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 b 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 <u>long, continuous routes for</u> <u>commuting or recreational trips;</u> 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 inboulevard 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 onroad bicycle lanes beside the vehicle curb lane. However, given existing infrastructure and funding realities, it is recognized that this is a <u>long term goal</u>. 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 multiuse 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.

	Route Selection Criteria						
Facility	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 connecter)
- 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 onroad bicycle lanes, having particular consideration for intersection treatments
- Bicycle parking standards shall be prepared and incorporated into the City's Z.-1 Zoning Bylaw 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 stripping) 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).

Proposed Timing	Project	and	Focus Bicycle Plan	for t Masi	the ter	Description

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





Appendix 1a)

AMENDMENT NO.

to the

OFFICIAL PLAN FOR THE CITY OF LONDON

A. PURPOSE OF THIS AMENDMENT

The purpose of this amendment is to adopt the Bicycle Master Plan as a guideline document to the Official Plan. The amendment will also serve to update existing transportation policy pertaining to Council's stated intent to prepare a Bicycle Master Plan.

B. LOCATION OF THIS AMENDMENT

This amendment is to be applied on a City-wide basis.

C. BASIS OF THE AMENDMENT

The Transportation policies of the Official Plan underscore Council's commitment to the development of a balanced, safe and efficient transportation system that integrates all modes of travel and minimizes the conflicts among these modes. 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, and with a mind to achieving a 3% modal split by 2011, Section 18.2.13 of the Official Plan states that Council shall prepare and implement a 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 an off-road component to this system that 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 recreational and commuting linkages to major activity centres and employment nodes.

D. THE AMENDMENT

The Official Plan for the City of London is hereby amended by:

- 1) deleting the Section 18.2.13.i) 18.2.13.vi) and replacing it with a new Section 18.2.13.i) 18.2.13.xiii) as follows:
- **Bicycle Master Plan i)** Council shall prepare and adopt a Bicycle Master Plan to guide the development and implementation of a long-term, comprehensive, on and off-road commuter and recreational bicycling network. The Master Plan shall serve to: advance a vision for cycling; detail a series of first principles to implement the London's cycling vision; define a strategic approach for the development of a primary and secondary commuter and recreational network that recognizes the distinct operational and design needs of the user; depict existing and proposed on and off-road facilities; advance minimum design standards for facility development; detail facility supportive amenities; and recommend mechanisms for implementation.

City-initiated Capital Transportation Projects ii) All City-initiated capital transportation projects shall incorporate bicycle facilities as directed by the Bicycle Master Plan. The prescribed facility shall be incorporated into the Environmental Assessment and budgeting process as required.

City-initiated Capital Open Space and Parks Projects iii) All City-initiated capital open space, parks and recreation projects will incorporate bicycle facilities as directed by the Bicycle Master Plan. The prescribed facility shall be incorporated into the Environmental

- Assessment process and budgeting process as required. Area Plans iv) All area plans shall incorporate bicycle infrastructure as provided for in the Bicycle Master Plan. All development applications, including, but not limited to, plans of Development Applications v) subdivision. severances, plans of condominium, Official Plan Amendments, zoning by-law amendments, site plans, ESA management plans, and park management plans shall be reviewed to ensure that they are consistent with, and implement, the Bicycle Master Plan. Signage Program vi) A bicycle route signage program for existing roadways will be budgeted for and prioritized as directed by the Bicycle Master Plan. Signage for identified commuter and recreational routes will be developed in accordance with recognized standards and best practices. **Ongoing Road** Ongoing road maintenance and new road construction and associated Maintenance and New Road infrastructure shall have consideration for the bicycle in the design and placement of intersection treatments, sewer grates, manhole covers, Construction vii) signage and railway crossings. All of the maintenance requirements for roadways shall extend and apply Maintenance to on-road bicycle lanes facilities as well including the maintenance of the Requirements for lane delineation, pavement stencilling, and the maintenance and/or Roadways viii) replacement of signage. On-going road maintenance schedules and budgets shall provide priority First Priority for to primary commuter routes such that these routes are given: first priority Bicycle Lanes ix) for plowing; first priority for street sweeping; and high priority for regular maintenance on pot-holes, cracks and other degradation. Lead by Example x) All facilities operated by the City will incorporate appropriate bicycle facilities consistent with their location relative to the Bicycle Master Plan and in order to lead by example in promoting the usage of cycling in London. **Bicycle Parking** Bicycle parking shall be provided in accordance with the requirements of Standards xi) the Z.-1 Zoning By-law. Council shall also encourage facilities such as showers and change rooms in places of employment to enhance the use of the bicycle for work-based travel. The City shall develop specific design and implementation guidelines for Intersection the creation of delineated on-road bicycle lanes and on-road bicycle routes Treatments and having particular consideration for intersection treatments. facility design xii) The City shall develop educational programming to promote and Supportive encourage safe and viable cycling in London. Programming xiii)
 - 2) Amend Section 19.2.2. to add a new part "()" that would state "Bicycle Master Plan".

1) Section 4.19. of the General Provisions to By-law No. Z.-1 is amended by adding a new section "()" as follows:

() Bicycle Parking Requirements:

All required bicycle parking spaces shall be provided at the time of the erection of a building or addition thereto, expansion of a use, or when there is a change of use of a lot or a building. Bicycle parking spaces shall be maintained exclusively for the use for which they are required for as long as the use is in operation.

() Design Characteristics for Bicycle Parking:

For the purpose of this By-law, associated design elements shall be provided in accordance with those provisions set forth under Section () of the City's Site Plan Control By-law.

- () Number of Bicycle Parking Spaces:
- 1) Residential Development:

Apartment buildings and lodging houses (with five or more residential units) shall be required to provide 1 bicycle parking space per residential unit in an accessible, secure and weather protected area suitable for long term parking. For the purpose of this By-law, required bicycle parking spaces shall not be provided within a dwelling unit or a balcony thereof.

2) Residential Development Exemptions:

Notwithstanding clause xx to the contrary, bicycle parking shall not be required for:

- (a) Conversions of existing space to residential units;
- (b) Senior citizen apartment buildings, nursing homes, rest homes and retirement lodges;
- (c) Handicapped persons apartment buildings;
- (d) Single detached; semi-detached; duplex; triplex; apartment (less than 5 units).
- 3) Non-Residential Development:

Bicycle parking spaces shall be provided at a rate of 7% of the required number of automobile parking spaces, as specified in the Zoning By-law, for all non-residential development except as specified below:

- 4) Non-Residential Development Exemptions:
- (a) where the required number of automobile parking spaces specified in the Zoning By-law is 9 or fewer spaces, no bicycle parking is required;
- (b) No bicycle parking requirement applies for the following uses specified in the Zoning By-law:

Abattoir; agricultural service establishment; agricultural supply establishment; animal hospital; veterinary clinic; auction establishment; automobile body shop; automobile rental establishment; automobile rental garage; automobile sales ancillary to automobile repair garage; automobile sales and service establishment; automobile service station; automobile supply store; brewing on premises establishment; building supply outlet; bulk beverage outlet; bulk sales; car wash; caterer's establishment; driving range (golf); duplicating shop; funeral home; gas bar; golf course; hardware store; home and auto supply store; home appliance store; home furnishings store; home improvement store; hotel; household appliances sales and service; industrial and equipment sales and service; kennel; motel; nursery and garden store; open storage; public use; repair and rental establishment; resource extraction operation; retail warehousing; salvage yard; service and repair establishment; service industrial use; service trade; taxi establishment; terminal centre; vehicle sales and service establishment; warehouse establishment; and, wholesale establishment;

- (c) No bicycle parking requirement will apply to the conversion of existing buildings for residential or non-residential uses in all Downtown Area 1 and 2 Zones.
- (d) No bicycle parking requirement will apply to the conversion of existing buildings for residential or non-residential uses in all Business District Commercial 1 and 2 Zones.
- 5) Change Room and Shower Facilities:

Change room and shower facilities for employees that commute are encouraged to enhance the use of the bicycle for work based travel.

6) Bicycle Parking Incentives:

Notwithstanding Section 4.19 of this By-law to the contrary, the required number of motor vehicle parking spaces for non-residential uses may be reduced to provide for additional bicycle parking spaces beyond those mandated by this by-law provided, however, the reduction in motor vehicle parking spaces shall not exceed 10% of the required motor vehicle parking spaces.

Proposed Amendments to the Site Plan Control By-law

Add to Section 6 of the Site Plan Design Manual part 6.10 as follows:

- 6.10. Bicycle Parking Facilities
- (a) Objectives:

To encourage the use of bicycles as an alternative means of transportation, bicycle parking facilities shall be provided at the residential base and at destination locations such as the workplace, convenience and destination and commercial and institutional facilities. Bicycle parking shall be provided in facilities that are convenient, safe, secure and functional for the intended use.

(b) Number of Bicycle Parking Spaces:

To be provided in accordance with the regulations set out in the current Zoning By-law.

(c) Design Characteristics

When required in association with a development, bicycle parking spaces shall be provided in accordance with the design characteristics as set out in Table 6.10.

1.	Location	 Subject to the design characteristics set out below in this table, bicycle parking spaces may be provided in the following locations; (a) in a bicycle room or bicycle compound located within a building or motor vehicle parking structure (b) within an individual bicycle locker (c) within an accessory building (d) within an exterior space (covered or uncovered) designated for the parking of bicycles
2.	Size of a Bicycle Parking Space	 Minimum horizontal dimensions of 0.6 metres by 1.5 metres and a height of at least 1.9 metres
3.	Aisle Width	• Where more than one row of bicycle parking spaces is provided, a minimum aisle width of 1.5 metres shall be provided.
4.	Location for Accessibility	 Less than 15 metres from the entrance used by cyclists or if located within a building in a location easily accessible to bicycles Should not be farther from the entrance than the closest motor vehicle parking space (excluding parking spaces for the physically challenged) In a separately designated area that does not impede the movement of pedestrians In an easy to find location directly visible from the street and if not directly visible from the street directional information signs shall be installed to direct cyclists to the bicycle parking facility
5.	Location for Natural Surveillance	 Located within constant visual range of persons within the adjacent building or within well traveled pedestrian areas

 Table 6.10

 Design Characteristics for Bicycle Parking Facilities:

		•	Within unobstructed view from the adjacent municipal roadway
6.	Security Lighting		Night lighting shall be provided in a manner to ensure that the entire bicycle parking area is well lit
7.	Covered Bicycle Parking	•	If covered motor vehicle parking is provided, the required bicycle parking shall also be covered If more than 10 bicycle spaces are required, at least 50% of the required bicycle parking spaces shall also be covered

(d) Change Room and Shower Facilities: Change room and shower facilities for cyclists are encouraged to enhance the use of bicycles for work based travel.

