle parking facilities, including bicycle lockers and bicycle parking shelters.

Another idea, which is gaining popularity in North America, is the Bikestation, a full-service bicycle storage and rental facility. The first U.S. Bikestation was opened in Los Angeles in 1996 at the Long Beach Transit Mall next to the Metropolitan Transit Authority (MTA) Metro Blue Line Station. Bikestations provide a full range of services for cyclists including monitored bike parking, bike locker rentals, bicycle rentals and repair shops, changing rooms and transit and cycling information. Other Bikestations are now operating in downtown Los Angeles and Portland.

Indoor monitored bicycle parking and repair centres are common in Europe and Japan. There are over 3,000 such facilities in Japan and 84 bike stations in the Netherlands with capacities from 1,150 to 4,000 bicycles. They are typically located at public transit and train stations as well as high-density bicycle destinations such as universities¹. A Toronto Bikestation will provide a valuable service to cyclists in the downtown core, at major transit stations (such as Finch Station) and at the downtown universities.

¹ New York City Bicycle Needs Study, p.23, 1998.

Primary funding to start the Long Beach Bikestations came from the federal funding sources and the transit authority, MTA. Operating costs are equally funded by the MTA and the city. Before a Toronto Bikestation can be considered more fully, the City needs to undertake a feasibility study, and develop a business plan. Potential partners include the TTC, the Toronto Parking Authority and the University of Toronto. One of the biggest challenges is finding a suitable location, one that serves a high demand for bike parking and is economically viable. Start up funding may be available from a number of granting agencies. Equally important are securing funding and/or revenue for ongoing operation of the Bikestation. One option is for the City to provide the property and contract out the operation of the facility, similar to the bicycle rental on Centre Island.



Bikestation – Long Beach, California

Recommendation

9-3: Determine Viability of Operating a Bikestation

That the City, in co-operation with the Toronto Parking Authority, the TTC and other potential partners, undertake a feasibility study to determine the viability of operating a Bikestation to serve Toronto cyclists.

9.4 Private Sector Bicycle Parking

The City has an essential function in providing bike parking at all public destinations as described in the previous sections of this chapter. The private sector has an equally important role in providing bicycle parking and commuter cyclist amenities for their employees and customers. The City will assist the private sector in this effort by establishing bicycle parking requirements for different land uses and developing design guidelines. The City will also encourage the private sector to provide high quality bicycle parking.

A 1991 survey of 12 multi-unit residential buildings, conducted by the former City of Toronto, found that bike parking was not meeting the needs of cyclists. Almost two thirds of cyclists reported that they kept their bicycles

Figure 9.1
Existing and Preferred Locations for Bicycle Parking²

Location	Where Cyclists Want to Park	Where Cyclists Park Now
Locked bike room	40%	9%
Outside bike racks	26%	4%
Inside Apt./on balcony	11%	62%
Bicycle locker	4%	0
Personal storage locker	3%	7%
Parking meter, fence, etc.	0%	9%
Elsewhere	0%	3%

Note: Does not add up to 100% due to rounding.

² Parking Survey: Multi-Unit Residential Buildings, City of Toronto, 1991.

in their apartment or on the balcony, even though only eleven percent indicated this was their first choice. While two thirds of respondents wanted to park in a locked bike room or on outside bike racks, these facilities were available to only 12 percent of respondents.

The same survey found that inadequate bike parking facilities are a deterrent to cycling. Only 10 percent of respondents indicated that there was enough bike parking at their building, compared with 81 percent who said there was not enough or none at all. 24 percent of respondent households said they would (and a further 23 percent said they might) buy a new bike if they had access to secure and convenient bike parking.

In response to the 1991 survey, the former City of Toronto amended its Zoning By-law in 1993 to require bicycle parking for residents, commuters and visitors in all new residential and commercial buildings over 2,500 square metres. Since then planners have been securing bicycle parking spaces in residential and commercial buildings and within streetscape plans associated with new developments. Currently, these zoning requirements only apply to the former City of Toronto geographic area. There are no comparable requirements in the other areas of the City.



Bike Parking Enclosure – Downtown Toronto

There are two immediate priorities for improving bicycle parking opportunities in private buildings. The first task is to evaluate the effectiveness of the existing Zoning By-law bicycle parking requirements in meeting the needs of cyclists. There has been no follow-up monitoring of the bike parking and shower/change facilities provided since the by-law was amended to require these facilities.

Second, new bicycle parking requirements must be developed to apply to all areas of the City. Different levels of bicycle parking may be required for commercial buildings to reflect the different levels of bicycle commuting across the City. It is anticipated that the requirement for residential buildings will be consistent across the City because bicycle ownership levels are similar for all City Districts.

Figure 9.2
Existing Zoning By-Law
Bicycle Parking Requirements
(Former City of Toronto)

Residential Building	<ul style="list-style-type: none"> • 0.75 bike spaces/unit • 200 maximum
Commercial Building	<ul style="list-style-type: none"> • 6 bike spaces minimum • 1 bike space / 1,250 m² • both male and female shower and change facilities
Additional requirements:	
<ul style="list-style-type: none"> • 80% occupant / 20% visitor • not more than 50% in vertical position • cannot be provided in dwelling unit/commercial suite or on balcony 	

Given that it is the City’s goal to increase bicycle use, bicycle parking requirements must be based on future bicycle parking demand, not just existing cycling levels. Harmonizing the many different by-laws of the former municipalities is a huge undertaking and will likely take several years to complete. The

review of the existing bicycle parking by-law and development of a new by-law applying to all parts of the City could be completed relatively quickly and, therefore, will proceed immediately.

Recommendation

9-4: Evaluate Zoning By-laws for Bicycle Parking Requirements

That the City undertake a study to evaluate the existing zoning by-law bicycle parking requirements and to develop new requirements for bicycle parking and shower/change facilities that would apply to all appropriate uses in all Districts of the City.

To ensure that bicycle parking and shower/change facilities in private buildings meet consistently high standards, the City will produce bike parking guidelines in consultation with the development industry. These guidelines will explain the benefits of bicycle parking, describe the city's bicycle parking requirements and offer practical advice on how to provide high quality bicycle parking and shower/change facilities, either retro-actively or in the original design process. Several North American cities (Vancouver, Portland, Los Angeles, Tucson and Cambridge) have produced very helpful bicycle parking guides which can serve as a model for a Toronto.

The bike parking guidelines will benefit developers of new buildings as well as owners and property managers of existing buildings. The City has no authority to retro-actively require existing building owners to provide bicycle parking facilities but the guidelines could be a very useful tool for encouraging it. In fact, many building owners have already installed bicycle parking on their own initiative because their tenants have demanded it and it is

in their financial best interest to provide low-cost parking for tenants and customers. A clear set of guidelines will also benefit planners who must review development applications for compliance with a wide range of city requirements, including bicycle parking. The guidelines will be complemented by training for staff involved in the development review process.

Recommendation

9-5: Produce Bicycle Parking Guidelines for Developers

That the City produce bicycle parking guidelines for developers and property managers to assist in the provision of high quality bicycle parking facilities.

9.5 Preventing Bicycle Theft

For many cyclists, the risk of having one's bicycle stolen is a major obstacle to more frequent cycling. In Toronto, almost 90,000 stolen bicycles have been reported to the Police in the past decade, an average of 9,000 per year (see **Figure 9.3**). With an average value of \$400 that represents 3.5 million dollars per year.

The 1991 Bike-to-Work Week Survey found that just over half of all bicycles are stolen from home, and almost a quarter stolen from workplaces (see **Figure 9.4**).

The usual source of information on bicycle theft is police records, however this reveals only part of the true picture. Many stolen bicycles are not reported to the police. A Dutch "victims survey" found that only one in five bicycle thefts

Figure 9.3
Number of Bicycles Reported Stolen By Year

Year	Number of Bicycles Reported Stolen
1990	6,200
1991	11,500
1992	11,700
1993	11,900
1994	10,900
1995	9,400
1996	8,200
1997	7,400
1998	6,200
1999	5,200
Total:	88,600

Figure 9.4
Where Bikes Were Stolen From⁴

At home	53%
At Work	24%
At School	7%
At School	7%
Other	17%

were reported to police³. While police records show that Toronto bicycle thefts peaked in 1993 and have been steadily decreasing since then, it is unclear whether this represents the actual bike theft rate or a difference in the reporting rate. Following the alarming rise in stolen bike claims, many insurance companies tightened up on their policies for replacing stolen bicycles.

³ Facts about Cycling in the Netherlands, Ministry of Transport, Public Works and Water Management, no date.

The Toronto Police Service operates a free bicycle registration service. Owners can register their bicycles at any police station or on the city’s website. However, few Toronto cyclists have registered their bicycles and only some of the stolen bicycles recovered by the Police are ever claimed by their owners. Since the reporting of bicycle theft rarely results in the bicycle being recovered, many cyclists are of the opinion that there is no point in reporting it.

Effective bike theft prevention starts with secure bike parking. While implementing the bike parking strategy described in this section will go a long way towards reducing bike theft, it is not enough. A comprehensive bicycle theft prevention strategy must consider all the factors which contribute to bicycle theft. Cyclists must be more diligent in locking their bicycles at all times and using high security locking devices. Police resources must be directed to catching bicycle thieves. Cyclists and bicycle stores must be discouraged from buying stolen bicycles. Bicycle theft is only a worthwhile activity for the thief because there is a willing market for stolen bicycles.

Recommendation

9-6: Develop a Strategy for Reducing Bicycle Theft

That the City, in co-operation with the Toronto Police Service, bicycle retailers and the insurance industry, research and develop a strategy for reducing bicycle theft.

