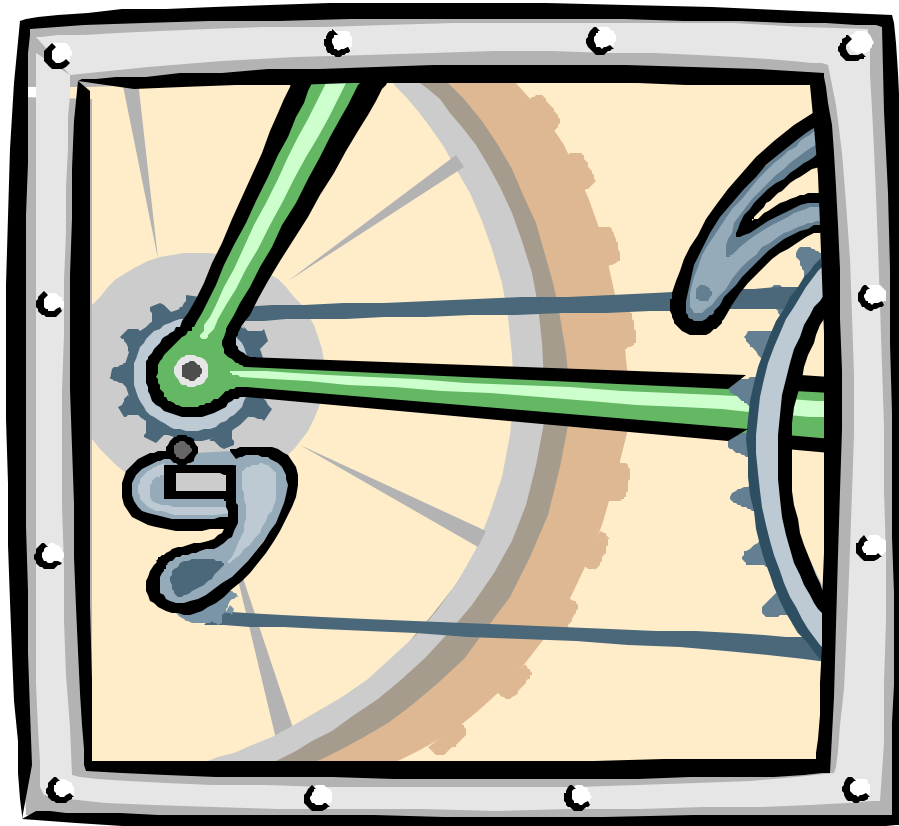


BICYCLE MASTER PLAN

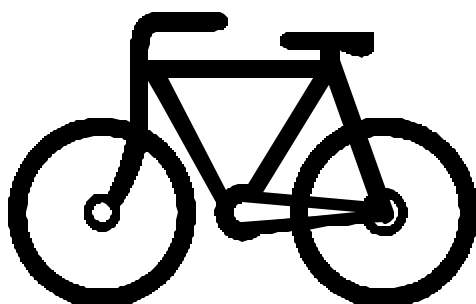
**A Guideline Document for Bicycle Infrastructure
In the City of London**



City of London Planning Division
March 2005

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1. Introduction:

The transportation policies of the Official Plan underscore Council's commitment to the development of a transportation system that will provide for the safe and efficient movement of people and goods within and through the City. The Official Plan further recognizes the bicycle as a viable mode of transportation that is not only environmentally sound but supportive of active healthy lifestyles. To this end, the Official Plan states that Council shall promote and initiate improvements to enhance bicycling as a means of transportation.

To promote increased bicycling, Section 18.2.13 of the Official Plan states that Council "...shall prepare and implement a [bicycle] master plan..." for the development of a bicycle route system which would address such matters as location, priority linkages and extensions, and signage. The Official Plan anticipates that portions of this system will be located within the open space network such that the safety and enjoyment of its users will be enhanced. The Official Plan also contemplates an on road component to the network providing linkages to major activity centers and employment nodes.

2. Purpose:

The City of London has made a significant investment in the development of on and off-road facilities for the commuter and recreational bicyclist. Historically, as is the case today, the Environmental and Engineering Services Department is responsible for the planning and provision of bicycle facilities within the arterial and collector road right-of-way. The Planning Department is charged with the responsibility of developing off-road facilities within the City's open space network.

While both the on and off-road components of the bicycle system are essential to the development of a functional commuter/recreational network, the lack thus far of a "long term vision" to facility development has led, in some instances, to poor coordination in the efforts of various City departments. The absence of a comprehensive Council endorsed master plan has also been a cause for concern to participants to the development review process. Lacking a long term vision, the exercise of securing lands for the extension of both commuter and recreational routes has, at times, been onerous and subject to criticism – particularly by the development industry.

The purpose of the Bicycle Master Plan is to guide the development of a long term, comprehensive, City-wide, on and off-road commuter and recreational bicycling network. Generally, the Guideline shall serve to:

- advance a vision for cycling;
- detail a series of first principles to implement this vision;
- define a strategic approach for the commuter and recreational cyclist that recognizes the distinct operational and design needs of the specific user;
- depict existing and proposed on and off-road facilities;
- advance minimum design standards for facility development; and,
- recommend mechanisms for implementation.