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TO:	CHAIR AND MEMBERS – ENVIRONMENT AND TRANSPORTATION COMMITTEE
FROM:	R. PANZER
	GENERAL MANAGER OF PLANNING AND DEVELOPMENT
	And
	P. STEBLIN
	GENERAL MANAGER OF ENVIRONMENTAL SERVICES AND CITY ENGINEER
SUBJECT:	BICYCLE MASTER PLAN
	"A BICYCLE INFRASTRUCTURE GUIDELINE FOR LONDON"
	Meeting on March 21 st , 2005,

RECOMMENDATION

That, on the recommendation of the General Manager of Planning and Development and the General Manager and City Engineer, the following report proposing amendments to the Official Plan, Z.-1 Zoning By-law and Site Plan Control By-law to implement the Bicycle Master Plan, bicycle parking requirements, and site plan design standards **BE CIRCULATED** to the Bicycle Advisory Committee, the Transportation Advisory Committee, the London Development Institute, the Urban League and other interested members of the public for review and comment; it being noted that following such circulation, a joint public participation meeting to review the Bicycle Master Plan Guideline Document and associated amendments to the City's Official Plan, Z.-1 Zoning By-law, and Site Plan Control By-law will be scheduled with the Planning and the Environment and Transportation Committees.

RATIONALE

- The proposed Official Plan Amendment to adopt the Bicycle Master Plan as a Guideline Document is consistent with Section 19.2.2. of the Official Plan which states that Council may adopt guideline documents to provide for detailed direction for the implementation of Official Plan policies;
- 2. The proposed guideline document is consistent with Section 18.2.13.i) of the Official Plan which states that Council shall prepare and implement a bicycle master plan for the development of a bicycle route system addressing such matters as location, design, signage, priority linkages or extensions, education and encouragement;
- 3. The proposed guideline document is consistent with Section 18.2.13.ii) of the Official Plan which states that consideration shall be given to the provision of bicycle routes in the preparation and review of development applications where such facilities will contribute to the development of linkages or extensions to existing routes;
- 4. The proposed guideline document is consistent with Section 18.2.13. iii) of the Official Plan which calls for development of a properly designed and maintained, safe and convenient on and off-road bicycle network that integrates bicycles with the road system and does not adversely impact significant environmental features or functions in river valleys and parklands;
- The proposed amendment to the Z.-1 Zoning By-law is consistent with Sections 18.2.12.vii) and 18.2.13.v) and vi) of the Official Plan which state that bicycle parking standards shall be prepared and implemented to ensure that the parking needs of cyclists are met; and,
- 6. The amendment to the Site Plan Control By-law is proposed in conjunction with the associated Z.-1 Zoning Amendments to introduce regulations requiring the provision of bicycle parking facilities.

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EXECUTIVE SUMMARY

<u>The Issue:</u>

- The <u>Transportation policies of the Official Plan underscore Council's commitment</u> to the development of a balanced, safe and efficient transportation system that integrates all modes of travel and minimizes the conflicts among these modes.
- To promote increased bicycling, and with a mind to achieving the modal split targets of the 2004 Transportation Master Plan, Section 18.2.13 of the Official Plan states that **Council shall prepare and implement a master plan for the development of a** <u>bicycle route system</u> 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 centres and employment nodes.
- The planning and development of the City's on and off-road bicycle system currently rests with the Transportation Division of the Environmental Services Department and the Parks Planning and Design Section of the Planning Department.
- The Transportation Division is responsible for the development of bicycle facilities within the transportation corridor right-of-ways. Facility development is currently based on an infrastructure schedule that was developed by the Transportation Division in the late 1980's. While having no official status (the schedule was never formally adopted by Council), the schedule depicts both "existing" and "proposed" on-road facilities and is given consideration in the review of City initiated capital road projects.
- The Parks Planning and Design Section has prepared a similar schedule depicting "existing" and "proposed" off-road bicycle facilities within the City's river valley and open space network. While having no official status, the schedule is referenced in the review of area plans and plans of subdivision with a mind to facilitating the development of additional linkages and connections to the existing City-wide off-road multi-use pathway system.
- While both the on and off-road components of the bicycle system are essential to the development of a functional network, <u>the lack thus far of a Council endorsed, long term planning approach to facility development has led, in certain instances, to poor coordination</u> in the efforts of various City Departments and examples of facilities that are neither connected nor utilized. <u>Lacking a long-term vision, the exercise of securing lands for the extension of existing routes has also been onerous and subject to criticism</u>.
- <u>The adoption of a Bicycle Master Plan will serve to coordinate and focus the efforts and resources of the Planning and the Environmental Services Departments in the development and realization of a comprehensive long-term bicycle vision.</u>

The Proposed Bicycle Master Plan:

- <u>Working with the City's Bicycle Advisory Committee, staff from the Planning,</u> <u>Environmental Programs, and the Transportation Divisions have completed a draft</u> <u>Master Plan for the future development of bicycle infrastructure in the City of</u> <u>London.</u>
- In respect to a long-term vision for cycling, <u>the Master Plan calls for the development</u> 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 centres; facilitates effective commuting opportunities by recognizing the unique operational and design needs of the user; and, provides for enjoyable experiences for



the recreational rider.

- Noting the financial implications to the municipality of the current policy regime (which calls for the provision of bicycle facilities in all construction projects involving arterial and primary collector roads), and the fact that strict adherence to this practice has failed to encourage or promote increased levels of cycling, <u>the Master Plan advances a series</u> <u>of first principles and route selection criteria</u> to provide a new qualitative framework for evaluating routes and determining the most appropriate type of bicycle facility. The first principles have been used to rationalize the existing policy regime and strategically guide facility design with a mind to maximizing safety, connectivity and utilization.
- <u>The Bicycle Master Plan advances several key actions steps to form the basis of</u> <u>future municipal efforts to realize the stated cycling vision including</u>: the adoption of the Master Plan and associated facility supportive standards; the adoption of a modified "tool kit" for facility development that would include delineated on-road bicycle lanes, shared and signed on-road bicycle routes, and multi-use pathways; the development of a distinct and hierarchal commuter and recreational network; the development of educational and promotional programming; the development of facility supportive amenities; and, long and short-term implementation strategies to promote and encourage cycling.
- <u>The adoption of the Bicycle Master Plan as a Guideline Document to the City's</u> <u>Official Plan is the most important priority to realize the stated cycling vision</u>. In the absence of a Council endorsed network strategy, opportunities to realize the stated cycling vision will be lost.
- London's existing bicycle infrastructure consists of in-boulevard pathways, signed on-road routes, and the Thames Valley Parkway multi-use pathway system. While endorsing the continued development of multi-use pathways and shared on-road facilities, the Master Plan recommends that the current City practice of constructing in-boulevard bicycle paths along primary and arterial roadways be replaced with delineated on-road bicycle lanes along specifically identified roadways. This recommendation is made in light of the Master Plan's stated vision, the operational and risk management issues associated with in-boulevard facilities, and prevailing trends and attitudes in Canada towards the provision of on-road facilities.
- London's existing bicycle infrastructure does not differentiate between the distinct operational and design needs of the commuter and recreational cyclist. In attempting to be all things to all people, the existing system has fallen short of promoting and encouraging cycling as an alternative mode of transportation. London's new bicycle network therefore will consist of two distinct and readily identifiable systems – a commuter route system and a recreational route system.
- Functioning as a high speed, destination oriented facility: the Commuter Network will cater to cyclists with a high level of experience and skill. The Recreational Network, on the other hand, will serve to provide inter and intra neighbourhood connections to a variety of recreational amenities including the Thames Valley Parkway, neighbourhood and district parks, natural areas and community facilities for cyclists with a low to moderate level of skill and experience.
- <u>A Primary Commuter Network will function as the spine of London's commuting</u> <u>network</u> providing direct connections on high order roads between major origins and destinations across the City. <u>The Commuter Network is intended to ultimately be</u> <u>composed of delineated on-road bicycle lanes within a widened curb lane.</u> <u>However, given existing infrastructure and funding realities, it is recognized that</u> <u>this is a long-term goal. In the interim, the Commuter Network may include signed</u> <u>on-road routes or in-boulevard pathways until a delineated on-road bicycle lane</u> <u>can be developed to serve the same connectivity function.</u> This will occur as roads are rebuilt and/or widened.
- <u>A Secondary Commuter Network is also proposed</u>. The Secondary Commuter Network will serve the purpose of directing and linking neighbourhood connections to the larger Primary Commuter Network. In this regard, the Secondary Commuter Network is



intended to be composed of signed on-road routes.

- <u>The Primary Recreational Network is intended to ultimately be composed of an</u> <u>off-road, continuous multi-use pathway system contiguous with Thames Valley</u> <u>Corridor.</u> At the present time however there are several "gaps" in the existing 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.
- <u>A Secondary Recreational Network is also proposed</u>. The Secondary Recreational Network will serve the purpose of providing connections to the Thames Valley Parkway and more local, neighbourhood level amenities. The Network will consist of a series of signed on-road routes that are primarily located along lower order thoroughfares.
- Consistent standards shall be used in the design of both the commuter and recreational networks with a mind <u>to promote the system and enhance the safety of the user</u>. The Master Plan advances a series of facility design guidelines that are based on accepted standards and best practices advocated by a number of professional associations and governmental agencies. The Plan notes that these standards may not be immediately implemented given existing infrastructure, physical constraints and funding realities.
- The Bicycle Master Plan primarily focuses on a strategic approach to facility development. Infrastructure alone however is not sufficient to promote and encourage safe and viable cycling in London. Acknowledging this, <u>the Master Plan identifies the key role City staff and other community partners are to play in developing promotional and educational initiatives (including the SHIFT Program) in support of the Plan's short-term implementation.</u>
- The Bicycle Master Plan advances a blueprint for the long-term development of a commuting and recreational cycling network. <u>In the short term, implementation strategies are proposed to direct the development of as much bicycle infrastructure as physically and financially possible.</u> The goal with the short term strategies is to promote cycling opportunities early in the planning period by maximizing routes, linkages and connections <u>including signage, stripping and temporary routes.</u>
- The Draft Bicycle Master Plan was endorsed by the Bicycle Advisory Committee on December 12th, 2003. Considerable work has been completed since that time to address issues raised by internal administration. The Plan should now be circulated for broader review and public comment.