⁴ Bike-to-Work Week Survey, City of Toronto, 1991.

10 Implementation and Evaluation

10.1 Introduction

The Toronto Bike Plan described in the previous six chapters of this report, sets out 42 recommendations for creating a safe, comfortable and bicycle friendly environment in Toronto, which will encourage people of all ages to use bicycles for everyday transportation and enjoyment.

The Implementation Strategy described in this chapter sets out the “means” by which the recommendations will be implemented and the goals of the Plan achieved. The strategy includes management, co-ordination, public consultation, funding, monitoring and evaluation.

10.2 Implementation Schedule

The Toronto Bike 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. It is also a Plan designed to be flexible, and thus is intended to evolve over time.

The Plan’s recommendations have been prioritized, and scheduled through two phases for implementation over a ten year horizon.

- Phase 1. *Short-term* (1 to 5 years); and
2. *Long-term* (6 to 10 + years).

Schedule A outlines the implementation timing or schedule for each recommendation in the Toronto Bike Plan. It lists recommendations in the order presented in the report, and identifies the phase in which they are proposed to be implemented. In addition, Schedule A provides cost estimates by component area and phase

thereby outlining a critical path for implementation.

The order and timing of priorities set out in Schedule A is intended as an initial guide for implementation. The Schedule will be reviewed and updated annually as part of an annual progress report that will include infrastructure and programming priorities and budget requirements for the upcoming year. Therefore, as the Plan evolves it will need to adapt to change. 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.

Bikeway Network

While all six components of the Plan are important, the Bike Network is the largest undertaking and will require the most extensive public consultation. Route priorities will emerge through a detailed staff process where the need, feasibility and detailed costs of particular projects will be assessed in parallel with a program of public consultation.

An initial attempt has been made to identify and prioritize routes by phase to illustrate how the network may develop after five years and when the Plan is fully implemented in 10 years. **Figure 10.1** illustrates the existing (2001) bikeway network in Toronto. **Figures 10.2** and **10.3** illustrate conceptually, the potential development and growth of the bikeway network through the completion of Phase 1 (2006) and then later the completion of Phase 2 (2011), respectively. It is proposed that by the end of Phase 1, the major “spine” of the network should be completed and that links are made to major existing off-road path systems in the City. Short-term priority projects were selected based on the following criteria:

- ability to add dedicated bike lanes or wide curb lanes within the existing pavement width or as part of scheduled road reconstruction;

Schedule A
Implementation Strategy

10. Implementation and Evaluation

Chapter #	Recommendations	Implementation Schedule										Estimated Cost*
		short-term					long-term					
		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
Bicycle Friendly Streets												
4	1 Improve Bicycle Detection at Traffic Signals		•									TBD
	2 Amend By-laws to Exempt Bicycles											EX
	3 Enhance Safety and Maintain Access Through Traffic Calming Projects											EX
	4 Investigate Two-way Bike Access on One-way Streets					•	•					EX
	5 Provide Wide Curb Lanes on Arterial Roadways											EX
	6 Provide Bicycle Friendly Features for Bridges / Underpasses											EX
	7 Develop a Pavement Repair Reporting System		•									TBD
	8 Ensure Street Cleaning Practices Respond to Cyclists' Needs		•									TBD
	9 Continue Catchbasin Grate Replacement Program		•									EX / TBD
	10 Review practices for Cyclist Safety during Road Construction		•									EX
Total:											\$ -	
The Bikeway Network												
5	1 Implement a Bikeway Network		•	•								\$ 66,800,000 #
	2 Demonstrate Innovative Designs											EX
	3 Develop Bikeway Network Information System			•	•							\$ 50,000
	4 Improve Bikeway Maintenance to Ensure Safe Operation		•									TBD
	5 Identify High Collision and Injury Locations			•								EX
	6 Increase Enforcement both On-Road and Off-Road		•									EX
	7 Establish Seamless Connections with Neighbouring Municipalities						•					see 5-1
Total:											\$ 66,850,000	
Safety and Education												
6	1 Establish a Bicycle Safety Partnership		•									\$ 100,000
	2 Develop and Implement Safety Programs			•	•	•		•	•			\$ 450,000 #
	3 Expand and Improve Access to CAN-BIKE courses		•	•								\$ 160,000
	4 Complete CAN-BIKE Driver-Training Unit		•									\$ 20,000
	5 Review Bicycle Collisions											EX
	6 Develop Educational Material to Assist Cyclists Involved in Collisions				•							\$ 50,000
	7 Continue Toronto Police Service Role in Bicycle Safety											EX
	8 Request MTO to Develop/Implement Bicycle Safety Strategies		•									EX
Total:											\$ 780,000	
Promotion												
7	1 Expand Bike Week											\$ 300,000
	2 Develop a Bike-to-School Program			•	•							TBD
	3 Promote Cycling Programs, Facilities and Events											\$ 1,000,000 #
	4 Maintain the Road and Trail Safety Ambassador Program											\$ 1,500,000 #
	5 Encourage and Support Cycling by City Employees		•	•								\$ 80,000
	6 Encourage Employers to Promote Bicycle Commuting					•						\$ 200,000 #
	7 Encourage Bicycle Tourism in Toronto								•	•		\$ 100,000
Total:											\$ 3,180,000	
Cycling and Transit												
8	1 Undertake Bike-and-Ride Survey		•		•			•		•		\$ 150,000
	2 Undertake Demonstration of Bike Racks on Buses		•	•								\$ 30,000
	3 Review Access to Transit Stations & Implement Improvements				•	•						TBD
	4 Develop Bike-and-Ride Promotion Strategies		•	•								\$ 50,000
Total:											\$ 230,000	
Bicycle Parking												
9	1 Manage City-wide Bicycle Parking Strategy											\$ 1,500,000
	2 Research Enhanced Bicycle Parking Facilities			•	•							EX
	3 Determine Viability of Operating a <i>Bikestation</i>						•	•				TBD
	4 Evaluate Zoning By-laws for Bicycle Parking Requirements		•	•								\$ 50,000
	5 Produce Bicycle Parking Guidelines for Developers			•	•							\$ 20,000
	6 Develop a Strategy for Reducing Bicycle Theft					•						EX
Total:											\$ 1,570,000	
Implementation												
10	1 Establish Inter-Departmental Bike Plan Co-ordinating Committee		•									EX
	2 Prepare Annual Progress Report to Council											EX
	3 Review Staff Resources Required for the Bike Plan		•									EX
	4 Detailed Design and Public Consultation for Bikeway Routes											EX
	5 Commit Funding for Implementation of Toronto Bike Plan		•									see 5-1
	6 Explore Alternate Funding Sources											EX
	7 Collect and Analyze Cycling Data		•									\$ 200,000
Total:											\$ 200,000	
Total:											\$ 72,810,000	

* - Estimated costs include 15% for contingencies and 20% for design and operations.
 EX - Existing Resources
 TBD - To Be Determined - Review Required
 # - External Funding Sources to be Investigated