Specifically, the Plan shall serve to:

- provide guidance in the development and coordination of on and off-road infrastructure projects to ensure that opportunities to add to the existing City-wide system are not lost;
- inform all parties to the development review process of Council's long-term vision for on and off-road bicycling facilities;

- assist in the review of area plans, plans of subdivision, development applications and consents where the inclusion of on and off-road facilities contribute to the development of linkages and extensions to existing routes;
- provide guidance for the planning of various City-initiated capital transportation projects which will fill “gaps”, provide extensions to the bicycle network, or meet interim term needs in an alternate fashion;
- forward minimum standards for the development of on and off-road bicycle facilities;
- provide guidance for the timing and prioritization of bicycle route signage; and,
- support the Transportation Demand Management Strategy in the 2004 Transportation Master Plan and to support the reduction of auto usage, the reduction of green house gases, and increase the general health of all Londoners.

3. A Vision for Bicycling:

The transportation policies of the Official Plan clearly express what the City is attempting to achieve with cycling, and provides the policy framework to undertake the preparation and adoption of a Master Plan.

Cycling in London is recognized as playing an important role in achieving a balanced transportation system. In this regard, the cycling vision for London, as articulated in the Official Plan, calls for the development of an on and off-road system that:

- promotes and encourages cycling;
- is visible, safe and convenient;
- provides linkages and connections to activity nodes and employment centers;
- facilitates effective commuting opportunities by recognizing the unique operational and design needs of the user; and,
- provide for safe and enjoyable recreational experiences.

4. First Principles for the Cycling Network:

Given the policies of the Official Plan and the vision articulated for cycling, the following first principles shall be used to guide the development and design of London’s on and off-road bicycle network:

4.1. First Principles - Cycling Routes

- Diverse Experience – the cycling network should provide for a variety of experiences for a diversity of users;
- Visible – the cycling network should be a visible component of the larger transportation system;
- Convenient – the cycling network should be conveniently accessed from all neighborhoods within the City;

- **Linked** – the cycling network should be a connected, continuous system providing access to major activity centers, employment nodes, neighborhoods, recreational amenities and schools;
- **Hierarchy** – the cycling network should consist of a primary and secondary network hierarchy that serves to “collect” and direct the user to the desired facility;
- **Scenic Experiences** – the cycling network should take advantage of attractive and scenic areas, views and vistas while having consideration for environmentally significant features and functions;
- **Public lands** – the cycling network should be situated on public lands or roads. Minor sections of the system may have to make use of privately owned lands where no publicly owned routing option is feasible;
- **Existing and Planned Infrastructure** – the cycling network should have consideration for, and take advantage of, existing and planned cycling facilities; and,
- **New Road Projects** – new right-of-ways should be designed to accommodate cycling.

4.2. First Principles - Route Design

- **Users** – the cycling network should be designed to appeal to all cycling abilities and interests;
- **Variety of types** – the cycling network should consist of a variety of on and off-road facilities;
- **Safety** – the cycling network should be designed to recognize the distinct operational and design needs of the on and off-road cyclist to maximize the safety of all users and minimize vehicular/bicycle/pedestrian conflict points;
- **Wayfinding** – wayfinding to and along the cycling network should be readily visible and clear; and,
- **Supportive facilities** – cycling supportive facilities should be established along cycling routes and at major destinations.

5. A Three Pronged Cycling Strategy:

London's cycling strategy is based on the defining vision of the Official Plan and the first principles detailed above. The strategy has been developed to provide for the commuter and recreational cyclist recognizing the distinct operational and design needs of the specific user. To this end, the City of London shall pursue a three pronged cycling strategy consisting of:

- *A bicycle network* of on and off-road routes that cater to the commuter and recreational cyclist. This network would consist of three distinct facilities including on-road bicycle lanes, multi-use pathways and signed on-road bicycle routes;
- *A distinct bicycle network hierarchy* of primary and secondary routes for (i) commuters; and (ii) recreational users; and,
- *Facility supportive amenities* to promote and enhance the use of the bicycle network.

5.1. Strategy #1 –The Existing Bicycle Network:

One of the goals of a truly multimodal transportation network plan is to encourage more people to ride bicycles for short-distance personal, business, social, and recreational trips. To realize

this increase in use, the City of London has historically provided for the bicycle through the development of:

- Shared On-road Road Signed Bicycle Routes – on-road routes identified by signs (with no bicycle lane demarcation). The bicycle route is signed because it provides continuity and linkage with other cycling facilities or because it is a preferred route through a busy corridor;
- A Multi-use Pathway (the Thames Valley Parkway) – a separate and distinct multi-use facility designed for a variety of user groups (including cyclists, pedestrians and roller bladders) from which all motorized traffic is excluded. Given user, maintenance, and design considerations, this facility typically caters to the recreational cyclist; and,
- In-Boulevard Bicycle Paths (IBBP's) – exclusive bicycle pathways located within *specified* arterial road right-of-ways (typically between the sidewalk and the curb lane of the traveled portion of the road).