Bicycle Parking Requirements and Site Plan Design Standards:

- Every cycling trip has two basic components: the route used by the cyclist and the endof-trip facilities available at the destination. <u>When the end-of-trip facilities do not meet</u> <u>the needs of the user, the user will seek other means of transportation.</u>
- Section 18.2.13 of the Official Plan states that <u>Council shall require, as a condition of</u> <u>approval of development or redevelopment, the provision of adequate, sheltered</u> <u>and secure parking facilities.</u>
- At its meeting held <u>on December 8^h, 2003, the Planning Committee received a</u> <u>communication from the Transportation Plan Implementation Committee</u> <u>requesting the Planning Committee to further investigate bicycle parking as it</u> <u>relates to the Z-1 Zoning By-law.</u> The Planning Committee referred the communication to the Acting General Manager of Planning and Development for inclusion in the City's new Bicycle Master Plan.
- <u>Parking requirements and site plan control standards have been prepared in</u> <u>response the Committee's request and should be circulated for public review and</u> <u>comment.</u> These parking standards:
 - 1. specify a threshold number of vehicular parking spaces after which the provisions requiring bicycle parking would be mandated in a development scenario;

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- 2. include specific exemptions for certain land uses that would not typically attract the cyclist; and,
- 3. establish a separate bicycle parking rate for residential and non-residential development.

REPORT FORMAT

For reasons of clarity, the following report has been broken down into two specific components. Part 1 of this report will provide a brief overview and analysis of the issues associated with the adoption of the proposed Bicycle Master Plan. Part 2 will serve to introduce a series of proposed bicycle parking standards for possible inclusion in the City's Z.-1 Zoning By-law and Site Plan Control By-law. The report will conclude with a series of recommended next steps.

The proposed Bicycle Master Plan and implementing Official Plan amendment have been included as Appendix 1 and 1a) to this report. The proposed Z.-1 Zoning By-law amendment and Site Plan Control By-law amendments have been attached as Appendix 2 and 2a).

PART 1 – MASTER PLAN ISSUES AND ANALYSIS

What is London's long-term Cycling Vision?

Unlike many municipalities in Ontario, the City of London has made a significant investment in the development of facilities for both the commuter and recreational cyclist. The Thames Valley Parkway, for example, provides cross-city recreational opportunities for cyclists. In-boulevard pathways (i.e. Wonderland Road North) have also been developed under the auspices of a Council policy requiring the provision of bicycle facilities in all construction projects involving primary collector and arterial roads.

Notwithstanding these efforts, surveys conducted in 1993 as part of the Transportation Plan Review concluded that "...greater cycling activity in London has been hampered primarily by issues pertaining to safety and convenience." Respondents of the day noted the bicycle/auto interface, road maintenance, and the construction of incomplete routes as the primary reasons for their hesitancy to consider the bicycle as a viable transportation mode.

Results from the 2003 public attitude survey for the Transportation Master Plan would appear to echo those concerns previously expressed in the 1993 survey, with 30% of respondents indicating that they would cycle to work if the City provided more separated bicycle lanes and better route connections. A similar percentage of respondents indicated that they would shift to cycling if their employer provided end-of-trip amenities such as bicycle racks and showers.

To promote and encourage the bicycle as a viable transportation alternative, the Master Plan has specifically focused on issues of safety, convenience and connectivity in the development of a comprehensive on and off-road network vision (see Appendix 1, Section 3).

What are the benefits in adopting a series of First Principles?

First principles to guide the implementation of the Master Plan are absolutely necessary. First principles provide the qualitative framework for evaluating routes and determining the most appropriate facility type. Lacking a set of defined first principles, the development of London's bicycle network has defaulted in the past to the broad policy framework of the Official Plan that, in practice, has served neither the cyclist nor the municipality.

Current Official Plan policy, Policy 18.2.13.iii)(a) for example, requires the provision of bicycle related infrastructure in all construction projects involving primary collector and arterial roadways. Strict adherence to this policy has failed, however, to encourage or promote increased levels of cycling – not every arterial, given operating speeds, bus routes, available land, and surrounding land uses, may be appropriate for a bicycle facility. Lacking a "qualitative filter", the merits of the current policy regime is further questionable given the financial



implications to the municipality. The proposed Master Plan addresses both the utilization and costing issues identified above. The Plan serves to advance a series of first principles (see Appendix 1, Section 4) and route selection criteria (see Appendix 1, Section 5) that shall be used to rationalize the existing network (i.e. every arterial and collector roadway) and strategically guide facility design with a mind to maximizing safety, connectivity, and utilization.

What is the defined Cycling Strategy?

The Bicycle Master Plan has focused on seven key action steps to form the basis for future municipal efforts to realize the stated cycling vision. These strategies (further detailed in Sections 5, 6, 7 and 8 of Appendix 1 – The Bicycle Master Plan) would include:

1. The adoption of the Master Plan and associated facility supportive standards:

The most important priority is the implementation of the Plan. In the absence of a comprehensive Council endorsed network strategy, opportunities to realize the stated cycling vision will be lost. The Master Plan should be adopted as a Guideline Document to the Official Plan and serve to provide for the detailed implementation of Official Plan policy. Amendments to the City's Z.-1 Zoning By-law and Site Plan Control By-law would also be required to address the development of facility supportive amenities.

2. The adoption of a modified "tool kit" for facility development:

The City of London has historically provided for bicycle travel through the development of a series of on and off-road facilities. While endorsing the continued development of multi-use and shared on-road signed facilities, the Master Plan recommends that the current City practice of constructing in-boulevard paths along all primary collector and arterial roads be replaced with on-road bicycle lanes along specifically identified arterials. This recommendation is advanced in light of the Master Plan's stated vision, the operational and risk management issues associated with in-boulevard facilities (as reported by the Ministry of Transportation, the Transportation Association of Canada, the American Association of State Highway and Transportation Officials, the Canadian Institute of Planners, the American Planning Association, et. al.) and the prevailing trends and attitudes in Canada towards the provision of on-road facilities. The recommended switch to a new design standard will occur over time as discussed in Section 8 (Implementation) of the Plan.

London's recommended long-term bicycle network will therefore consist of three types of facilities including: signed on-road bicycle lanes; signed on-road bicycle routes; and, multi-use pathways. Bicycle facility standards are advanced in Section 6 of the Master Plan and may be summarized as follows:

Facility Type	Facility	Design	Facility Designation &
	Definition	Characteristics	Intended User
On-Road	A portion of the roadway within the right-	High traffic roads	Primary Commuter Network
Bicycle Lane	hand lane that has been designated for	1.5 metres bike lane	• commuters with a moderate to
	the preferential or exclusive use of	 signage 	high level of skill and expertise
	bicyclists.	 lane striping 	
		 intersection treatments 	
Shared/signe d	A shared on road facility that has been	Low traffic roads	Primary Commuter Network
On-Road	identified by signs only.	4.3 metre curb lane	Secondary Commuter Network
Bicycle Route		 signage 	Primary Recreational Network
			Secondary Recreational Network
			• Cyclists with a low to high level of
			skill and expertise
Multi-Use	A separate and distinct multi-use facility	 Separate paved pathway 	Primary Recreational Network
Pathways	designed for a variety of users	 No automobiles allowed 	• Cyclists with a low to high level of
(Thames		3 to 6 metres in width	skill and expertise
Valley		 signed 	
Parkway)		 centre line path striping 	

Table 1 – Bicycle Facility Standards

The implementation of standards in a consistent fashion serves not only to promote the system but enhance the safety of the user. While the generalized standards recommended by way of



the Bicycle Master Plan are based on best practices advocated by a number of professional associations, it is recommended that the City develop a specific design guideline to assist in the implementation of on-road bicycle lanes. The design guideline would have specific consideration for established engineering practices (particularly intersection treatments) to minimize any liability risk to the municipality.

3. The development of a distinct commuter and recreational network:

A successful bicycle facility should provide for a comfortable environment for the anticipated user (and level of vehicular road traffic). It is important therefore to identify the target group for whom the facility is being designed. From a planning perspective, cyclists can generally be grouped according to cycling purpose, age and skill level. Presently, London's bicycle infrastructure does not differentiate between the nature of the trip nor the experience level of the cyclist. In attempting to be all things to all people, the network has come under criticism for its failure to recognize the behavioural characteristics of the specific user.

London's cycling strategy is based on the defining vision of a visible, safe and functional network that both promotes and encourages cycling. Mindful of this vision, London's cycling strategy has been developed to provide for both the recreational and commuter cyclist recognizing the distinct operational and design needs of the specific user. London's new bicycle network will therefore consist of two distinct and readily identifiable systems – a commuter route system and a recreational route system. The specifics of each system have been detailed in Sections 5.2.1 through 5.2.4 of Appendix 1.

4. The development of a distinct network hierarchy of primary and secondary routes;

Both the commuter and recreational networks will consist of primary and secondary route systems (Appendix 1, Schedule 1).

Serving as the major arteries of the system, Primary Commuter Routes will provide direct connections between major origins and destinations. It is intended that the Primary Commuter Route Network be composed of on-road bicycle lanes on specified high order roads. The Secondary Commuter System will serve the purpose of collecting and directing the commuter to the Primary Network. It is intended that the Secondary Commuter Network be composed of signed on-road bicycle routes on collector and local roadways. A detailed explanation of the Primary and Secondary Commuter Route Systems is provided in Section 5.2.1 and 5.2.2 the Master Plan (Appendix 1).

The Primary Recreational Network will be the Thames Valley Parkway. The Secondary Recreational Network will serve to provide for neighbourhood connections to the Primary Recreational Network. The Secondary Recreational Network will also serve to provide safe and convenient inter and intra neighbourhood connections to other recreational amenities and opportunities including neighbourhood parks, district parks, natural areas and community facilities. It is intended that the Secondary Recreational Route Network be composed of a series of signed on-road bicycle routes and paved off-road facilities that may bisect parks and/or open space. A detailed explanation of the Primary and Secondary Recreational Route Systems is provided in Section 5.2.3 and 5.2.4 of the Master Plan (Appendix 1).