• • New Policy / Program Development
 Ongoing Implementation / Maintenance

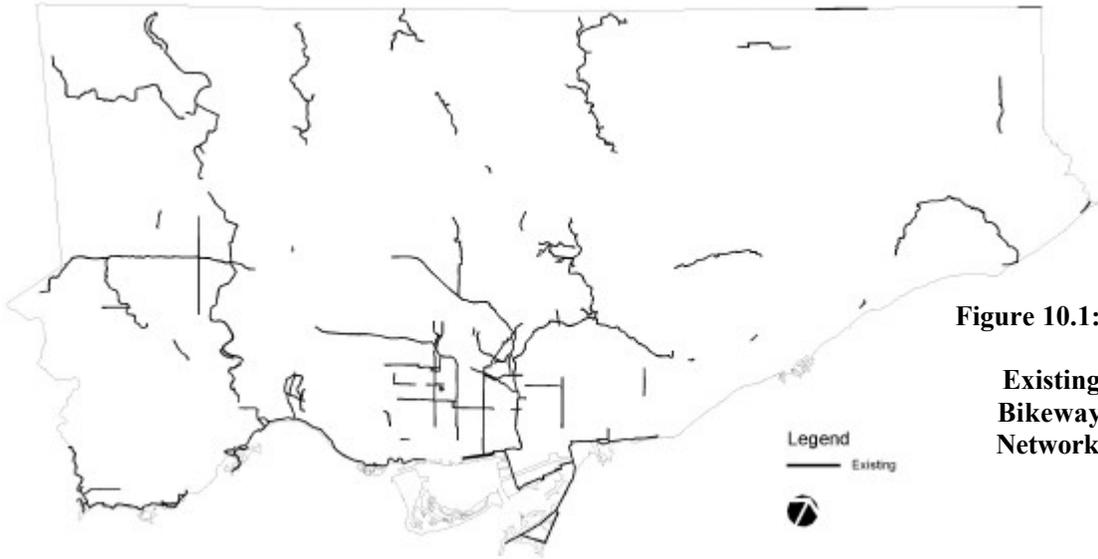


Figure 10.1:
**Existing
Bikeway
Network**

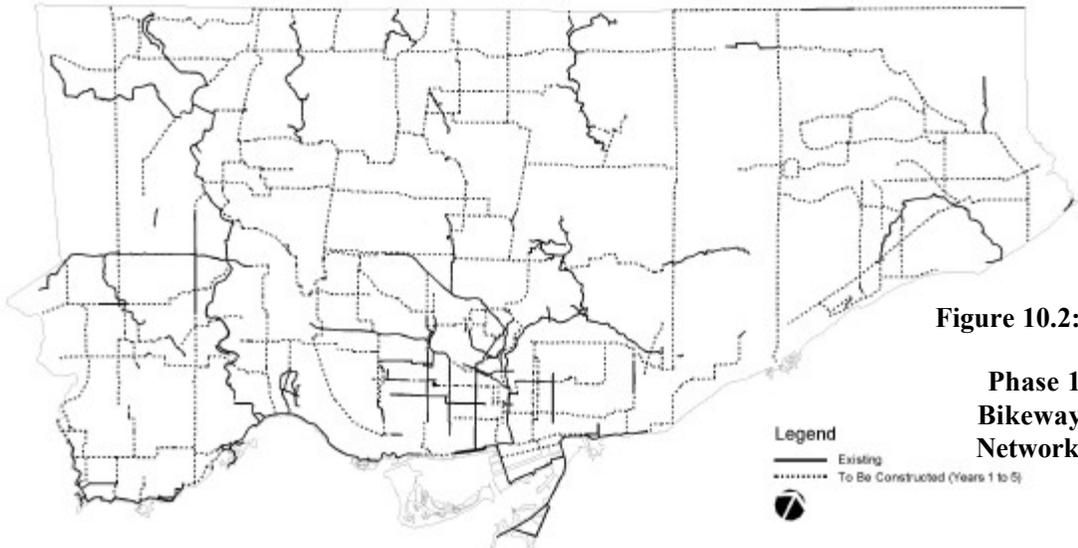


Figure 10.2:
**Phase 1
Bikeway
Network**

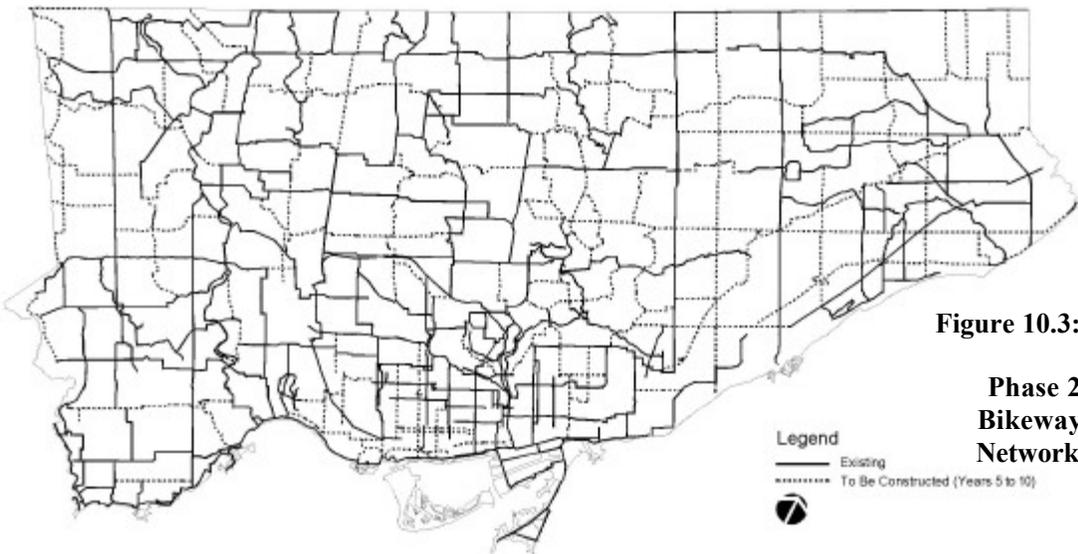


Figure 10.3:
**Phase 2
Bikeway
Network**

- development of major east-west and north-south routes in each City District;
- special focus on major employment nodes;
- extending or upgrading existing on-road and off-road bikeways;
- providing for crossings of cycling barriers;
- connecting to existing bikeway facilities;
- focusing on improved bikeway access to more residential areas; and
- completing a major new off-road facility.

This first phase of the network will provide a bikeway network based on a 4 km grid throughout the City. An interim network at this scale will serve to make cycling for utilitarian purposes more convenient for a greater number of people and significantly increase cycling trips.

Phase 2 of the network will involve a number of major infrastructure improvements, most notably connections across major barriers. The Bikeway network will develop in more detail, build upon the spine of the network and thus evolve to become a network of over 1,000 kilometres based on a 2 km grid across the City.

Multi-Faceted Plan

The Bike Plan is much more than the Bikeway Network. Parallel to implementing the network is a need to develop and implement safety and education programming. Bicycle Parking facilities need to be provided in all areas of the City. The links between cycling and transit need to be strengthened. Day to day practices and policies influencing street design and maintenance will, over time, provide safer, more comfortable streets for cyclists. Many of these activities are an expansion of ongoing programs, however, there is also a need to develop new and innovative programs.

10.3 Management and Co-ordination

Currently, responsibility for cycling issues and cycling infrastructure is spread across many City departments and committees in Toronto.

On-road cycling facilities, bicycle parking and policy input regarding cycling infrastructure are the responsibility of the Transportation Services Division of the Works and Emergency Services Department, and report to the Works Committee. Off-road paths in parks are typically the responsibility of the Parks and Recreation Division and Policy and Development Division of the Economic Development and Tourism Department. They report to the Economic Development and Parks Committee.

Cycling promotion, education and safety programming fall under the Transportation Planning Division of the Urban Development Services (UDS) Department. They report to the Planning and Transportation Committee.

In addition, the Toronto Cycling Committee, a citizen committee appointed by Council, represents the interests of cyclists and is an important advisory body, providing input to staff and City Council on bicycle transportation issues.

The Toronto Bike Plan is an ambitious program that requires an appropriate organizational structure for implementation.

Bike Plan Co-ordinating Committee (BPCC)

In order to directly co-ordinate the implementation of the Toronto Bike Plan, it is recommended that the Transportation Services Division establish and Chair an inter-departmental staff working committee. The Bike Plan Co-ordinating Committee (BPCC) will include staff from:

- Transportation Services Division, Works and Emergency Services;

- Technical Services, Works and Emergency Services;
- City Planning Division, Urban Development Services;
- Parks and Recreation Division, Economic Development, Culture and Tourism;
- Policy and Development Division, Economic Development, Culture and Tourism;
- Community Health Division, Corporate Services;
- Toronto Transit Commission; and
- Toronto Police Service.

The primary role of the BPCC will be to co-ordinate budgeting, program development and delivery across affected/involved departments. In addition, the BPCC will serve as a vehicle to co-ordinate and obtain input on the implementation of the Toronto Bike Plan, review staff resources and responsibilities across all departments and sections, exchange ideas and information and provide input to the preparation of annual progress reports. It is proposed that this Committee meet four times a year or as deemed necessary.

Recommendation

10-1: Establish Inter-Departmental Bike Plan Co-ordinating Committee

That an interdepartmental Bike Plan Co-ordinating Committee be established to co-ordinate the implementation of the Plan, in consultation with the Toronto Cycling Committee, and that Transportation Services Division take the lead in establishing and chairing the Committee.

Annual Progress Report

Evaluating the annual progress of the Plan is the cornerstone of the implementation strategy. Although Schedule A provides a strategy to implement the recommendations of the plan over ten years, a more detailed annual work plan is needed to guide those who will implement the Plan.

Therefore it is proposed that the Transportation Services Division, in consultation with the proposed Bike Plan Co-ordinating Committee, prepare an Annual Progress Report to Council and the Toronto Cycling Committee. This report will outline the progress made towards achieving the primary goals of the plan. The report will measure the success in implementing the recommendations set out in the Plan (Schedule A), identify changes in direction and priorities for the upcoming year, and confirm budget requirements. The implementation program for each year, including the specific routes and programs proposed to be implemented, will be presented to City Council for consideration during the preparation and review of the annual departmental budgets.

Data collected through monitoring programs along with information collected through ongoing public consultation exercises, such as user surveys and public attitude surveys, will inform and thus assist in the preparation of the list of annual priorities. The Toronto Cycling Committee will play an important role in this ongoing review of the Plan and setting 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 will identify priorities for the 2002 budget, and will be submitted in Fall, 2001. This report should outline the infrastructure and programs set for implementation in 2002 and confirm associated budget requirements.

Recommendation

10-2: Prepare Annual Progress Report to Council

That the Commissioner of Works and Emergency Services be requested to prepare annual progress reports to City Council, in consultation with the Bike Plan Co-ordinating Committee, documenting the progress of the Bike Plan and presenting implementation priorities and funding requirements for the following year; and that the first report be presented in the Fall of 2001 outlining Bike Plan projects to be implemented in 2002.

City staff who implement cycling programs are currently housed in three different departments: Works and Emergency Services, Urban Development Services and Economic Development, Culture and Tourism. Implementing the Toronto Bike Plan will require additional staff and funding resources, and potentially a re-allocation of some existing resources. Potential changes to staffing levels and responsibilities will be determined through an internal review, during the first two years of the Plan. This review will assess and confirm “who will do and pay for what” related to the TBP across all City Departments.

Consolidating City staff resources in the development and delivery of cycling services could provide:

- a one stop source of information and contact for the public;
- better co-ordination between development and implementation of cycling policies, programs, services, and infrastructure; and

- the delivery of cycling services through a single department, as in other North American cities with significant cycling programs, including Vancouver, Ottawa and Seattle.

Bringing cycling programming and infrastructure together may significantly improve the ease with which the Toronto Bike Plan is implemented. This change would also serve to provide a central co-ordinating group, and optimize the efficient delivery of cycling services to the public.