5.1.1. Issues Associated with In-Boulevard Bicycle Paths:

While endorsing the continued development of the City's multi-use pathway and signed on-road facilities, the Bicycle Master Plan advocates a departure from the current City practice of providing for IBBP's along arterial corridors.

When properly situated, IBBP's can serve as significant generators of bicycle use, providing for enjoyable recreational opportunities (especially for the less skilled cyclist) as well as desirable commuter routes. Appropriate applications of an IBBP would include:

- Where an uninterrupted right-of-way is available to provide for long, continuous routes for commuting or recreational trips; or,
- Within an independent right-of-way such as an abandoned railway corridor, utility corridor, along a river, through a linear park or a greenbelt.

According to the Ministry of Transportation, bicycle paths may be located within the right-of-way of major roads as long as they are located beyond what is used as the clear hazard zone for such facilities. In such instances, the Ministry recommends a separation distance of 10 to 15 metres. When IBBP's are located immediately adjacent to an arterial roadway, however, many operational problems can occur as the motorist and cyclist interface. Cyclists using the in-boulevard pathway, for example, are generally required to stop or yield at all cross streets and driveways to vehicular and pedestrian traffic. Furthermore, unless diligence is exercised in regular pathway maintenance, the accumulation of sand, debris, and eroded materials on the IBBP can lead to crashes that do not involve another vehicle or cyclist. For reasons noted above, there is a "...higher incidence of bicycle crashes associated with off-street, rather than on-street, facilities, particularly in commercial areas..." (*Ontario Bikeways, Planning and Design Guidelines*, Ministry of Transportation).

5.1.2 . Alternatives to IBBP's:

The Bicycle Master Plan has given consideration to two facility alternatives to arterial IBBP's including the:

- Widened Curb Lane – a right-hand lane of a shared roadway that is typically 4 to 5 metres wide to better accommodate both bicycles and motor vehicles in the same lane. The width of the lane would be a function of traffic volume and speed with a -wider lane required as volume and speed increased; and,
- On-Road Bicycle Lane – a portion of the roadway within the right-hand lane that has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists. This is a requirement on high traffic roads.

In considering these two facility alternatives, special attention has been given to London's cycling vision which calls for the development of a visible, safe and convenient system that promotes and encourages cycling.

5.1.2.a) The Widened Curb Lane:

Widened curb lane facilities are designed to:

- Better accommodate both bicycles and motor vehicles on streets with moderate levels of traffic by providing additional operating room;
- Maintain the motor vehicle capacity of the road when it is also used by cyclists;
- Increase the roadway capacity by the number of cyclists capable of being accommodated;
- Allow motor vehicles to pass bicycles without having to change lanes; and,
- Minimize both the real and perceived operating conflicts between bicycles and motor vehicles.

Wide curb lanes are generally selected in urban areas where:

- A significant demand for commuting exists;
- Traffic volume is less than 20,000 AADT;
- There is insufficient room to accommodate a separate bicycle lane; and,
- Many residential or commercial driveways intersect a roadway.

To many experienced riders, wide curb lanes are a preferred facility type because they integrate bicycle and vehicular traffic and force recognition and awareness on the part of the motorist. *Lacking specific markings or lane treatments however, wide curb lanes are generally not sufficient to provide for the degree of comfort and safety required by the inexperienced or less skilled cyclist.*

5.1.2.b) On-Road Bicycle Lanes:

Whereas a widened curb lane on an arterial may accommodate bicycle use, designated on-road bicycle lanes have been shown to encourage increased bicycle use. On-street bicycle lanes offer a designated and visible space for cyclists and can be a significant factor in route choice.

On-road bicycle lanes are typically developed with a mind to:

- Improve the conditions for cyclists *of all abilities* within a given corridor;
- Encourage increased bicycle use by providing a greater degree of comfort and perceived safety for less skilled cyclists;
- Provide for more predictable turning movements by cyclists and motorists; and
- Establish an overall channeling effect and promote an orderly traffic flow.

Appropriate applications for the implementation of an on-road bicycle facility would include:

- When a municipality wants a "host" facility to promote and encourage safe bicycle use;

- Where motor vehicle traffic poses a threat to cyclists (volumes in excess of 20,000 AADT);
- Where the facility crosses numerous road intersections; and,
- Where the route is anticipated to serve a number of experienced and less experienced riders.

5.1.2.c) A New On-Road Facility Design for London:

Given the operational (and potential risk management) issues associated with IBBP's, the Bicycle Master Plan Guideline recommends that the City no longer pursue their development. While it is recognized that portions of the system may currently temporarily include existing, or previously planned and approved infrastructure, all new City-initiated capital transportation projects will not provide for the development of IBBP's.

Given the tendency of a widened curb lane to cater exclusively to the experienced cyclist, and the stated vision of a visible and safe network that promotes and encourages cycling, the Bicycle Infrastructure Guideline recommends that the City henceforth pursue the development of on-road bicycle lanes on specified arterial routes previously identified for IBBP's.