5. The development of implementation strategies and recognized facility standards:

Section 7 of the Bicycle Master Plan (Appendix 1) serves to advance a series of implementation mechanisms. The three basic components of London's long-term on and off-road bicycle system shall be implemented as follows:

- Shared/signed on-road bicycle routes (Secondary Commuter and Secondary Recreational Route Systems): the Transportation Division of the Environmental and Engineering Services Department annually identifies on-road bicycle routes for signage. Council should build upon this successful initiative focussing resources as directed by the Master Plan;
- On-road bicycle lanes (Primary Commuter Route System): in those instances where existing



pavement width would preclude the immediate development of the on-road facility, the provision of exclusive bicycle lanes should be implemented in association with ongoing roadway improvement projects. Where sufficient pavement width exists, the delineation of the exclusive bicycle lane could be undertaken in conjunction with an annual lane marking program;

 Multi-Use pathways (Primary Recreation Network): Through the development review process and ongoing Thames Valley Parkway and associated open space capital programs, the Parks Planning and Design Section of the Planning Department will construct further multi-use facilities as directed by the Master Plan.

The Master Plan makes special note of the long-term focus of the City's new cycling initiative, recognizing that portions of the system may temporarily include existing or previously planned infrastructure (i.e. in-boulevard bicycle paths and/or signed on-road bicycle routes) pending the development of the preferred facility standard. Recommended standards will be integrated into the commuter and recreational network as new roadways (or pathways) are built, existing roadways (or pathways) are resurfaced/reconstructed and/or restriped, and lands are acquired.

To maximize the opportunities for bicycle commuting at the earliest opportunity, it is recommended that a functional grid of signed routes be identified. This will include existing routes and safe interim connections for continuity. Such an approach will support bicycles as an alternate mode of transportation early in the Plan development schedule while being conscious of present financial and technical constraints. Alternative approaches to be considered in this short term plan include: routes based on road availability; routes based on road vehicular traffic criteria and/or safe continuity with existing bicycle lanes; and, integration with traffic calming projects. Hurdles to overcome in the short-term would include: the changes to or loss of on-street parking lanes; low funding levels; and, connection of major destinations.

6. The development of educational and promotional programming:

Infrastructure alone is not sufficient to promote and encourage safe and viable cycling in London. Programming is equally important. Sections 7 and 8 of the attached Bicycle Master Plan acknowledge the key roles that must be fulfilled by members of the City's Environmental Programs & Customer Relations Division (e.g., the Transportation Demand Management Coordinator), the Parks Planning and Design Section of the Planning Division, the Transportation Advisory Committee (TAC) and other community partners to develop promotional and educational initiatives in support of the implementation of the Bicycle Master Plan.

In 2004 Municipal Council approved the *SHIFT* (Solutions to Help Individuals Find Transportation) Alternatives Program in an effort to provide a clearer understanding to Londoners on their vital role in modifying behaviours with respect to transportation choices. The *SHIFT* Alternatives Program is closely tied to other long-term strategies, such as the Transportation Master Plan, the Bicycle Master Plan, and the Official Plan. *SHIFT* is also closely tied to several areas of community and City operations including transit (the London Transit Commission), healthy living (the London and Middlesex Health Unit) and community-led initiatives (the Bike Festival – promoted by the Thames Region Ecological Association, and the Bike Rings and Racks Program – by the Urban League). As the overall *SHIFT* framework evolves through public consultation and feedback, additional elements will be more closely aligned and integrated under the updated framework.

7. The development of facility supportive amenities:

Every cycling trip has two basic components: the route used by the cyclist, and the end-of-trip facilities available at the destination. End-of-trip facilities may include bicycle parking, showers and change rooms for commuters. When the end-of-trip facilities do not meet the needs of the user, the user will seek other means of transportation. There is, however, no zoning by-law requirement for new developments to provide for end-of-trip amenities.

To enhance and promote the use of the bicycle, the Master Plan calls for the provision of safe



and secure parking facilities at all major centres and activity nodes. This call will necessitate amendments to the City's Z-1 Zoning By-law and Site Plan Control By-law. Recommended parking and design standards are further discussed in Part 2 to this report.

PART 2 – BICYCLE PARKING STAN DARDS

What does Official Plan Policy say in regards to the Provision of Bicycle Parking?

Policy 18.2.13 (v) and (vi) of the Official Plan states that:

- (v) Council shall require as a condition of approval of development or redevelopment, the provision of adequate, sheltered and secure parking facilities for bicycles at major activity nodes and employment centres. Council shall also encourage facilities such as change rooms and showers in places of employment to enhance the use of the bicycle for work-based travel. Bicycle parking standards shall be prepared and implemented to ensure that the parking needs of cyclists are met.
- (vi) Council shall provide accessible and sufficient bicycle parking areas at all municipally owned and operated facilities in order to promote the use of the bicycle as an alternative to motor vehicles.

What is the legislative authority to require the provision of bicycle parking facilities?

Amendments to the City of London Z.-1 Zoning By-law are required to introduce bicycle parking regulations specifying the required number of parking spaces. The City's Site Plan Control Bylaw is enacted pursuant to Section 41 of the Planning Act. Section 41(7) (a)(3) of the Act provides that a municipality may require the owner of the land (as a condition of approval of site plan) to provide:

> "Off-street vehicular loading and parking facilities, either covered or uncovered, access driveways, including driveways for emergency vehicles, and the surfacing of such areas or driveways".

On the advice of the City's Legal Department, this authority includes requirements that may be imposed respecting the location, size and sheltering requirements for bicycle parking facilities.

What do other jurisdictions require by way of bicycle parking standards?

Planning staff have reviewed the bicycle parking requirements of a number of Canadian and American municipalities. The results of this survey have been summarized in Tables 2 and 3. These municipalities have been chosen to illustrate the different methods that are used to address parking standards for bicycles. In preparing the Tables, the following considerations have been made:

- To facilitate comparison, all figures have been expressed as "x" spaces/1000 sq. m. of floor area or "x" % of required car parking spaces.
- Total parking spaces include an average of covered and outdoor spaces.
- Where a range in requirements or types of land use has been varied, the average appears in the chart. Comparison is limited to typical land uses only since applications to type of land use vary between municipalities.

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Table 2*

Municipality	Multiple Residential	Office	Commercial	Recreation	Industrial
Guelph ON	1/du	4%	5%	10%	4%
Ottawa ON	1.125/du	1.5/1000	1.5/1000	4.3/1000	0.8/1000
Vancouver BC	1/du	1.3/1000	1.3/1000	2/1000	1/1000
Saanich BC	1/du	4/1000	4/1000	10/1000	1/1000

Table 3*

Municipality	Multiple Residential	Office	Commercial	Recreation	Industrial
Portland OR	10%	5%	5%	5%	2.5%
Watertown MA	6%	6%	6%	6%	6%
Madison WI	1/du	10%	10%	10%	10%
Boulder CA	10%	10%	10%	10%	10%
Eugene OR	0.5/du	10%	10%	10%	10%
Seattle WA	5%	5%	5%	5%	5%
Blacksburg VA	0.25/du	5 minimum	10/1000	5 minimum	5 minimum

Should bicycle parking requirements be applied to all new development?

No, consideration should be had for both the intensity and the nature of the development being contemplated. The Official Plan states that Council shall require the provision of bicycle parking facilities at all major activity centres and employment nodes. The use of the word "major" implies the preclusion of less intense land uses in the consideration of bicycle parking facilities.

To define intensity for the purpose of providing exemptions, staff would recommend the use of the City's vehicular parking requirements detailed in Section 4.19 of the Z.-1 Zoning By-law. Section 4.19 provides for the calculation of vehicular parking requirements by specific land use. The more "intense" the land use, the greater the number of vehicular parking spaces required.

The Zoning By-law should specify a threshold number of vehicular parking spaces after which the provisions requiring bicycle parking would be mandated. Bicycle parking spaces would be required in addition to the required number of vehicular parking spaces. In determining an appropriate threshold, consideration should be had for the small business that may be unnecessarily encumbered by additional regulation.

Recommendation #1

The Zoning By-law should preclude the consideration of bicycle parking spaces for land uses that would require 9 or fewer vehicular parking spaces. Uses requiring 10 or more vehicular parking spaces would be required to provide for bicycle parking as mandated in the Zoning By-law.

The Zoning By-law should also have consideration for the use being contemplated. Certain land uses, given their size, the nature of services or products offered, clientele, or hours of operation, for example, may not lend themselves to bicycle traffic, and it would be inappropriate to require the provision of bicycle parking spaces. The Zoning By-law should, by way of specific
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exemption, preclude the consideration of bicycle parking facilities for such uses.

Recommendation #2

The Zoning By-law should include specific exemptions for certain land uses that would not typically attract the cyclist.

How should the number of required bicycle parking spaces be determined?

Municipalities tend to regulate the number of bicycle parking spaces as a percentage of the total number of car parking spaces required or based on the total gross leasable floor area of the contemplated use.

In-as-much as the linkage between parking and the size of the anticipated facility is already set through the by-law for automobiles, it would be best to build on this established requirement by using a percentage method. The adoption of a bicycle parking standard based on a percentage of the total vehicular parking requirement would also ease interpretation of the Zoning by-law.

Recommendation #3

Bicycle parking standards should be based on a percentage of the total vehicular parking requirement for the anticipated use.

What is a reasonable parking percentage?

To address this issue, various municipal standards from across Canada and the United States have been reviewed. Percentage requirements generally range in the order from 4 to 10% with a number of municipalities choosing to adopt a uniform standard for all office, commercial, recreational, institutional and industrial land uses. Table 5 provides a comparison of the percentage options vis-à-vis in a non-residential land use required vehicular parking scenario.

Table 5

Required # of Vehicular Parking Spaces	Required Number of Bicycle Parking Spaces*						
	4%	5%	6%	7%	8%	9%	10%
10	0.4	0.5	0.6	0.7	0.8	0.9	1
15	0.6	0.75	0.9	1.05	1.2	1.35	1.5
20	0.8	1	1.2	1.4	1.6	1.8	2
30	1.2	1.5	1.8	2.1	2.4	2.7	3
40	1.6	2	2.4	2.8	3.2	3.6	4
50	2	2.5	3	3.5	4	4.5	5
75	3	3.75	4.5	5.25	6	6.75	7.5
100	4	5	6	7	8	9	10
150	6	7.5	9	10.5	12	13.5	15
200	8	10	12	14	16	18	20

* Bicycle parking spaces would be subject to rounding.