Assessing the potential for consolidating some staff resources into a single group is the first step. The next step is to reassess staff roles, identify efficiencies and then determine the additional resources needed to develop, manage and maintain the new infrastructure and programs recommended in the Plan.

Recommendation:

10-3: Review Staff Resources Required for the Bike Plan

That the Commissioners of Works and Emergency Services, Urban Development Services and Economic Development, Culture and Tourism be requested to review staffing resources required to implement the Bike Plan, and report to the Planning and Transportation Committee on any proposed changes to the current establishment beginning January 2003.

It is important that responsibilities for building and maintaining the different bikeway types are clearly established. Traditionally, the Transportation Services Division has been responsible for bikeways on the roadway. Parks and Recreation has been responsible for off-road paths, which are typically within parklands. The

bikeway network proposed by the TBP includes a significant number of off-road paths which are within the road right-of-way or in utility corridors (hydro or rail) and have no parks function.

Therefore, in order to optimize the co-ordination and management of the bikeway network, it is recommended that responsibility for all off-road paths, which serve a primary transportation function, be assigned to the Transportation Services Division. This should include road rights-of-way, rail and hydro corridors and some off-road connections. The operation and maintenance of these additional off-road paths should be the responsibility of the Works and Emergency Services Department and funded through their annual operating budget. All other City off-road recreation paths and multi-use trails should remain the responsibility of Parks and Recreation.

10.4 Public Consultation

Plan Development (1999-2001)

The Toronto Bike Plan is the product of an extensive public consultation program. As outlined in Chapter 2, a significant amount of time and effort was invested both in public outreach, in terms of promotion of the study and various activities, as well as to obtain public input. The Toronto Cycling Survey, conducted in the Fall of 1999, led this investigation of public attitudes and trends related to cycling in Toronto, and served as a valuable source of information at the outset of Plan development. Other input came in the form of both written and oral submissions through public workshops/open houses, e-mails, faxes, telephone calls and letters. All this information was recorded, reviewed and given due consideration in the development of the Plan.

During the study, the draft bikeway network and other components of the Plan were reviewed with stakeholders, members of the public, staff representing key city departments and the

Toronto Cycling Committee. Steering Committee meetings were held with key city staff to review the progress of the study and to provide feedback on the various phases of Plan development. A record of the major consultation activities is found in Appendix B. The details of the public consultation activities, including minutes of meetings and input received from stakeholders, are documented in a separately bound Technical Appendix.

Plan Implementation (2002-2011)

Public consultation on the Toronto Bike Plan does not end with the submission of the Final Plan to Council for approval. Rather it is a necessary and important on-going activity that will support the implementation of the Plan. The Plan, as previously noted, is designed as a flexible document and will evolve over time in response to new and changing developments and priorities. Some of these changes will emerge through on-going public consultation and from monitoring the implementation of the Plan.

This is an ambitious plan, yet one which is pragmatic and achievable over time. Adoption of the Bike Plan by Council is not the end of the process, but rather marks the beginning of a new course of action for implementing the Plan's recommendations. Implementation will require ongoing consultation between City Departments and agencies, the Cycling Committee and the public. This is particularly important for new bike lanes and off-road paths, which can have significant impacts on adjacent properties and other users of parks and roads. The City's standard public consultation process will be adhered to for all new bikeway projects.

“Public consultation on the Toronto Bike Plan does not end with the submission of the Final Plan to Council for approval.”

Recommendation

10-4: Undertake Design and Public Consultation for Bikeway Routes

That the bikeway routes proposed in the Bike Plan be subject to the existing approval process (detailed analysis, design and public consultation) before being considered by City Council for implementation.

The Toronto Cycling Committee

Toronto has had active cycling committees since 1975. The Cycling Committee is a citizen advisory group appointed by City Council to represent cyclists. The role of the Committee is to provide input on the whole range of cycling programs and services offered by the City. The citizen volunteers have been an invaluable resource in developing new and innovative policies and programs to encourage cycling and improve safety.

The Toronto Cycling Committee will be a partner in implementing the Toronto Bike Plan, and will continue to have a valuable role in representing the interests of all cyclists in the City. The experience and knowledge of the members of this committee are an asset that will be consulted for advice and input by City staff during the implementation phases of the Plan. They will provide input to the development and delivery of all six components, and assist staff in identifying priorities for implementation.

“The Toronto Cycling Committee will be a partner in implementing the Toronto Bike Plan, and will continue to have a valuable role in representing the interests of all cyclists in the City.”

10.5 Funding

To successfully implement the Toronto Bike Plan, Council must commit annual on-going funding for the Plan and endorse the implementation strategy.

The TBP 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, for example funding new bike lanes in the short-term but not the development of new programming or promotional campaigns, is not an efficient or recommended strategy.

The public input received throughout the Cycling Master Plan Study and from the 1999 Cycling Survey clearly indicates that the residents of Toronto support improving cycling facilities. The time is right for Toronto to invest in its future and commit the necessary long-term funding to implement the Toronto Bike Plan. Council’s leadership through this action will directly improve the liveability of our community and regain Toronto’s reputation as the most bicycle friendly city in North America.

How Much Will It Cost?

The recent amalgamation of the six local municipalities has resulted in a new City of Toronto with 2.3 million people and 240 square kilometres in area. Existing resources used to develop, deliver and maintain cycling infrastructure and programming services for a city of this size are already stretched to the limit. The additional responsibility of implementing the Toronto Bike Plan will require additional funding and staff resources. Without these resources, implementation of the Plan can not be realized.

The Toronto Bike Plan is both an infrastructure and an operations plan. Therefore, it requires both infrastructure/program development and

operations funding to ensure its successful implementation.

Some of the bikeway routes outlined in the TBP, especially on-road bike lanes, require little if any improvement beyond a change in pavement markings and/or signage. These types of improvements as well as maintenance of the network will be included in the “State of Good Repair” component of the Transportation Services capital budget. For example, if a roadway is scheduled for an asphalt overlay, new pavement markings will be required. An adjustment to the pavement marking plan to incorporate bike lanes will easily be accommodated at little, if any, additional cost. Other network improvements, such as the proposed Finch Hydro Corridor Bikeway, are more significant in scope, and will need to be identified as an item in the “Service Improvements” component of the Transportation Services capital budget. New off-road paths in parklands will be identified in the Economic Development, Culture and Tourism capital budget.

Operations costs include on-going funding related to implementing the Plan, preparing the annual progress report, delivering safety, education and promotion programs, and performing network and infrastructure maintenance. This also includes staff resources, as well as management and administration.

Increased maintenance costs associated with the proposed bikeway network, including the off-road primary transportation corridors, will come from the Transportation Services and Economic Development, Culture and Tourism operating budgets. A more detailed review of projected maintenance costs will be undertaken in 2002 and reported in the annual progress report.

As indicated in **Schedule A**, the total cost of implementing the new infrastructure and programs recommended in the Toronto Bike Plan is estimated at \$73 million over ten years, exclusive of land acquisition, lighting of those off-road paths forming part of the bikeway network and management and administrative costs. **Figure 10.4** provides a preliminary cost estimate for implementing the bikeway network component of the Plan by key City departments.

Figure 10.4
Bikeway Network Costs Breakdown

Facility Type & Lead Dept.	Existing	Proposed New	Total	Cost
Bike Lanes (WES)	35 km	460 km	495 km	\$11.6 M
Bike Routes (WES)	10 km	250 km	260 km	\$1.5 M
R.O.W./Blvd. Trails (WES)	11 km	31 km	42 km	\$14.3 M
Utility Corridor Trails (WES/EDCT)	7 km	82 km	89 km	\$26.6 M
Parks Trails (EDCT)	103 km	15 km	118 km	\$12.8 M
			TOTAL:	\$66.8 M

The cost estimates are considered “order of magnitude costs”. Infrastructure related costs are based on unit pricing (see Appendix C). Program related costs are based on a preliminary assessment that looked at current expenditures and staff resources for existing cycling related program delivery in the City, and the additional effort and resources required to implement the non-infrastructure components of the Plan.

Recommendation

10-5: Commit Funding for Implementation of Toronto Bike Plan

That the City of Toronto commit funding, estimated in the amount of \$73 million, to be phased in over a period of ten years; and that this funding be used for the exclusive purpose of implementing all six components of the Toronto Bike Plan, as set out in the recommendations of this report.

Alternative Funding Sources

In addition to a commitment of municipal funds, the City will take advantage of “other funding sources” as they become available, including public-private sector partnerships, such as the proposed Bicycle Safety Partnership.

Examples of potential funding sources include:

- Federal Government Grant programs like the “Moving on Sustainable Transportation (MOST) Program;
- Provincial Government Grant programs;
- partnering with the Ministry of Transportation of Ontario to produce safety and education material and deliver it to new and existing drivers to inform them about

how they should operate their vehicles in traffic with cyclists;

- direct funding for bikeway infrastructure and/or programming under the Province’s “Superbuild” infrastructure program;
- charitable foundations, corporate donations, bequests;
- corporate environmental funds, for example: Mountain Equipment Co-op, Canada Trust;
- developer-built – via subdivision agreements, 5 percent parkland dedication, or bonusing provisions, where appropriate;
- built in conjunction with other agencies (Toronto Region Conservation Authority, school boards, universities etc.);
- built via servicing agreements. In this case, paths built along hydro and rail corridors can serve as access routes for regular service and emergency repairs; and
- volunteers.

In addition, the City will assess opportunities to generate revenue to help fund operations associated with the TBP. For example, the costs associated with the programming, safety and education components of the Plan could be partially offset by advertising or sponsorship revenue.