5.2. Strategy #2 - A Network Hierarchy:

The commuter and recreational networks shall consist of primary and secondary subnetworks.

5.2.1. The Primary Commuter Network:

The Primary Commuter Network will function as the spine of London's commuting network providing direct connections between major origins and destinations across the City. The Primary Commuter Network will consist of a grid of north-south and east-west routes traversing the City.

The Primary Commuter Network is intended to ultimately be composed of properly designed on-road bicycle lanes beside the vehicle curb lane. However, given existing infrastructure and funding realities, it is recognized that this is a long term goal. The Primary Commuter Network may, in the interim, include signed on-road routes or in-boulevard pathways until an on-road bicycle lane can be developed to serve the same connectivity function. This will occur as roads are re-built and widened.

The Primary Commuter Network is intended and expected to accommodate:

- high speed cycling;
- high cycling volumes;
- cycling that is destination oriented to locations such as major employment centers and activity nodes;
- cyclists with a moderate to high level of experience and skill.

The Primary Commuter Network is identified on Map 1 as a solid line. Principle routing considerations in the development of the Primary Commuter Route Network have been detailed in Section 5.2.5.

The Thames Valley Parkway has not been included in the Primary Commuter Route Network recognizing the stated cycling vision, the distinct operational needs of the commuter cyclist, and the multi-use nature of this facility.

5.2.2. The Secondary Commuter Network:

The Secondary Commuter Network will serve the purpose of directing and linking neighborhood connections to the larger Primary Commuter and/or Recreational network. In this regard, the Secondary Commuter Network is intended to be composed of signed on-road routes.

The Secondary Commuter Network is intended and expected to accommodate:

- medium to high cycling volumes;
- cycling that may be commuting and/or recreationally oriented recognizing that this network will provide direct connections to both the Primary Commuting Network and the Primary Recreational Network; and,
- cyclists with a moderate to high level of experience and expertise.

The Secondary Commuter Network is identified on Map 1 as a dotted line. Principle routing considerations in the development of the Secondary Commuter Route Network have been detailed in Section 5.2.5.

5.2.3. The Primary Recreational Network:

The Primary Recreational Network will be the Thames Valley Parkway (TVP). Situated on publicly owned lands, the Thames Valley Parkway is the City's multi-use pathway system which follows the Thames River Corridor through London. The current network is approximately 32 kilometers long with several bridge crossings of the Thames River.

The Primary Recreational Network is intended to ultimately be composed of a continuous multi-use pathway system contiguous with the Thames Valley Corridor. At the present time however there are several "gaps" in the system. In the interim, the Primary Recreational Network may be required to make use of signed on-road routes where no public parkland route is presently available or feasible. Future extensions to the Thames Valley Parkway will occur as lands along the branches of the Thames River are developed.

The Primary Recreation Network is intended and expected to accommodate:

- high cycling volumes that is destination oriented to the Thames Valley Parkway;
- cyclists with a low to high level of experience and skill; and,
- multiple use of pathways for cycling and other recreational uses.

The Primary Recreational Network is identified on Map 2 as a solid line. Principle routing considerations in the development of the Primary Recreational Route Network have been detailed in Section 5.2.5.

5.2.4. The Secondary Recreational Network:

The Secondary Recreational Network will provide for neighborhood connections to the Primary Recreational Network. The Secondary Recreational Network will also serve to provide safe and convenient inter and intra neighborhood connections to other recreational amenities and opportunities including neighborhood parks, district parks, natural areas and community facilities. The Secondary Recreational Network is intended to ultimately be composed of signed on-road routes that would lend themselves to the skill and experience level of the user (primarily local and secondary collector roads). The Secondary Recreational Network is intended and expected to accommodate:

- medium to high cycling volumes;
- the cyclist seeking an enjoyable and leisurely cycling experience wherein the destination is of secondary importance; and, cyclists with a low to high level of experience and skill.

The Secondary Recreational Network is identified on Map 2 as a dotted line. Principle routing considerations in the development of the Secondary Recreational Route Network have been detailed in Section 5.2.5.

5.2.5. Route Selection Criteria:

Several principle factors have been given consideration in determining the proper location for the various components of the bicycle network (see Table 1) Directness, for example, may be determinant factor in the consideration of a possible commuter route alignment. Aesthetics, on the other hand, may be the primary consideration for a recreational route. In other instances, the consideration of the several criteria may be equally important to both the commuter and recreational cyclist. The relative importance of these factors may vary from route to route depending on local situations and existing conditions.

Facility	Route Selection Criteria						
	Access*	Aesthetics*	Connectivity*	Delays*	Destinations*	Directness*	Road Width*
Primary Commuter	*		*	*	*	*	*
Secondary Commuter	*		*	*	*	*	*
Primary Recreational	*	*	*				
Secondary Recreational	*	*	*				

Where:

- Access – the facility should be located having consideration to the provision of adequate access;

- Aesthetics – scenic value is important along a bikeway intended for recreational purposes;
- Connectivity – should provide for connections to other routes and areas of interest;
- Delays – route should minimize impedances to travel (stop signs, traffic signals, topography);
- Destinations – facility should be located to maximize usage;
- Directness – facility should serve activity centres along a direct course;
- Road allowance – of sufficient width to accommodate user.