In evaluating a percentage requirement for local implementation, consideration should be had for:

• the associated cost implications for the impacted business (i.e. the cost of infrastructure) ;



- the associated site implications (is a site large enough to accommodate the required vehicular and bicycle parking; outdoor storage, signage, etc.); and,
- the City's stated goal of promoting and encouraging cycling.

Planning staff would recommend the adoption of a 7% factor. The 7% standard, while lower than others adopted in Canada and the United States, would meet the intent of the Official Plan to encourage and promote cycling. The 7% standard would also provide for the development of sufficient on-site facilities without further constraining other design considerations such as on-site vehicular parking, outdoor storage, signage, etc.

Recommendation #4

Bicycle parking should be calculated at a rate of 7% of the required number of automobile parking spaces for all office, commercial, recreational, institutional and industrial land uses.

How should bicycle parking requirements be calculated for apartment buildings?

Bicycle parking facilities for specific types of medium and high density residential development are typically mandated. Rates can be based on a space per unit ratio and can range from a low of 0.25 spaces per unit to a high of 1.25 spaces per unit. Canadian municipalities tend to require one bicycle parking space for every unit in a multi-unit apartment building.

The City's Z.-1 Zoning By-law defines an apartment building to mean a building that is divided horizontally and/or vertically into five or more separate dwelling units but does not include a converted dwelling or townhouse dwelling.

Recommendation #5

Planning staff recommend the adoption of a regulation that would require the provision of 1 bicycle parking space for every unit in an apartment building containing 5 or more residential units. The By-law should also include exemptions for specific types of multi-family development that, given tenancy or other considerations, would not be expected to generate significant bicycle use.

Should the Zoning By-law contain minimum and maximum standards for non-residential land uses?

Under the proposed Zoning By-law amendment, non-residential land uses requiring more than 10 vehicular parking spaces would be required to provide for bicycle parking. The required number of bicycle parking spaces in a non-residential scenario, as proposed, would be equivalent to 7% of the required vehicular parking spaces. Should the by-law, however, contain "enticements" to provide for additional bicycle parking above and beyond the mandated standard?

The City of Windsor has recently adopted a standard that provides for a reduction in the required number motor vehicle parking spaces in conjunction with the development of additional bicycle facilities beyond the by-laws mandated minimum standard. In the case of Windsor, the number of required motor vehicle parking spaces is reduced at a ratio of one vehicular parking space for each four additional bicycle parking spaces provided. To prevent abuse, the By-law further stipulates that the reduction in motor vehicle parking spaces shall not exceed 15% of the required motor vehicle parking spaces.

In an effort to both promote and encourage cycling, the Zoning By-law should include provisions that would allow for the development of additional bicycle parking facilities above and beyond

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the proposed 7% standard proposed for non-residential development.

Recommendation #6

In a non-residential land use scenario, the Zoning By-law should include a provision that would allow for a reduction in the required number of automobile parking spaces where such a reduction would facilitate the establishment of additional bicycle parking facilities. The Zoning By-law should stipulate, however, that in no case shall the reduction exceed 10% of the required number of motor vehicle parking spaces.

What type of bicycle parking spaces should be provided?

A number of the municipalities' surveyed differentiated between long and short term parking. Long term bicycle parking refers to a facility designed to safely store bicycles for several hours or days at a time. These facilities are protected from the weather and may include lockers, storage rooms, or covered and fenced areas with restricted access. For reasons of user convenience, balconies are generally not considered a long-term parking facility. Typical land uses requiring long term parking include multi-unit apartment buildings and intense employment nodes.

Short term bicycle parking refers to accessible and conveniently located bicycle racks. These facilities are usually visible to passer-bys to discourage theft and vandalism. Typical land uses requiring short term parking include commercial and recreational land uses. Some municipalities specify the percentage of bicycle parking that should be long-term vs. short-term as shown on Table 6:

Municipality	Land Use Sho		Long
Saanich BC	Apartments		100%
	Office, Retail Commercial, Restaurants		50%
	Industrial	20%	80%
	Library, Museum, Recreation, Community Uses	80%	20%
Santa Cruz CA Apartments		0%	100%
	Office, Industrial	40%	60%
	Retail Commercial	80%	20%
	Recreation	90%	10%
	Park & Ride/Transit	20%	80%
Vancouver BC	Apartments	0%	100%
	Community Centres, Library, Gallery, Museum, Fitness Centre	67%	33%
	Office	30%	70%
	Retail Commercial	82%	18%
	Industry	0%	100%

Table 6

In those instances where a municipality has chosen to differentiate between long and short-term bicycle parking, long-term parking requirements for apartment buildings, office and industrial land uses can range from 50 to 100%. Retail, institutional and recreational land uses would require 10 to 30% long-term bicycle parking. It is recommended that the "type" of bicycle parking facility (long-term vs. short term) be dealt with through the site plan review process. The Zoning process, on the other hand, will ensure that the required number of bicycle spaces are provided.



Recommendation #7

For reasons of climate, long-term bicycle parking should be required for all residential apartment buildings. The provision of long-term bicycle parking facilities should also be encouraged at the site plan review stage for major office and industrial developments to accommodate employees.

How should bicycle parking requirements be calculated for the Downtown and the City's defined Business District Commercial areas?

In the Downtown Area and street-oriented Business District Commercial Areas where space is limited and building lot coverage high, the City should consider providing adequate bicycle parking in municipally owned lots and on street boulevards. Conversion or adaptive re-use of existing buildings should not trigger the requirement for providing additional on-site parking spaces. Major redevelopment involving property consolidation and new construction should, however, be required to provide for bicycle parking facilities at the mandated rate.

Recommendation #8

It is recommended that the City of London provide adequate bicycle parking facilities in municipally owned lots and on street boulevards for land uses in the defined Downtown Area and Business District Commercial Areas.

How should bicycle parking requirements be calculated for municipally owned and operated facilities?

Some recreational and institutional land uses tend to have a higher frequency of people arriving by bicycle than other uses. Municipally owned and operated facilities should provide more than the minimum required bicycle parking spaces where bicycle activity is expected to be high. This can be implemented as a Council policy and does not necessarily require an amendment to the Zoning By-law or Site Plan Control By-law.

Recommendation #9

In instances of demonstrated need, Council adopt a policy that would provide for the installation of sufficient bicycle parking facilities at municipally owned and operated facilities.

Does the municipality have the legislative authority to require change rooms and shower facilities for employees at major activity centres and employment nodes?

No. Neither the Ontario Building Code, the Planning Act nor the Municipal Act confers such statutory powers to the municipality. To increase the number of shower and change facilities for cyclists, however, the municipality, through the City's Transportation Demand Manager, should work with private businesses to promote bicycle commuting and investigate bonus provisions for inclusion in the Z.-1 Zoning By-law that would encourage developers to provide showers and change space.



Recommendation #10

Planning staff recommend that further study be conducted into the feasibility of including bonus provisions in the City's Z.-1 Zoning By-law to provide for shower and change room facilities at major activity centres and employment nodes.

PART 4 – NEXT STEPS

In support of the Master Plan, associated amendments to the City's Z.-1 Zoning By-law and Site Plan Control By-law have also been prepared. Staff would now recommend that the report proposing amendments to the City's Official Plan, Z.-1 Zoning By-law and Site Plan Control Bylaw be circulated for public review and comment. In addition to the general circulation, staff would seek input from:

- the Bicycle Advisory Committee
- the Transportation Advisory Committee
- the London Development Institute;
- the Urban League;
- the London and Area Planning Consultants;
- the Public and Separate School Boards, the University of Western Ontario, Fanshawe College, private educational schools;
- the London Transit Commission; and,
- the EEPAC.

Following the public consultation process, the Acting General Manager of Planning and Development will schedule a Public Participation meeting before the Planning Committee and the Environment and Transportation Committee to consider the Master Plan, the associated Official Plan Zoning and Site Plan Control By-law amendments, and the costing considerations.

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ACKNOWLEDGEMENTS

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Appendix 1

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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:

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- 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 <u>long, continuous routes for</u> <u>commuting or recreational trips;</u> 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 inboulevard 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.

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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 onroad bicycle lanes beside the vehicle curb lane. However, given existing infrastructure and funding realities, it is recognized that this is a <u>long term goal</u>. 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.

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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 multiuse 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.

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

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- 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

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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 connecter)
- 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 onroad bicycle lanes, having particular consideration for intersection treatments
- Bicycle parking standards shall be prepared and incorporated into the City's Z.-1 Zoning Bylaw 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 stripping) 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).



Proposed Project and Timing	Focus for the Bicycle Master Plan	Description		
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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Appendix 1a)



Appendix 1a)

AMENDMENT NO.

to the

OFFICIAL PLAN FOR THE CITY OF LONDON

A. PURPOSE OF THIS AMENDMENT

The purpose of this amendment is to adopt the Bicycle Master Plan as a guideline document to the Official Plan. The amendment will also serve to update existing transportation policy pertaining to Council's stated intent to prepare a Bicycle Master Plan.

B. LOCATION OF THIS AMENDMENT

This amendment is to be applied on a City-wide basis.

C. BASIS OF THE AMENDMENT

The Transportation policies of the Official Plan underscore Council's commitment to the development of a balanced, safe and efficient transportation system that integrates all modes of travel and minimizes the conflicts among these modes. 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, and with a mind to achieving a 3% modal split by 2011, Section 18.2.13 of the Official Plan states that Council shall prepare and implement a 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 an off-road component to this system that 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 recreational and commuting linkages to major activity centres and employment nodes.

D. THE AMENDMENT

The Official Plan for the City of London is hereby amended by:

- deleting the Section 18.2.13.i) 18.2.13.vi) and replacing it with a new Section 18.2.13.i) – 18.2.13.xiii) as follows:
- **Bicycle Master Plan i)** Council shall prepare and adopt a Bicycle Master Plan to guide the development and implementation of a long-term, comprehensive, on and off-road commuter and recreational bicycling network. The Master Plan shall serve to: advance a vision for cycling; detail a series of first principles to implement the London's cycling vision; define a strategic approach for the development of a primary and secondary commuter and recreational network that recognizes the distinct operational and design needs of the user; depict existing and proposed on and off-road facilities; advance minimum design standards for facility development; detail facility supportive amenities; and recommend mechanisms for implementation.