Recommendation

10-6: Explore Alternate Funding Sources

That the City of Toronto explore alternative funding sources and opportunities, including the federal, provincial and private sectors to assist in the implementation of the Toronto Bike Plan.

10.6 Monitoring and Evaluation

Monitoring bicycle trends, particularly ridership and collision history, will be an important part of measuring the success of the Plan. The review of historic data undertaken for this study clearly indicates the need to improve the collection of cycling data in the City of Toronto. In addition, regular public attitude surveys are needed to monitor cycling concerns as well as the progress of the Bike Plan.

Implementation of the Toronto Bike Plan will begin in 2002. Monitoring the different aspects of cycling behaviour will assist in evaluating the effectiveness and overall contribution of various activities to achieve the stated vision and goals. A bicycle data collection program will serve to establish initial benchmarks and then provide ongoing data to identify trends and monitor increases in cycling trips during the implementation of the Plan. In order to collect consistent and reliable bicycle traffic data for analyzing trends, the City must develop a new bicycle data collection program which will:

- use existing cycling travel demand information as a benchmark for assessing growth in cycling trips as the TBP is implemented;
- measure the progress towards achieving the City's sustainability goals and targets; and
- identify cycling issues and trends to influence implementation priorities.

Recommendation

10-7: Collect and Analyze Cycling Data

That the City collect and analyze high quality cycling data to measure the progress of the Bike Plan, including:

- *bicycle traffic counts to monitor cycling trends;*
- *focussed user surveys on specific cycling issues;*

- *public attitude surveys every 3 to 5 years; and*
- *annual bicycle collision data analysis.*

In conclusion, the major underlying principle of the proposed Toronto Bike Plan implementation strategy is that it is directly tied to funding. Simply put, one is not possible without the other. Therefore, it is imperative that the City of Toronto commit the resources necessary, including annual funding over the next ten years to implement the Plan. In addition, the City will direct staff to seek out and assess other funding sources and opportunities to assist in this regard.

The Toronto Bike Plan set out in this report is the product of extensive study and consultation. It is a clear response to an identified need of Toronto residents and professionals to improve the liveability of the City. Although it has substantial cost implications over time, the long term benefits, including financial, physical and social "costs", as outlined in this report, will significantly move the City forward towards improving the environmental "sustainability" of Toronto. Implementation of the Toronto Bike Plan will encourage more people to cycle more often for more reasons, and thus improve the overall liveability of our City for all residents.

Appendix A



Bikeway Network - District 1 (Toronto) Routes

Route	Bike Lane length (km)	Signed Route length (km)	New Off-road (km)	Total Length (km)
T1 Lawrence	1.9			1.9
T2 Ronan/Fairlawn		2.4		2.4
T3 Duplex/Glengrove		3.2		3.2
T4 Broadway/Roselawn	2.5	7.6	0.5	10.6
T5 Sutherland		2.6	0.9	3.5
T6 Bayview	5.4			5.4
T7 Moore/Balmoral	2.5	3.1		5.6
T8 Welland		1.4		1.4
T9 Killbarr/Old Forrest Hill		2.8		2.8
T10 Russell Hill	1.2	1.8		3.0
T11 Dunvegan/Russell Hill	1.1	1.0		2.1
T12 Cleveland		1.9		1.9
T13 Overlea	1.4			1.4
T14 Millwood	1.1	0.5		1.6
T15 Bermondsey	0.6	0.8		1.4
T16 St Clair	1.4			1.4
T17 Westview/O'Connor	0.8	2.3		3.1
T18 Dawes	2.2			2.2
T19 Cosburn	2.0	4.0		6.0
T20 Donlands	2.1			2.1
T21 Pape/Broadwview	2.3	0.7		3.0
T22 Coxwell	2.2			2.2
T23 Fairford		0.8		0.8
T24 Greenwood	2.6	0.4		3.0
T25 Main		3.3		3.3
T26 Dundas	6.6	1.3		7.9
T27 Gerrard	1.1			1.1
T28 Strathmore		1.8		1.8
T29 Woodmount	0.5	3.6	0.9	5.0
T30 Thorncliffe Pk/Wicksteed	0.4	2.3	0.2	2.9
T31 Victoria Park	0.8			0.8
T32 Logan	0.4	3.2		3.6
T33 Carlaw	1.0	1.9		2.9
T34 Commisioners	2.4			2.4
T35 River	0.8			0.8
T36 Shuter	1.9			1.9
T37 Peter	5.1			5.1
T38 Queens Quay	3.6			3.6
T39 Northcliffe		3.7		3.7
T40 Simcoe	1.1	1.1		2.2
T41 Bremner	1.6			1.6
T42 Richmond	2.8	1.0		3.8
T43 Adelaide	2.9			2.9
T44 Esplanade		1.9		1.9
T45 Sumach/Cherry	1.0			1.0
T46 Palmerston		2.9		2.9
T47 Wellesley	1.7	2.3		4.0
T48 Garrison Creek	0.7	4.6	0.1	5.4

Route	Bike Lane length (km)	Signed Route length (km)	New Off-road (km)	Total Length (km)
T49 Black Creek			1.3	1.3
T50 Castle Frank		1.5	0.3	1.8
T51 Harbord/Hepbourne	2.4	1.9		4.3
T52 Wellington/King/QW	0.8	4.1		4.9
T53 Atlantic/CNE		1.5		1.5
T54 Brock		2.0		2.0
T55 Lansdowne	1.6			1.6
T56 Annette/Dupont/Lappin	5.3	0.3		5.6
T57 Runnymede/Ellis	2.0	4.2		6.2
T58 Bloor/Mayfield	0.7	0.7		1.4
T59 High Park Blvd		1.2		1.2
T60 High Park Ave	2.3	4.4		6.7
T61 Humbercrest		1.6		1.6
T62 Church	8.9			8.9
T63 Vaughan		5.1		5.1
T64 Old Park		1.7		1.7
T65 Rogers	2.5			2.5
T66 Keele	0.3	2.5		2.8
T67 College/Sauroren	0.8	1.6		2.4
T68 Eglinton			2.0	2.0
T69 Scarlett	1.5			1.5
T70 Spadina	3.3	1.2		4.5
T71 LSB blvd path			2.9	2.9
T72 Denison	0.3	2.3		2.6
T73 York Beltline			1.9	1.9
T74 CN Weston		3.9	6.0	9.9
T75 Martin Goodman W			7.4	7.4
T76 Martin Goodman E		0.8	9.0	9.8
T77 Lower Don Trail			8.2	8.2
T78 The Belt Line Trail			6.8	6.8
T79 Taylor Creek			3.5	3.5
T80 Dundas West	0.9			0.9
T81 Bay	0.2	2.8		3.0
T82 Jones	2.0			2.0
T83 Leslie Spit		6.8		6.8
T84 Sherbourne/Glen	3.5	2.6		6.1
T85 College/Gerrard	4.6			4.6
T86 Rosedale Valley Road			2.0	2.0
T87 Barton		2.6		2.6
T88 Rosewell/Lascalles		3.3	0.4	3.7
Totals	113.6	132.8	54.3	300.7

Facility lengths include both existing and proposed sections

Bikeway Network - District 2 (Etobicoke) Routes

Route	Bike Lane length (km)	Signed Route length (km)	Off-road length (km)	Total Length (km)
W1 Steeles	3.0	1.1	0.5	4.6
W2 Finch	5.2		0.1	5.3
W3 Westhumber	5.1	1.0	0.2	6.3
W4 Carlingview	12.9	2.3		15.2
W5 Martin Grove North	9.8			9.8
W6 Islington North	2.7			2.7
W7 Resources	1.1	2.3	2.0	5.4
W8 Kipling North	1.7		4.1	5.8
W9 Belfield	4.2			4.2
W10 Dixon	2.6			2.6
W11 Westway	4.4			4.4
W12 Wincott	3.9		1.0	4.9
W13 Royal York North	2.7			2.7
W14 Eglinton			8.3	8.3
W15 Mill	3.6			3.6
W16 West Mall	6.0	3.3	0.5	9.8
W17 Shorncliffe	6.7	1.2	1.3	9.2
W18 Royal York South	9.2			9.2
W19 Rathburn	5.4	2.9		8.3
W20 Bloor	5.3	2.5	0.3	8.1
W21 Aukland	0.2	0.5	0.9	1.6
W22 North Queen	4.4	2.0	1.6	8.0
W23 Horner	3.6	2.6		6.2
W24 Birmingham	4.6	0.4		5.0
W25 Waterfront	1.5	3.7	4.6	9.8
W26 Mimico Creek			2.5	2.5
W27 Government	0.5	0.7	1.3	2.5
W28 Scarlett	0.6			0.6
W29 Etobicoke Cr. Trail			7.0	7.0
W30 West Humber Trail			9.1	9.1
W31 North Humber Trail			0.4	0.4
W32 South Humber Trail			7.5	7.5
W33 North Mimico		1.9	5.1	7.0
W34 Rowntree			1.5	1.5
W35 Colonel Smith	0.3	0.8		1.1
Totals	111	29	60	200

Facility lengths include both existing and proposed sections.

Bikeway Network - District 3 (North York) Routes

Facility lengths include both existing and proposed sections.