5.3. Strategy #3 – Facility Supportive Amenities:

Developing and maintaining a comprehensive network of on and off-road bicycle routes does not automatically mean that cyclists will use the network. The network must be promoted, the users must view the facility as safe, and there must be facility supportive amenities.

For the commuting cyclist, such amenities may be seen to include:

- an adequate number of safe and secure bicycle parking facilities at major employment centres and activity nodes;
- wayfinding and route signage; and,
- shower and change room facilities at these destination points for employees wishing to ride their bicycle to work.

For the recreational cyclist, such amenities may be seen to include:

- washrooms and drinking fountains;
- wayfinding and route signage;
- rest stops, lookouts and benches; and,
- bicycle parking facilities.

To enhance and promote the use of the bicycle for commuting and recreational purposes, the City shall lead by example by requiring the provision of secure parking facilities for bicycles at all municipally owned and operated facilities. Council shall also require, as a condition of approval of development or redevelopment, the provision of bicycle parking facilities at major activity centres and employment nodes.

To further enhance the recreational cycling experience, the City shall continue to provide for those on-route recreational amenities detailed above. For the most part, these amenities will be located along the Primary Recreational Network. Where deemed appropriate, such amenities may also be provided for along the Secondary Recreational Network.

Finally, the City shall initiate a bicycle network awareness program to promote the use of the commuter and recreational network systems.

6. Design Standards and Best Practices:

The construction of London's bicycle network shall be designed to consistent standards to both promote the system and enhance the safety of the user. Section 6 advances a series of general design guidelines for the construction of the bicycle network focusing specifically on on-road bicycle lanes, multi-use pathways and signed on-road routes. The design guidelines are based

on accepted standards and best practices advocated by a number of professional associations and governmental agencies including:

- The Canadian Institute of Planners;
- The American Planning Association;
- The Transportation Association of Canada; and,
- The Ministry of Transportation of Ontario.

The standards recommended in Section 6 are necessary to address those safety issues typically encountered by cyclists on the roadway including: heavy traffic; the lack of adequate roadway width; vehicle parking; surface quality and road debris; rough and acute railway crossings; and, signalized intersections.

The recommended standards will be integrated into the commuter and recreational network as new roadways (or pathways) are built, existing roadways (or pathways) are resurfaced and/or reconstructed, and lands are acquired. However, these standards may not be immediately implemented given existing infrastructure, funding realities or physical constraints.

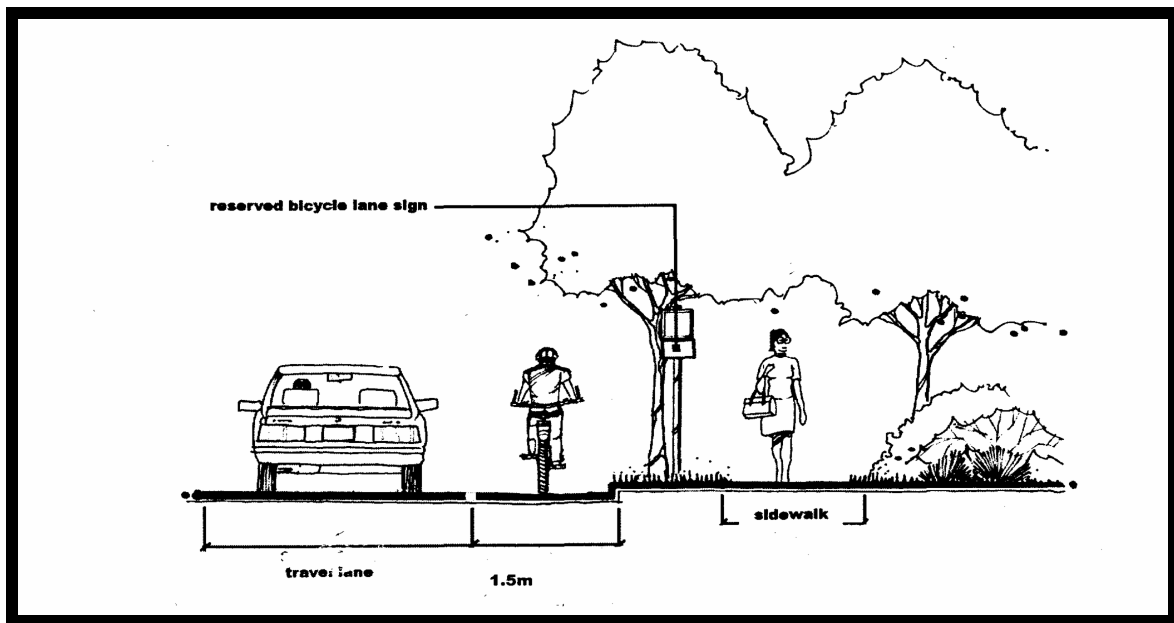
6.1. On-Road Bicycle Lanes:

London's cycling network will consist of a series of on-road bicycle lanes (Figure 1) that will primarily cater to the commuting cyclist with a moderate to high level of expertise and skill. On-road bicycle lanes are depicted on Map 1 as a solid red line.