City-initiated Capital Transportation Projects ii)	All City-initiated capital transportation projects shall incorporate bicycle facilities as directed by the Bicycle Master Plan. The prescribed facility shall be incorporated into the Environmental Assessment and budgeting process as required.
City-initiated Capital Open Space and Parks Projects iii)	All City-initiated capital open space, parks and recreation projects will incorporate bicycle facilities as directed by the Bicycle Master Plan. The prescribed facility shall be incorporated into the Environmental Assessment process and budgeting process as required.
Area Plans iv)	All area plans shall incorporate bicycle infrastructure as provided for in the Bicycle Master Plan.
Development Applications v)	All development applications, including, but not limited to, plans of subdivision, severances, plans of condominium, Official Plan Amendments, zoning by-law amendments, site plans, ESA management plans, and park management plans shall be reviewed to ensure that they are consistent with, and implement, the Bicycle Master Plan.
Signage Program vi)	A bicycle route signage program for existing roadways will be budgeted for and prioritized as directed by the Bicycle Master Plan. Signage for identified commuter and recreational routes will be developed in accordance with recognized standards and best practices.
Ongoing Road Maintenance and New Road Construction vii)	Ongoing road maintenance and new road construction and associated infrastructure shall have consideration for the bicycle in the design and placement of intersection treatments, sewer grates, manhole covers, signage and railway crossings.
Maintenance Requirements for Roadways viii)	All of the maintenance requirements for roadways shall extend and apply to on-road bicycle lanes facilities as well including the maintenance of the lane delineation, pavement stencilling, and the maintenance and/or replacement of signage.
First Priority for Bicycle Lanes ix)	On-going road maintenance schedules and budgets shall provide priority to primary commuter 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.
Lead by Example x)	All facilities operated by the City will incorporate appropriate bicycle facilities consistent with their location relative to the Bicycle Master Plan and in order to lead by example in promoting the usage of cycling in London.
Bicycle Parking Standards xi)	Bicycle parking shall be provided in accordance with the requirements of the Z1 Zoning By-law. Council shall also encourage facilities such as showers and change rooms in places of employment to enhance the use of the bicycle for work-based travel.
Intersection Treatments and facility design xii)	The City shall develop specific design and implementation guidelines for the creation of delineated on-road bicycle lanes and on-road bicycle routes having particular consideration for intersection treatments.
Supportive Programming xiii)	The City shall develop educational programming to promote and encourage safe and viable cycling in London.

2) Amend Section 19.2.2. to add a new part "()" that would state "Bicycle Master Plan".



Appendix 2



Appendix 2 Proposed Amendments to the Z.-1 Zoning By-law

- 1) Section 4.19. of the General Provisions to By-law No. Z.-1 is amended by adding a new section "()" as follows:
 - () Bicycle Parking Requirements:

All required bicycle parking spaces shall be provided at the time of the erection of a building or addition thereto, expansion of a use, or when there is a change of use of a lot or a building. Bicycle parking spaces shall be maintained exclusively for the use for which they are required for as long as the use is in operation.

() Design Characteristics for Bicycle Parking:

For the purpose of this By-law, associated design elements shall be provided in accordance with those provisions set forth under Section () of the City's Site Plan Control By-law.

- () Number of Bicycle Parking Spaces:
- 1) Residential Development:

Apartment buildings and lodging houses (with five or more residential units) shall be required to provide 1 bicycle parking space per residential unit in an accessible, secure and weather protected area suitable for long term parking. For the purpose of this By-law, required bicycle parking spaces shall not be provided within a dwelling unit or a balcony thereof.

2) Residential Development Exemptions:

Notwithstanding clause xx to the contrary, bicycle parking shall not be required for:

- (a) Conversions of existing space to residential units;
- (b) Senior citizen apartment buildings, nursing homes, rest homes and retirement lodges;
- (c) Handicapped persons apartment buildings;
- (d) Single detached; semi-detached; duplex; triplex; apartment (less than 5 units).
- 3) Non-Residential Development:

Bicycle parking spaces shall be provided at a rate of 7% of the required number of automobile parking spaces, as specified in the Zoning By-law, for all non-residential development except as specified below:

- 4) Non-Residential Development Exemptions:
- (a) where the required number of automobile parking spaces specified in the Zoning By-law is 9 or fewer spaces, no bicycle parking is required;
- (b) No bicycle parking requirement applies for the following uses specified in the Zoning By-law:



Abattoir; agricultural service establishment; agricultural vlague establishment; animal hospital; veterinary clinic; auction establishment; automobile body shop; automobile rental establishment; automobile rental garage; automobile sales ancillary to automobile repair garage; automobile sales and service establishment; automobile service station; automobile supply store; brewing on premises establishment; building supply outlet; bulk beverage outlet; bulk sales; car wash; caterer's establishment; driving range (golf); duplicating shop; funeral home; gas bar; golf course; hardware store; home and auto supply store; home appliance store; home furnishings store; home improvement store; hotel; household appliances sales and service; industrial and equipment sales and service; kennel; motel; nursery and garden store; open storage; public use; repair and rental establishment; resource extraction operation; retail warehousing; salvage yard; service and repair establishment; service industrial use; service trade; taxi establishment; terminal centre; vehicle sales and service establishment; warehouse establishment; and, wholesale establishment;

- (c) No bicycle parking requirement will apply to the conversion of existing buildings for residential or non-residential uses in all Downtown Area 1 and 2 Zones.
- (d) No bicycle parking requirement will apply to the conversion of existing buildings for residential or non-residential uses in all Business District Commercial 1 and 2 Zones.
- 5) Change Room and Shower Facilities:

Change room and shower facilities for employees that commute are encouraged to enhance the use of the bicycle for work based travel.

6) Bicycle Parking Incentives:

Notwithstanding Section 4.19 of this By-law to the contrary, the required number of motor vehicle parking spaces for non-residential uses may be reduced to provide for additional bicycle parking spaces beyond those mandated by this by-law provided, however, the reduction in motor vehicle parking spaces shall not exceed 10% of the required motor vehicle parking spaces.



Appendix 2a)



Appendix 2a)

Proposed Amendments to the Site Plan Control By-law

Add to Section 6 of the Site Plan Design Manual part 6.10 as follows:

- 6.10. Bicycle Parking Facilities
- (a) Objectives:

To encourage the use of bicycles as an alternative means of transportation, bicycle parking facilities shall be provided at the residential base and at destination locations such as the workplace, convenience and destination and commercial and institutional facilities. Bicycle parking shall be provided in facilities that are convenient, safe, secure and functional for the intended use.

(b) Number of Bicycle Parking Spaces:

To be provided in accordance with the regulations set out in the current Zoning By-law.

(c) Design Characteristics

When required in association with a development, bicycle parking spaces shall be provided in accordance with the design characteristics as set out in Table 6.10.

1.	Location	 Subject to the design characteristics set of this table, bicycle parking spaces may be the following locations; (a) in a bicycle room or bicycle component within a building or motor vehicle parking or mo	out below in provided in ound located parking or rking of
2.	Size of a Bicycle Parking Space	Minimum horizontal dimensions of 0.6 me metres and a height of at least 1.9 metres	etres by 1.5
3.	Aisle Width	• Where more than one row of bicycle parking spaces is provided, a minimum aisle width of 1.5 metres shall be provided.	
4.	Location for Accessibility	 Less than 15 metres from the entrance used by cyclists or if located within a building in a location easily accessible to bicycles Should not be farther from the entrance than the closest motor vehicle parking space (excluding 	

Table 6.10Design Characteristics for Bicycle Parking Facilities:



			parking spaces for the physically challenged) In a separately designated area that does not impede the movement of pedestrians In an easy to find location directly visible from the street and if not directly visible from the street directional information signs shall be installed to direct cyclists to the bicycle parking facility
5.	Location for Natural Surveillance		Located within constant visual range of persons within the adjacent building or within well traveled pedestrian areas Within unobstructed view from the adjacent municipal roadway
6.	Security Lighting		Night lighting shall be provided in a manner to ensure that the entire bicycle parking area is well lit
7.	Covered Bicycle Parking	•	If covered motor vehicle parking is provided, the required bicycle parking shall also be covered If more than 10 bicycle spaces are required, at least 50% of the required bicycle parking spaces shall also be covered

(d) Change Room and Shower Facilities: Change room and shower facilities for cyclists are encouraged to enhance the use of bicycles for work based travel.

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/B. Turcotte

TO:	CHAIR AND MEMBERS – ENVIRONMENT AND TRANSPORTATION COMMITTEE
FROM:	R. PANZER
	GENERAL MANAGER OF PLANNING AND DEVELOPMENT
	And
	P. STEBLIN
	GENERAL MANAGER OF ENVIRONMENTAL SERVICES AND CITY ENGINEER
SUBJECT:	BICYCLE MASTER PLAN
	"A BICYCLE INFRASTRUCTURE GUIDELINE FOR LONDON"
	Meeting on March 21 st , 2005,

RECOMMENDATION

That, on the recommendation of the General Manager of Planning and Development and the General Manager and City Engineer, the following report proposing amendments to the Official Plan, Z.-1 Zoning By-law and Site Plan Control By-law to implement the Bicycle Master Plan, bicycle parking requirements, and site plan design standards **BE CIRCULATED** to the Bicycle Advisory Committee, the Transportation Advisory Committee, the London Development Institute, the Urban League and other interested members of the public for review and comment; it being noted that following such circulation, a joint public participation meeting to review the Bicycle Master Plan Guideline Document and associated amendments to the City's Official Plan, Z.-1 Zoning By-law, and Site Plan Control By-law will be scheduled with the Planning and the Environment and Transportation Committees.