Route	Bike Lane length (km)	Signed Route length (km)	Off-road length (km)	Total Length (km)
N1 Sloane	2.9	1.0		3.9
N2 Underhill	1.9	1.1		3.0
N3 Lawrence East	6.8			6.8
N4 Bala Sub			7.0	7.0
N5 Eglinton East	4.5			4.5
N6 Linkwood	1.7	1.1		2.8
N7 Donway East	2.1		1.0	3.1
N8 Three Valleys (del)			0.0	0.0
N9 Bayview	5.3			5.3
N10 Finch Hydro East			7.0	7.0
N11 Van Horne	2.0	5.5	1.8	9.3
N12 Shaugnessy		5.0	0.5	5.5
N13 Burbank	1.0	3.2	2.5	6.7
N14 Willowdale	4.1	0.3		4.4
N15 Finch Hydro West			12.8	12.8
N16 Park Home	1.1	4.3	0.9	6.3
N17 Senlac	2.5	2.4		4.9
N18 Wilmington	3.4	2.2	0.4	6.0
N19 Neptune	1.4	1.9	0.4	3.7
N20 Joicey	1.6	4.2	0.2	6.0
N21 Florence	2.3	3.9	0.8	7.0
N22 York Downs	1.7	2.3	0.4	4.4
N23 Fairlawn	1.9	7.9	0.3	10.1
N24 Glencairn		3.7	0.3	4.0
N25 Newmarket	0.4	1.5	7.8	9.7
N26 Trethewey	1.4	1.3	0.4	3.1
N27 Culford	0.6	6.7	1.3	8.6
N28 Black Creek	0.4	1.2	2.5	4.1

Bikeway Network - District 3 (North York) Routes

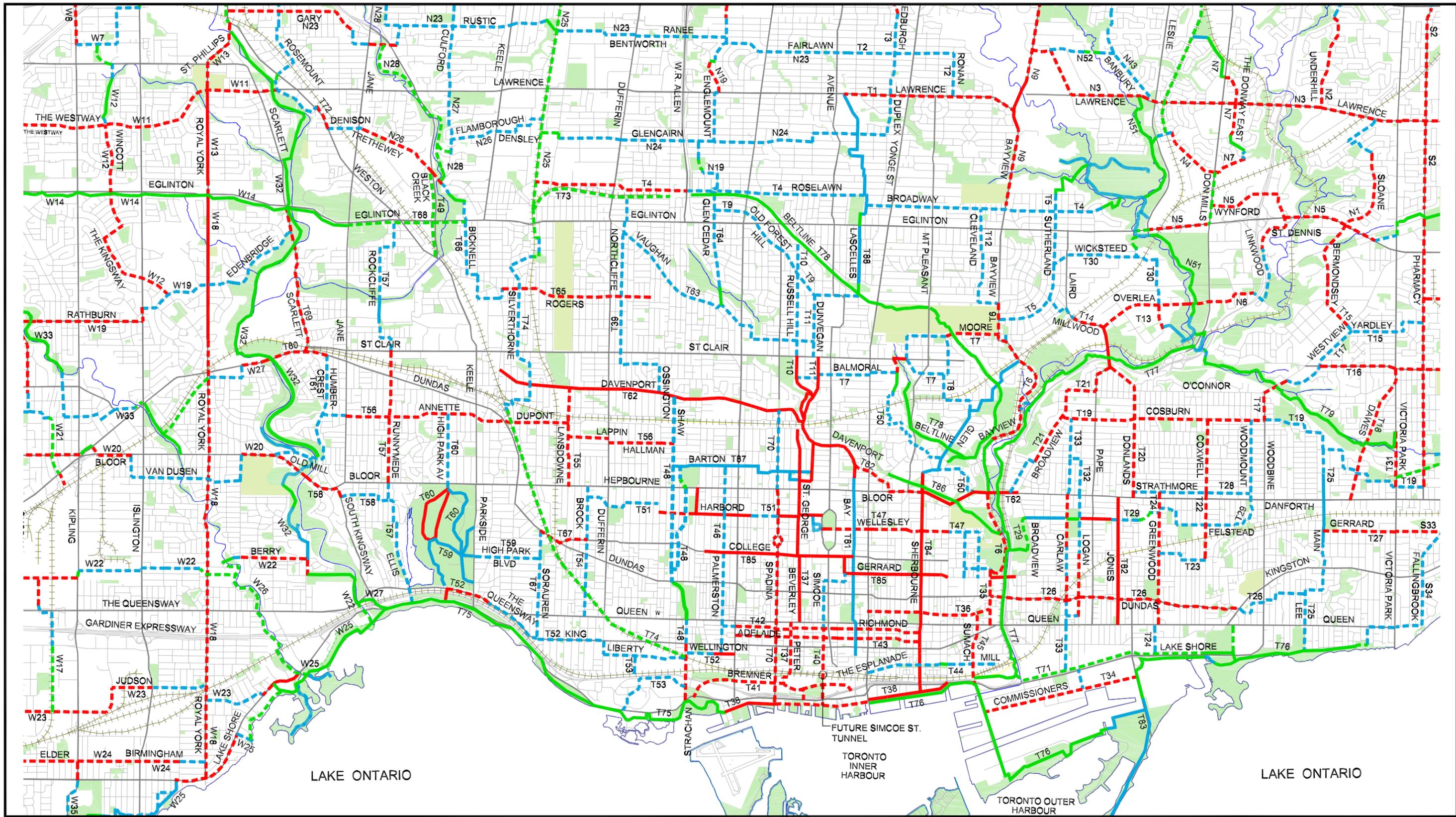
Facility lengths include both existing and proposed sections.

Route	Bike Lane length (km)	Signed Route length (km)	Off-road length (km)	Total Length (km)
N29 Oakdale		6.6		6.6
N30 Wendell		1.0		1.0
N31 Wilson	2.7	1.3	0.4	4.4
N32 Exbury		3.9	0.8	4.7
N33 Grandravine		3.4	1.0	4.4
N34 Sheppard	1.2		0.4	1.6
N35 Humber River			6.5	6.5
N36 York U			4.9	4.9
N37 Ormont		3.4	0.6	4.0
N38 Fenmar	1.5	1.3	0.2	3.0
N39 Rivalda	1.3		0.3	1.6
N40 Milvan		4.4		4.4
N41 Finch West	2.2		0.2	2.4
N42 Duncan Mill (del)			0.0	0.0
N43 Banbury		4.6	0.5	5.1
N44 Havenbrook	2.0	3.1	1.3	6.4
N45 York Mills (new)	7.1	1.1	0.7	8.9
N46 Earl Bales (new)		1.6	3.0	4.6
N47 North Black Creek		1.0	4.0	5.0
N48 East Don Trail			5.4	5.4
N49 Betty Sutherland Trail			1.8	1.8
N50 G. Ross Lord Trails			4.0	4.0
N51 Wilket-Don Trails		1.0	3.5	4.5
N52 Post		0.7	0.3	1.0
N53 North Bathurst	0.3		1.5	1.8
Totals	69	99	90	258

Bikeway Network - District 4 (Scarborough) Routes

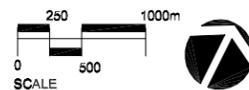
Route	Bike Lane length (km)	Signed Route length (km)	New Off-road (km)	Total Length (km)
S1 Pharmacy N	4.7	0.9		5.6
S2 Pharmacy S	6.4	1.0		7.4
S3 Birchmount	14.9			14.9
S4 McCowan	1.1		0.3	1.4
S5 Brimley	12.4	1.5		13.9
S6 Middlefield/Huntingwood	10.3			10.3
S7 Bellamy	5.7	1.0		6.7
S8 Scarb Golf Club Rd	4.2	0.1	0.2	4.5
S9 Orton Park	2.1			2.1
S10 Galloway	1.8	0.4	0.2	2.4
S11 Morningside	8.1			8.1
S12 Sewells	2.5			2.5
S13 Reesor	2.7			2.7
S14 Beare	2.7			2.7
S15 Port Union	2.5			2.5
S16 Neilson	5.6			5.6
S17 Steeles	14.0			14.0
S18 Plug Hat	1.8		2.4	4.2
S19 Finch	1.0			1.0
S20 Finch/Old Finch	6.7			6.7
S21 McLevin	5.5			5.5
S22 Sheppard	15.2			15.2
S23 Milner	6.8			6.8
S24 Malvern/Progress	6.2	5.0	0.3	11.5
S25 Brimorton	4.3	0.6	0.2	5.1
S26 Lawrence	16.7			16.7
S27 Military Trail	3.2			3.2
S28 Lawson	2.4			2.4
S29 Guildwood Pk		2.1		2.1
S30 Sylvan/Livingston		5.3	0.4	5.7
S31 Comstock	1.7			1.7
S32 Claremore/Highview		2.0	0.8	2.8
S33 Hollis/Gerrard	1.3	0.9		2.2
S34 Clonmore/Fallingbrook		1.9		1.9
S35 Conlins	2.7			2.7
S36 Kingston/Ellesmere	5.0		0.4	5.4
S37 Beechgrove	1.8			1.8
S38 Finch Corridor			9.4	9.4
S39 Morningside Corridor			6.4	6.4
S40 Gatineau Corridor			13.8	13.8
S41 Taylor Creek Corridor			4.7	4.7
S42 Scarb Trans Corridor		2.1	9.4	11.5
S43 Kingston/St Clair	12.7			12.7
S44 Highland Creek			7.8	7.8
S45 Twyn Rivers			1.6	1.6
Totals	196.7	24.8	58.3	279.8