On-road bicycle lanes have several advantages over wide shared lanes including the delineation of exclusive space and the perception of a higher level of safety. Bicycle lanes are therefore attractive to both the experienced and moderately skilled cyclist and may encourage more people to cycle. On-Road bicycle lane facilities should, where feasible:

- Be one directional with the flow of traffic;
- Be located along both sides of an identified on-road route;
- Be located between the edge of the vehicular lane and the curb;
- Be placed between the parking lane and the adjacent travel lane in those instances where on-street parking is provided;
- Be delineated by a painted line on the pavement;
- Be 1.5 m in width (1.6 m in those instances where on-street parking is provided);
- Be identified by signs along the route and/or bicycle symbols painted on the bicycle lane; and,
- Include specific lane markings to denote potential conflict points and routing options.

Figure 1, On-Road Bicycle Lane



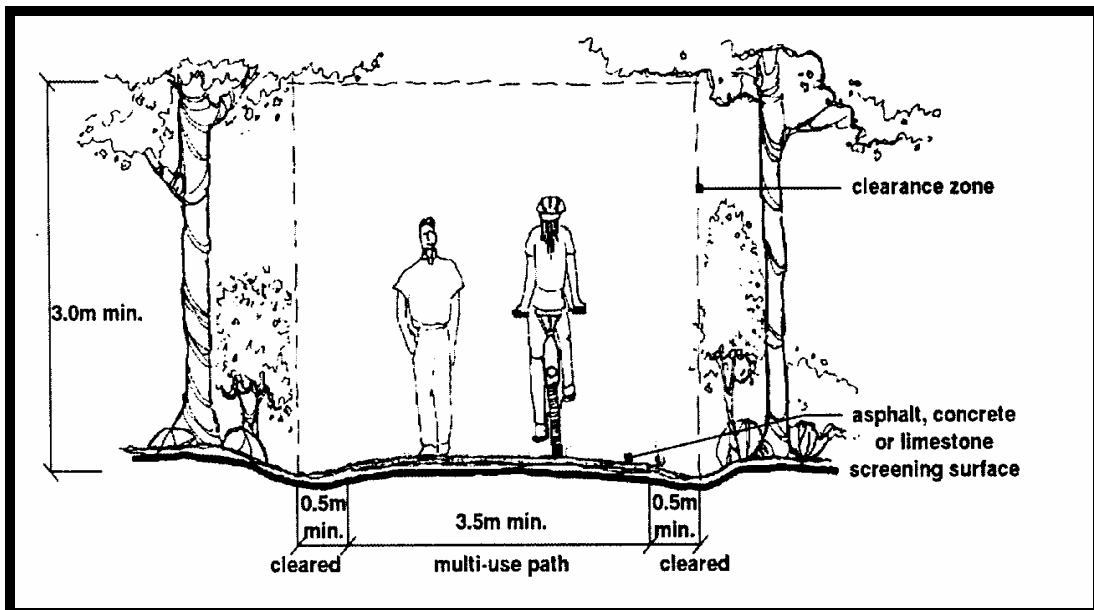
6.2. Multi-Use Pathways:

London's multi-use pathway system (see Figure 2) will be designed to accommodate a variety of user groups including recreational cyclists, pedestrians and roller bladders. Multi-use bicycle pathways are depicted on Map 2 as a solid red line. Being a multi-use pathway primarily located within the City's Open Space system, safety, aesthetics and environmental considerations carry as much value as technical considerations in determining design standards (and routing options). Design standards therefore will ultimately vary depending on the trails location and the anticipated number of users.

The Multi-use pathway should, where feasible:

- Be a separate and distinct facility from which all motorized traffic is excluded;
- Vary in width from 3 to 6 m depending on anticipated use, abutting infrastructure and natural features, topography, etc.;
- Provide connecting pathways to local neighborhoods to ensure convenient access for users and to the on-road bicycle network;
- Include access and exit points that provide visibility from an adjacent street every 500 m. This may require small park block frontages and/or widened walkway blocks to ensure safety for users of the system;
- View existing vegetation and topography as an asset as they provide buffers between users and adjacent land uses. A minimum setback to adjacent land uses for retro-fit/improvement areas shall be determined based on detailed design. Typical setbacks for the pathway in newly developing areas shall be 6 to 10 m with appropriate screening;
- Be a smooth asphalt treatment;
- Provide for two-way traffic with the appropriate line marking, directional indicators, and hazard signage;
- Be designed such that they do not parallel roadways thus avoiding conflicts with traffic turning movements; and,
- Be designed to ensure positive drainage and accessibility requirements.