RATIONALE

- The proposed Official Plan Amendment to adopt the Bicycle Master Plan as a Guideline Document is consistent with Section 19.2.2. of the Official Plan which states that Council may adopt guideline documents to provide for detailed direction for the implementation of Official Plan policies;
- 2. The proposed guideline document is consistent with Section 18.2.13.i) of the Official Plan which states that Council shall prepare and implement a bicycle master plan for the development of a bicycle route system addressing such matters as location, design, signage, priority linkages or extensions, education and encouragement;
- 3. The proposed guideline document is consistent with Section 18.2.13.ii) of the Official Plan which states that consideration shall be given to the provision of bicycle routes in the preparation and review of development applications where such facilities will contribute to the development of linkages or extensions to existing routes;
- 4. The proposed guideline document is consistent with Section 18.2.13. iii) of the Official Plan which calls for development of a properly designed and maintained, safe and convenient on and off-road bicycle network that integrates bicycles with the road system and does not adversely impact significant environmental features or functions in river valleys and parklands;
- The proposed amendment to the Z.-1 Zoning By-law is consistent with Sections 18.2.12.vii) and 18.2.13.v) and vi) of the Official Plan which state that bicycle parking standards shall be prepared and implemented to ensure that the parking needs of cyclists are met; and,
- 6. The amendment to the Site Plan Control By-law is proposed in conjunction with the associated Z.-1 Zoning Amendments to introduce regulations requiring the provision of bicycle parking facilities.

/B. Turcotte

EXECUTIVE SUMMARY

<u>The Issue:</u>

- The <u>Transportation policies of the Official Plan underscore Council's commitment</u> to the development of a balanced, safe and efficient transportation system that integrates all modes of travel and minimizes the conflicts among these modes.
- To promote increased bicycling, and with a mind to achieving the modal split targets of the 2004 Transportation Master Plan, Section 18.2.13 of the Official Plan states that **Council shall prepare and implement a master plan for the development of a** <u>bicycle route system</u> 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 centres and employment nodes.
- The planning and development of the City's on and off-road bicycle system currently rests with the Transportation Division of the Environmental Services Department and the Parks Planning and Design Section of the Planning Department.
- The Transportation Division is responsible for the development of bicycle facilities within the transportation corridor right-of-ways. Facility development is currently based on an infrastructure schedule that was developed by the Transportation Division in the late 1980's. While having no official status (the schedule was never formally adopted by Council), the schedule depicts both "existing" and "proposed" on-road facilities and is given consideration in the review of City initiated capital road projects.
- The Parks Planning and Design Section has prepared a similar schedule depicting "existing" and "proposed" off-road bicycle facilities within the City's river valley and open space network. While having no official status, the schedule is referenced in the review of area plans and plans of subdivision with a mind to facilitating the development of additional linkages and connections to the existing City-wide off-road multi-use pathway system.
- While both the on and off-road components of the bicycle system are essential to the development of a functional network, <u>the lack thus far of a Council endorsed, long term planning approach to facility development has led, in certain instances, to poor coordination</u> in the efforts of various City Departments and examples of facilities that are neither connected nor utilized. <u>Lacking a long-term vision, the exercise of securing lands for the extension of existing routes has also been onerous and subject to criticism</u>.
- <u>The adoption of a Bicycle Master Plan will serve to coordinate and focus the efforts and resources of the Planning and the Environmental Services Departments in the development and realization of a comprehensive long-term bicycle vision.</u>

The Proposed Bicycle Master Plan:

- <u>Working with the City's Bicycle Advisory Committee, staff from the Planning,</u> <u>Environmental Programs, and the Transportation Divisions have completed a draft</u> <u>Master Plan for the future development of bicycle infrastructure in the City of</u> <u>London.</u>
- In respect to a long-term vision for cycling, <u>the Master Plan calls for the development</u> 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 centres; facilitates effective commuting opportunities by recognizing the unique operational and design needs of the user; and, provides for enjoyable experiences for



the recreational rider.

- Noting the financial implications to the municipality of the current policy regime (which calls for the provision of bicycle facilities in all construction projects involving arterial and primary collector roads), and the fact that strict adherence to this practice has failed to encourage or promote increased levels of cycling, <u>the Master Plan advances a series</u> <u>of first principles and route selection criteria</u> to provide a new qualitative framework for evaluating routes and determining the most appropriate type of bicycle facility. The first principles have been used to rationalize the existing policy regime and strategically guide facility design with a mind to maximizing safety, connectivity and utilization.
- <u>The Bicycle Master Plan advances several key actions steps to form the basis of</u> <u>future municipal efforts to realize the stated cycling vision including</u>: the adoption of the Master Plan and associated facility supportive standards; the adoption of a modified "tool kit" for facility development that would include delineated on-road bicycle lanes, shared and signed on-road bicycle routes, and multi-use pathways; the development of a distinct and hierarchal commuter and recreational network; the development of educational and promotional programming; the development of facility supportive amenities; and, long and short-term implementation strategies to promote and encourage cycling.
- <u>The adoption of the Bicycle Master Plan as a Guideline Document to the City's</u> <u>Official Plan is the most important priority to realize the stated cycling vision</u>. In the absence of a Council endorsed network strategy, opportunities to realize the stated cycling vision will be lost.
- London's existing bicycle infrastructure consists of in-boulevard pathways, signed on-road routes, and the Thames Valley Parkway multi-use pathway system. While endorsing the continued development of multi-use pathways and shared on-road facilities, the Master Plan recommends that the current City practice of constructing in-boulevard bicycle paths along primary and arterial roadways be replaced with delineated on-road bicycle lanes along specifically identified roadways. This recommendation is made in light of the Master Plan's stated vision, the operational and risk management issues associated with in-boulevard facilities, and prevailing trends and attitudes in Canada towards the provision of on-road facilities.
- London's existing bicycle infrastructure does not differentiate between the distinct operational and design needs of the commuter and recreational cyclist. In attempting to be all things to all people, the existing system has fallen short of promoting and encouraging cycling as an alternative mode of transportation. London's new bicycle network therefore will consist of two distinct and readily identifiable systems – a commuter route system and a recreational route system.
- Functioning as a high speed, destination oriented facility: the Commuter Network will cater to cyclists with a high level of experience and skill. The Recreational Network, on the other hand, will serve to provide inter and intra neighbourhood connections to a variety of recreational amenities including the Thames Valley Parkway, neighbourhood and district parks, natural areas and community facilities for cyclists with a low to moderate level of skill and experience.
- <u>A Primary Commuter Network will function as the spine of London's commuting</u> <u>network</u> providing direct connections on high order roads between major origins and destinations across the City. <u>The Commuter Network is intended to ultimately be</u> <u>composed of delineated on-road bicycle lanes within a widened curb lane.</u> <u>However, given existing infrastructure and funding realities, it is recognized that</u> <u>this is a long-term goal. In the interim, the Commuter Network may include signed</u> <u>on-road routes or in-boulevard pathways until a delineated on-road bicycle lane</u> <u>can be developed to serve the same connectivity function.</u> This will occur as roads are rebuilt and/or widened.
- <u>A Secondary Commuter Network is also proposed</u>. The Secondary Commuter Network will serve the purpose of directing and linking neighbourhood connections to the larger Primary Commuter Network. In this regard, the Secondary Commuter Network is



intended to be composed of signed on-road routes.

- <u>The Primary Recreational Network is intended to ultimately be composed of an</u> <u>off-road, continuous multi-use pathway system contiguous with Thames Valley</u> <u>Corridor.</u> At the present time however there are several "gaps" in the existing 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.
- <u>A Secondary Recreational Network is also proposed</u>. The Secondary Recreational Network will serve the purpose of providing connections to the Thames Valley Parkway and more local, neighbourhood level amenities. The Network will consist of a series of signed on-road routes that are primarily located along lower order thoroughfares.
- Consistent standards shall be used in the design of both the commuter and recreational networks with a mind <u>to promote the system and enhance the safety of the user</u>. The Master Plan advances a series of facility design guidelines that are based on accepted standards and best practices advocated by a number of professional associations and governmental agencies. The Plan notes that these standards may not be immediately implemented given existing infrastructure, physical constraints and funding realities.
- The Bicycle Master Plan primarily focuses on a strategic approach to facility development. Infrastructure alone however is not sufficient to promote and encourage safe and viable cycling in London. Acknowledging this, <u>the Master Plan identifies the key role City staff and other community partners are to play in developing promotional and educational initiatives (including the SHIFT Program) in support of the Plan's short-term implementation.</u>
- The Bicycle Master Plan advances a blueprint for the long-term development of a commuting and recreational cycling network. <u>In the short term, implementation strategies are proposed to direct the development of as much bicycle infrastructure as physically and financially possible.</u> The goal with the short term strategies is to promote cycling opportunities early in the planning period by maximizing routes, linkages and connections <u>including signage, stripping and temporary routes.</u>
- The Draft Bicycle Master Plan was endorsed by the Bicycle Advisory Committee on December 12th, 2003. Considerable work has been completed since that time to address issues raised by internal administration. The Plan should now be circulated for broader review and public comment.

Bicycle Parking Requirements and Site Plan Design Standards:

- Every cycling trip has two basic components: the route used by the cyclist and the endof-trip facilities available at the destination. <u>When the end-of-trip facilities do not meet</u> <u>the needs of the user, the user will seek other means of transportation.</u>
- Section 18.2.13 of the Official Plan states that <u>Council shall require, as a condition of</u> <u>approval of development or redevelopment, the provision of adequate, sheltered</u> <u>and secure parking facilities.</u>
- At its meeting held <u>on December 8^h, 2003, the Planning Committee received a</u> <u>communication from the Transportation Plan Implementation Committee</u> <u>requesting the Planning Committee to further investigate bicycle parking as it</u> <u>relates to the Z-1 Zoning By-law.</u> The Planning Committee referred the communication to the Acting General Manager of Planning and Development for inclusion in the City's new Bicycle Master Plan.
- <u>Parking requirements and site plan control standards have been prepared in</u> <u>response the Committee's request and should be circulated for public review and</u> <u>comment.</u> These parking standards:
 - 1. specify a threshold number of vehicular parking spaces after which the provisions requiring bicycle parking would be mandated in a development scenario;

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- 2. include specific exemptions for certain land uses that would not typically attract the cyclist; and,
- 3. establish a separate bicycle parking rate for residential and non-residential development.

REPORT FORMAT

For reasons of clarity, the following report has been broken down into two specific components. Part 1 of this report will provide a brief overview and analysis of the issues associated with the adoption of the proposed Bicycle Master Plan. Part 2 will serve to introduce a series of proposed bicycle parking standards for possible inclusion in the City's Z.-1 Zoning By-law and Site Plan Control By-law. The report will conclude with a series of recommended next steps.