Facility lengths include both existing and proposed sections

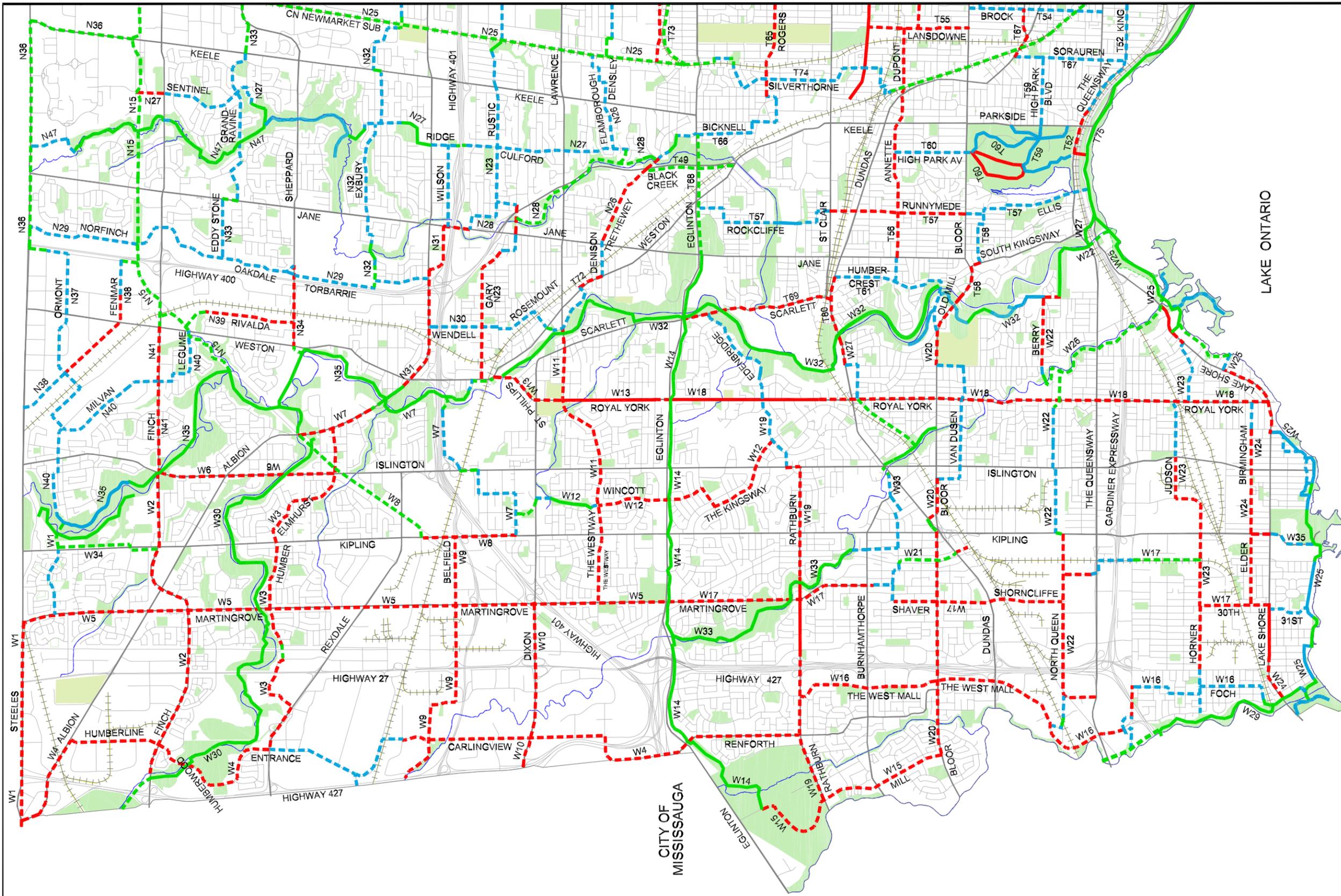


Legend

- Existing Bike Lane
- - - Proposed Bike Lane
- Existing Signed Route
- - - Proposed Signed Route
- Existing Off-Road
- - - Proposed Off-Road
- Public Parkland
- Cemeteries
- ~~~~~ Watercourse
- + + + + + Existing Rail Line



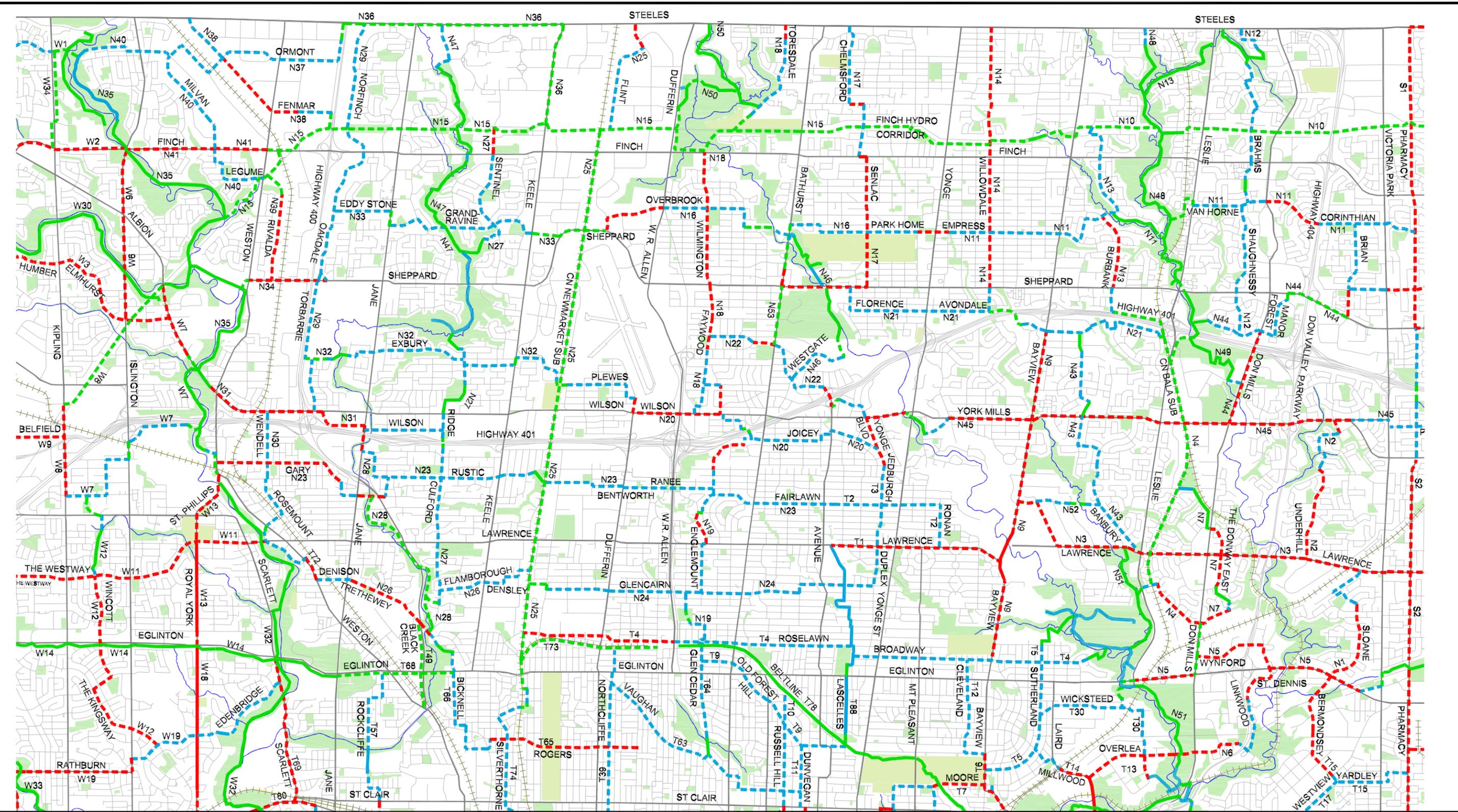
District 1
Proposed Bikeway Network
TORONTO BIKE PLAN



Legend

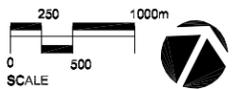
- Existing Bike Lane
- Proposed Bike Lane
- Existing Signed Route
- Proposed Signed Route
- Existing Off-Road
- Proposed Off-Road
- Public Parkland
- Cemeteries
- Watercourse
- Existing Rail Line

1000m
 500
 0 SCALE



Legend

- Existing Bike Lane
- Proposed Bike Lane
- Existing Signed Route
- Proposed Signed Route
- Existing Off-Road
- Proposed Off-Road
- Public Parkland
- Cemeteries
- Watercourse
- Existing Rail Line



District 3
Proposed Bikeway Network
TORONTO BIKE PLAN

Appendix B



Appendix B

Public and Staff Consultation Process

A central premise in the development of the Toronto Bike Plan was to actively involve members of the public, staff from City departments, the Toronto Cycling Committee (TCC) and key stakeholders in all phases of the study.

The substantial input received from those who participated in the Toronto Bike Plan was reviewed and taken into consideration in the development of the Plan. The TBP, therefore, is the product of an extensive study and consultation process which the City believes generally reflects the interests of Toronto residents, and at the same time is a direct response to many of the needs and wishes of Toronto cyclists.

The following is a summary of the major public and staff consultation events which took place throughout the project:

August, 1999

The Study began with a Public Attitude Survey which was used to garner the public's views on Cycling in Toronto. Members of the consultant team and City staff met in August to discuss the bicycle survey objectives. This was a telephone survey which would be carried out by a professional marketing firm.

September, 1999

Two meetings of the Education and Safety Subcommittee of the Toronto Cycling Committee were held to plan for activities in the year 2000 and beyond. The objectives of these meetings were to identify areas that the subcommittee should be operating in, review all current programs for effectiveness and sustainability and prioritize areas for future development based on available resources.

The Project Team met with the Toronto Bike Plan Technical Steering Committee for the first time on September 22, 1999 to review the revised work program, schedule and budget.

A TCC meeting was held on September 21, 1999 to review the study objectives, draft work plan and timelines.

October, 1999

The second Technical Steering Committee meeting took place on October 8, 1999 to review the final Cycling Survey questionnaire. Decima was authorized to commence the survey starting the week of October 12, 1999. The strategy for the Fall public workshop was developed.

November, 1999

Cycling tours were held on November 2, 1999 in Districts 1 and 2, and on November 4, 1999 in Districts 3 and 4. Invitations were sent out to a variety of stakeholders including: City staff, politicians, Toronto Cycling Committee members, cyclists, bicycle retailers, representatives from the education and safety sectors, police, transit staff, other community group representatives and the media. These tours provided a relaxed forum for opinions of stakeholders to be aired, and an opportunity to view a sample of existing facilities, as well as potential opportunities and challenges for implementing new bikeways, from the cyclists' perspective.

The third Technical Steering Committee meeting took place on November 9, 1999. Stantec presented a summary of the Cycling Tours and the comments received from participants in each of the Districts. MMM presented some preliminary findings from the survey which Decima had completed.

December, 1999

The first series of Public Workshops were held during the second week of December in each of

four Districts of the City. The purpose of these workshops was to discuss the principles used to guide the development of a bikeway network, to gather information on the existing conditions for cycling in the City and to record public comments on initial candidate routes that should be investigated in subsequent phases of the study.

January, 2000

A TCC meeting was held on January 17, 2000 to discuss the effects of smog on cyclists' health.

February, 2000

The fourth Technical Steering Committee meeting took place on February 8, 2000. The purpose of this meeting was to review the Decima Cycling Survey Final Report and the draft vision statement and bicycle network objectives. The Committee developed the more specific objectives – route selection criteria and approach.

A TCC meeting was held on February 14, 2000 to examine bike parking issues and objectives.

March, 2000 – May, 2000

The TBP was displayed to the public during the Toronto International Bicycle Show at the CNE (March 3-5, 2000).

The draft report, Plan structure, network objectives and evaluation process were reviewed by the TCC during a meeting on March 20, 2000. The Decima Cycling Survey results were presented to the TCC on April 17, 2000.

The project team met with Transportation, Planning and Parks staff from each of the four City Districts to short-list potential routes within their areas. The meetings also provided the opportunity to outline the vision and objectives, as well as the study approach, to each District.

The Cycling and Transit component of the TBP was presented to the TCC on May 15, 2000.

April, 2000 – June, 2000

The study team cycled all proposed routes to evaluate and determine best candidates for network.

June, 2000

ESG met with the City to discuss the Education section of the Toronto Bike Plan.

June, 2000 – July, 2000

Follow-up meetings were held in each of the four Districts with Transportation, Planning and Parks staff to provide an overview of work done since the initial meeting and to review the proposed bikeway network.

The Study Team presented the draft Toronto Bike Plan to the Toronto Cycling Committee on July 17, 2000. Comments were received on the vision, goals and each of the “spokes”.

The Study Team met with the Toronto Cycling Committee and various stakeholders on July 31, 2000 to receive feedback on the draft network plan. The Team presented maps that illustrated the proposed on-street bicycle lanes/routes and off-street routes that form the draft network plan. Input was gathered on specific routes prior to the second series of public workshops.

July, 2000 – November, 2000

Ongoing consultation between study team and District Parks and Transportation staff to refine the proposed network.

September, 2000

The fifth Technical Steering Committee meeting took place on September 13, 2000. The City noted that the proposed network plan had received general support from District Staff,

though some outstanding issues remained to be worked out. The next step would be to prioritize routes in terms of short or long term. The Steering Committee reviewed the Bike Plan's vision statement, primary goal, six component "spokes" and associated objectives in preparation for the second series of public meetings.