Figure 2, Multi-Use Pathway



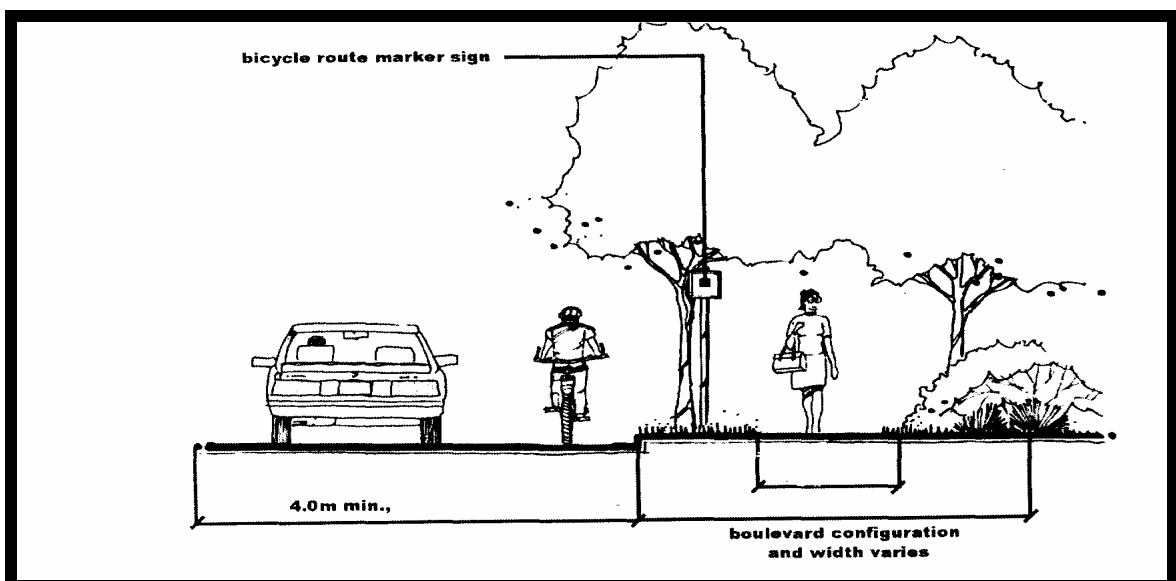
6.3. Signed On-Road Facility:

Signed on-road cycling routes (see Figure 3) will constitute a sizable portion of London's bicycle network. These facilities serve a secondary connection function linking neighborhoods to the larger commuter and recreational network. Signed on-street cycling routes are depicted on Maps 1 and 2 with dotted lines (commuter and recreational feeders or secondary routes).

On-Road signed facilities should, where feasible:

- Be located on a local or collector road where wide curb lanes of a minimum width of 4 m exist or can be provided (a greater curb lane width may be required having consideration for vehicle parking, truck and vehicle volumes and speeds, drainage grates, etc.); and,
- Incorporate distinct sign route markers (i.e. commuter vs. recreational connector)
- Minimize and/or identify hazards to bicycle travel.

Figure 3, Signed On-Road Facility



7. Supportive Programming:

The Bicycle Master Plan has been prepared to guide the development of a comprehensive, long term, commuter and recreational bicycle network. The guideline has purposely focused on a

strategic approach to facility development highlighting existing and proposed routes, minimum design standards and facility supportive amenities.

Infrastructure alone, however, is not sufficient to promote and encourage safe and viable cycling in London. Programming is equally important and constitutes a separate, yet critical, “soft” component of London’s new bicycle initiative.

It is expected that the City’s Environmental Programs and Customer Relations Division, Transportation Planning and Design Division and/or the Transportation Advisory Committee and other community groups will develop promotional and educational (as funding permits) initiatives to encourage increased cycling in London including, but not limited to:

- Programs to increase awareness of the bicycle network (mapping);
- Program(s) promoting bicycle awareness. These programs can be aimed at the cyclist, motorist, or both. They could vary from simple “Share the Road” bumper stickers and billboard signs to blitz campaigns tied in with specific events;
- Programs to educate the cyclist and motorist alike on what the cycling lane is, how it is intended to work, how to use it, how to interface with it in your vehicle, etc.;
- Programs to provide incentives for bicycling commuting;
- Programs that work towards creating a position of mutual understanding and positive attitudes between motorists and cyclists;
- Programs to develop the tourism potential of the bicycle network.

8. Implementation:

This Bicycle Master Plan will be implemented in various ways so that it effectively shapes the future of London’s bicycle infrastructure over the long term and promotes this alternative mode of transportation in the short term. The following describes these implementation strategies:

Long-Term Implementation:

Long term goals will be achieved by setting the vision with a Council endorsed long term planning approach. The Official Plan for the City of London will be amended to include a policy which recognizes this Bicycle Master Plan (in both Chapter 18 and 19) and will give clear direction for the following:

- All City-initiated capital transportation projects will have consideration for bicycle facilities as directed in this guideline. Such facilities will be incorporated into the Environmental Assessment process and budgeting process as required.
- Ongoing road maintenance schedules and budgets will provide priority to primary commuting routes such that these routes are given: first priority for plowing; first priority for street sweeping; and high priority for regular maintenance on pot-holes, cracks and other degradation.
- Ongoing road maintenance and new road construction shall have consideration for the bicycle in the placement and design of sewer grates, manhole covers and railway crossings treatments.
- All of the maintenance requirements for roadways shall apply to on-road bicycle lane facilities as well including the maintenance of the lane delineation and pavement stenciling and the maintenance and/or replacement of signage.

- All City-initiated capital open space, parks and recreation projects will incorporate bike facilities as directed in this guideline. Such facilities will be incorporated into the Environmental Assessment process and budgeting process as required.
- A bicycle route signage program shall be developed. Regulatory, warning and information signs for on road facilities will be developed in accordance with the Transportation Association of Canada (TAC) Bikeway Traffic Control Guidelines.
- All facilities operated by the City will incorporate appropriate bicycle facilities consistent with their location relative to the bicycle plan and in order to lead by example in promoting the usage of cycling in London.
- All area plans will incorporate bicycle infrastructure as provided for in this guideline.
- All development applications, including, but not limited to, plans of subdivision, severances, plans of condominium, Official Plan amendments, zoning amendments, site plans, ESA management plans, and park management plans will be reviewed to ensure that they are consistent with, and implement, this guideline document.
- The City will develop a specific implementation guideline for the creation of delineated on-road bicycle lanes, having particular consideration for intersection treatments
- Bicycle parking standards shall be prepared and incorporated into the City's Z.-1 Zoning By-law to ensure that the parking needs of cyclists are met.

Short Term Implementation:

The Bicycle Master Plan advances a “blueprint” for the long-term development of a commuting and recreational cycling network. A short term strategy is also directed to orchestrate the development of as much bicycle infrastructure as physically and financially possible. The goal is to promote cycling opportunities early in the planning period by maximizing routes, linkages and connections. To do this, a number of strategic approaches will be followed:

- Critical corridors between major destinations will be analyzed to determine cost effective facility design (signage and striping) and safe routes that can be established on an interim basis. These routes would be temporary until major constraints on the long-term Primary and secondary Routes are removed. The City presently funds a “Traffic Study” capital program that can support this initiative.
- Coordination of these corridors shall be with annual capital works programs, the SHIFT Alternatives Program, traffic calming studies and projects and road maintenance plans.
- Alternative standards shall be employed that respond to road traffic and available road cross-sections such that opportunities to expand signed routes are maximized.

Implementation Programming:

A number of promotional and educational initiatives are currently being planned by various City Divisions, Boards and community groups for 2005 and 2006 that will benefit the Bicycle Master Plan and the current and future role of cycling in London (see chart below).

<i>Proposed Project and Timing</i>	<i>Focus for the Bicycle Master Plan</i>	<i>Description</i>

SHIFT Alternatives Public Consultation (Spring 2005 through Winter 2006)	Actively promote	The purpose of the public consultation is to develop a SHIFT Alternatives Program that meets the needs and expectations of Londoners. Residents, businesses and community groups will be asked to share their travel experiences and what support is needed to encourage them to use more travel options. The Bicycle Master Plan will be part of the TDM toolbox presented to Londoners.
Installation of Bike Racks and Rings (Spring 2005)	Actively promote	Bike racks and rings will be installed at those community centres, arenas and libraries where there is a demonstrated need.
One Tonne Challenge – Short Trip Challenge Spring – Fall 2005	Raise Awareness	A “Short Trips Challenge” will be promoted as part of the OTC demonstration. Participants will be encouraged to cycle and walk to destinations within 3 kms. Participants will be given motivational tools such as pedometers, maps, bike rentals, etc.
One Tonne Challenge – Commuter Challenge Spring 2005 to Spring 2006	Raise Awareness	Challenge participants to find transportation alternatives to work and school in the national, week-long event.
City-wide Commuter Challenge June 2005	Raise Awareness	The Commuter Challenge is a friendly competition (on-line registration) between Canadian communities to encourage as many people as possible to use sustainable modes of transportation
Bicycle Festival June 2005	Actively promote	London’s annual Bicycle Festival encourages Londoners to bike for transportation, fitness and fun. The festival promotes events to educate people about safety, maintenance, local trails and to advocate bike use.
TDM for Business June 2005 – November 2006	Raise Awareness	Enhance the capacity of local small-to-medium sized enterprises and large businesses to take action on climate change by increasing the use of environmentally-friendly forms of transportation.
SHIFT Website Fall 2005 to Winter 2006	Actively promote	A TDM website will be launched to inform individuals and employers of the benefits of TDM.

MAPS 1 & 2

Primary and Secondary Commuter Route Network
Primary and Secondary Recreational Route Network

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RECREATIONAL BICYCLE ROUTES

This schedule forms part of the draft Bicycle Master Plan and is not intended to depict existing on or off-road bicycle routes. Please refer to <http://www.london.gov.uk/transport-and-roads/bicycles> for further information.