The City met with the TTC and GO Transit to review the draft "Links to Transit" component of the Toronto Bike Plan.

The draft Bikeway Network, as well as the goals and objectives for the six key components of the TBP, was presented to the Transportation Services Directors (TNT) during a meeting on September 15, 2000. They were also presented to the Works & Emergency Services (WES) Traffic Operations Managers on September 21, 2000.

The second series of Public Workshops were held during the last week of September, 2000 in each of the four Districts. The purpose of the workshops was to present the components of the TBP, review key objectives for each component, discuss the principles used to guide the development of the network plan, present the draft network plan, obtain public comments on the work completed to that point and outline the next steps in the study. A letter was sent to all workshop participants summarizing their comments and thanking them for their involvement.

October, 2000

The draft Bikeway Network, as well as the goals and objectives for the six key components of the TBP, was presented to the Transportation Planning Section of Urban Development Services (UDS) on October 5, 2000, the WES Senior Management Team on October 12, 2000, and the WES Traffic Planning Managers.

December, 2000

The TCC reviewed public feedback from the four District Open Houses during a meeting on December 4, 2000.

March, 2001

The TBP was displayed to the public during the Toronto International Bicycle Show at the CNE (March 2-4, 2001).

April, 2001

The Bicycle Friendly Streets and Bikeway Network chapters of the Plan were presented to the WES Traffic Operations Managers during a meeting on April 19, 2001. These chapters were also presented to the Roads and Sidewalks Committee on April 24, 2001.

A special Cycling Committee meeting was held on April 30, 2001 to review the draft bike plan with members of the TCC. Each chapter was reviewed on an individual basis, and an opportunity was provided for members to submit their written comments and marked-up reports for consideration as well. TCC comments were incorporated into the draft report where appropriate.

May, 2001

The Project Team met with the Technical Steering Committee for the sixth time on May 2, 2001 to review each chapter individually. Steering Committee comments were incorporated into the final report.

The draft Bike Plan was presented to the Transportation Services Directors (TNT) on May 4, 2001 and the Strategic Transportation Planning Group on May 29, 2001.

June, 2001

A meeting with the TCC was held on June 18, 2001 to review the implementation strategy of the TBP.

City Staff Consulted

David Kaufman,
General Manager Transportation
Services / WES

Tom Mulligan,
Director Transportation
Programming &
Policy / WES

Rod McPhail,
Director Transportation
Planning / UDS

North District (North York)

Roberto Stopnicki,
Director Transportation
Services / Works and
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Pascoal d'Souza,
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Allen Pinkerton,
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Planning, UDS

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Dave Twaddle,
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Engineer/Co-ordinator Traffic Planning /
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Management / WES

East District (Scarborough)

continued

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Bruce Clayton, Traffic Engineering Supervisor	Traffic Operations / WES
Carolyn Johnson, Program Co-ordinator	Transportation Planning, UDS
Eric Gupta, Planner	Transportation Planning, UDS
Sai-Man Lam, Parks and Recreation Planner	Policy and Development, EDCT
David Douglas, Parks Planner	Policy and Development, EDCT

Stephen Brown, Traffic Engineer / Planner	Traffic Operations / WES
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Roman Oleksij, Traffic Engineering Supervisor, West	Traffic Operations / WES
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John Mende, Manager	Traffic Planning / WES
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Richard Beck, Transportation Engineer	Traffic Planning / WES
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Tim Laspa, Program Co-ordinator	Transportation Planning, UDS
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Greg Rich, Urban Designer	Urban Design / UDS
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David O’Hara, Parks and Recreation Planner	Policy and Development, EDCT
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Central District (Toronto, York, East York)

Andrew Koropeski, Director	Transportation Services / WES
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Stephen Benjamin, Manager, Central	Traffic Operations / WES
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Michael Harris, Traffic Engineering Supervisor, Central	Traffic Operations / WES
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Danny Budimirovic, Traffic Engineer / Planner, Central	Traffic Operations / WES
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Peter Bartos, Manager, East	Traffic Operations / WES
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Vince Suppa, Traffic Engineer / Planner, East	Traffic Operations / WES
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Jacqueline White, Manager, West	Traffic Operations / WES
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Other City Staff

Les Kelman, Director	Traffic Management Centre, WES
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Steve Kodama, Manager	Traffic Data Centre and Safety Bureau
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Frank Bozzo, Traffic Systems Analyst	Traffic Management Centre: Urban Traffic Control Systems/WES
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Brian Rutherford, Manager	Parks & Recreation Planning, EDCT
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Mark Edelman, Open Space & System Planning Supervisor	Parks & Recreation Planning, EDCT
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Appendix C



Appendix C

Summary of Unit Cost Assumptions

The following table summarizes the per unit costs assumed in developing cost estimates for improvements to existing bikeways and construction of new bikeways in accordance with the recommendations outlined in this Plan. Unless otherwise indicated, the following per unit costs were used to develop cost estimates for each of the four transportation districts in the City of Toronto.

ACTION	COST PER UNIT	UNIT
New Bicycle Lane Includes signs and pavement markings	\$20,000	km
Signed Bicycle Route includes signs and pavement markings	\$2,000	km
with signalized road crossings	+ \$80,000	signalized road crossing
New Off-Road Bicycle Path		
New 4.0 m wide *	\$225,000	km
with lighting every 40 m	+ \$125,000	km
with signalized road crossings	+ \$80,000	signalized road crossing
Existing Bicycle Path Upgrade		
widening to 4.0 m wide asphalt	\$150,000	km
with lighting every 40 m	+ 125,000	km
with signalized road crossings	+ \$80,000	signalized road crossing

* includes minor structures such as culverts , retaining walls, etc. Major new structures (e.g. bridges, underpasses, etc.) are costed separately.