The proposed Bicycle Master Plan and implementing Official Plan amendment have been included as Appendix 1 and 1a) to this report. The proposed Z.-1 Zoning By-law amendment and Site Plan Control By-law amendments have been attached as Appendix 2 and 2a).

PART 1 – MASTER PLAN ISSUES AND ANALYSIS

What is London's long-term Cycling Vision?

Unlike many municipalities in Ontario, the City of London has made a significant investment in the development of facilities for both the commuter and recreational cyclist. The Thames Valley Parkway, for example, provides cross-city recreational opportunities for cyclists. In-boulevard pathways (i.e. Wonderland Road North) have also been developed under the auspices of a Council policy requiring the provision of bicycle facilities in all construction projects involving primary collector and arterial roads.

Notwithstanding these efforts, surveys conducted in 1993 as part of the Transportation Plan Review concluded that "...greater cycling activity in London has been hampered primarily by issues pertaining to safety and convenience." Respondents of the day noted the bicycle/auto interface, road maintenance, and the construction of incomplete routes as the primary reasons for their hesitancy to consider the bicycle as a viable transportation mode.

Results from the 2003 public attitude survey for the Transportation Master Plan would appear to echo those concerns previously expressed in the 1993 survey, with 30% of respondents indicating that they would cycle to work if the City provided more separated bicycle lanes and better route connections. A similar percentage of respondents indicated that they would shift to cycling if their employer provided end-of-trip amenities such as bicycle racks and showers.

To promote and encourage the bicycle as a viable transportation alternative, the Master Plan has specifically focused on issues of safety, convenience and connectivity in the development of a comprehensive on and off-road network vision (see Appendix 1, Section 3).

What are the benefits in adopting a series of First Principles?

First principles to guide the implementation of the Master Plan are absolutely necessary. First principles provide the qualitative framework for evaluating routes and determining the most appropriate facility type. Lacking a set of defined first principles, the development of London's bicycle network has defaulted in the past to the broad policy framework of the Official Plan that, in practice, has served neither the cyclist nor the municipality.

Current Official Plan policy, Policy 18.2.13.iii)(a) for example, requires the provision of bicycle related infrastructure in all construction projects involving primary collector and arterial roadways. Strict adherence to this policy has failed, however, to encourage or promote increased levels of cycling – not every arterial, given operating speeds, bus routes, available land, and surrounding land uses, may be appropriate for a bicycle facility. Lacking a "qualitative filter", the merits of the current policy regime is further questionable given the financial



implications to the municipality. The proposed Master Plan addresses both the utilization and costing issues identified above. The Plan serves to advance a series of first principles (see Appendix 1, Section 4) and route selection criteria (see Appendix 1, Section 5) that shall be used to rationalize the existing network (i.e. every arterial and collector roadway) and strategically guide facility design with a mind to maximizing safety, connectivity, and utilization.

What is the defined Cycling Strategy?

The Bicycle Master Plan has focused on seven key action steps to form the basis for future municipal efforts to realize the stated cycling vision. These strategies (further detailed in Sections 5, 6, 7 and 8 of Appendix 1 – The Bicycle Master Plan) would include:

1. The adoption of the Master Plan and associated facility supportive standards:

The most important priority is the implementation of the Plan. In the absence of a comprehensive Council endorsed network strategy, opportunities to realize the stated cycling vision will be lost. The Master Plan should be adopted as a Guideline Document to the Official Plan and serve to provide for the detailed implementation of Official Plan policy. Amendments to the City's Z.-1 Zoning By-law and Site Plan Control By-law would also be required to address the development of facility supportive amenities.

2. The adoption of a modified "tool kit" for facility development:

The City of London has historically provided for bicycle travel through the development of a series of on and off-road facilities. While endorsing the continued development of multi-use and shared on-road signed facilities, the Master Plan recommends that the current City practice of constructing in-boulevard paths along all primary collector and arterial roads be replaced with on-road bicycle lanes along specifically identified arterials. This recommendation is advanced in light of the Master Plan's stated vision, the operational and risk management issues associated with in-boulevard facilities (as reported by the Ministry of Transportation, the Transportation Association of Canada, the American Association of State Highway and Transportation Officials, the Canadian Institute of Planners, the American Planning Association, et. al.) and the prevailing trends and attitudes in Canada towards the provision of on-road facilities. The recommended switch to a new design standard will occur over time as discussed in Section 8 (Implementation) of the Plan.

London's recommended long-term bicycle network will therefore consist of three types of facilities including: signed on-road bicycle lanes; signed on-road bicycle routes; and, multi-use pathways. Bicycle facility standards are advanced in Section 6 of the Master Plan and may be summarized as follows:

Facility Type	Facility	Design	Facility Designation &
	Definition	Characteristics	Intended User
On-Road	A portion of the roadway within the right-	High traffic roads	Primary Commuter Network
Bicycle Lane	hand lane that has been designated for	1.5 metres bike lane	• commuters with a moderate to
	the preferential or exclusive use of	 signage 	high level of skill and expertise
	bicyclists.	 lane striping 	
		 intersection treatments 	
Shared/signe d	A shared on road facility that has been	Low traffic roads	Primary Commuter Network
On-Road	identified by signs only.	4.3 metre curb lane	Secondary Commuter Network
Bicycle Route		 signage 	Primary Recreational Network
			Secondary Recreational Network
			• Cyclists with a low to high level of
			skill and expertise
Multi-Use	A separate and distinct multi-use facility	 Separate paved pathway 	Primary Recreational Network
Pathways	designed for a variety of users	 No automobiles allowed 	• Cyclists with a low to high level of
(Thames		3 to 6 metres in width	skill and expertise
Valley		 signed 	
Parkway)		 centre line path striping 	

Table 1 – Bicycle Facility Standards

The implementation of standards in a consistent fashion serves not only to promote the system but enhance the safety of the user. While the generalized standards recommended by way of



the Bicycle Master Plan are based on best practices advocated by a number of professional associations, it is recommended that the City develop a specific design guideline to assist in the implementation of on-road bicycle lanes. The design guideline would have specific consideration for established engineering practices (particularly intersection treatments) to minimize any liability risk to the municipality.

3. The development of a distinct commuter and recreational network:

A successful bicycle facility should provide for a comfortable environment for the anticipated user (and level of vehicular road traffic). It is important therefore to identify the target group for whom the facility is being designed. From a planning perspective, cyclists can generally be grouped according to cycling purpose, age and skill level. Presently, London's bicycle infrastructure does not differentiate between the nature of the trip nor the experience level of the cyclist. In attempting to be all things to all people, the network has come under criticism for its failure to recognize the behavioural characteristics of the specific user.

London's cycling strategy is based on the defining vision of a visible, safe and functional network that both promotes and encourages cycling. Mindful of this vision, London's cycling strategy has been developed to provide for both the recreational and commuter cyclist recognizing the distinct operational and design needs of the specific user. London's new bicycle network will therefore consist of two distinct and readily identifiable systems – a commuter route system and a recreational route system. The specifics of each system have been detailed in Sections 5.2.1 through 5.2.4 of Appendix 1.

4. The development of a distinct network hierarchy of primary and secondary routes;

Both the commuter and recreational networks will consist of primary and secondary route systems (Appendix 1, Schedule 1).

Serving as the major arteries of the system, Primary Commuter Routes will provide direct connections between major origins and destinations. It is intended that the Primary Commuter Route Network be composed of on-road bicycle lanes on specified high order roads. The Secondary Commuter System will serve the purpose of collecting and directing the commuter to the Primary Network. It is intended that the Secondary Commuter Network be composed of signed on-road bicycle routes on collector and local roadways. A detailed explanation of the Primary and Secondary Commuter Route Systems is provided in Section 5.2.1 and 5.2.2 the Master Plan (Appendix 1).

The Primary Recreational Network will be the Thames Valley Parkway. The Secondary Recreational Network will serve to provide for neighbourhood connections to the Primary Recreational Network. The Secondary Recreational Network will also serve to provide safe and convenient inter and intra neighbourhood connections to other recreational amenities and opportunities including neighbourhood parks, district parks, natural areas and community facilities. It is intended that the Secondary Recreational Route Network be composed of a series of signed on-road bicycle routes and paved off-road facilities that may bisect parks and/or open space. A detailed explanation of the Primary and Secondary Recreational Route Systems is provided in Section 5.2.3 and 5.2.4 of the Master Plan (Appendix 1).

5. The development of implementation strategies and recognized facility standards:

Section 7 of the Bicycle Master Plan (Appendix 1) serves to advance a series of implementation mechanisms. The three basic components of London's long-term on and off-road bicycle system shall be implemented as follows:

- Shared/signed on-road bicycle routes (Secondary Commuter and Secondary Recreational Route Systems): the Transportation Division of the Environmental and Engineering Services Department annually identifies on-road bicycle routes for signage. Council should build upon this successful initiative focussing resources as directed by the Master Plan;
- On-road bicycle lanes (Primary Commuter Route System): in those instances where existing



pavement width would preclude the immediate development of the on-road facility, the provision of exclusive bicycle lanes should be implemented in association with ongoing roadway improvement projects. Where sufficient pavement width exists, the delineation of the exclusive bicycle lane could be undertaken in conjunction with an annual lane marking program;

 Multi-Use pathways (Primary Recreation Network): Through the development review process and ongoing Thames Valley Parkway and associated open space capital programs, the Parks Planning and Design Section of the Planning Department will construct further multi-use facilities as directed by the Master Plan.

The Master Plan makes special note of the long-term focus of the City's new cycling initiative, recognizing that portions of the system may temporarily include existing or previously planned infrastructure (i.e. in-boulevard bicycle paths and/or signed on-road bicycle routes) pending the development of the preferred facility standard. Recommended standards will be integrated into the commuter and recreational network as new roadways (or pathways) are built, existing roadways (or pathways) are resurfaced/reconstructed and/or restriped, and lands are acquired.

To maximize the opportunities for bicycle commuting at the earliest opportunity, it is recommended that a functional grid of signed routes be identified. This will include existing routes and safe interim connections for continuity. Such an approach will support bicycles as an alternate mode of transportation early in the Plan development schedule while being conscious of present financial and technical constraints. Alternative approaches to be considered in this short term plan include: routes based on road availability; routes based on road vehicular traffic criteria and/or safe continuity with existing bicycle lanes; and, integration with traffic calming projects. Hurdles to overcome in the short-term would include: the changes to or loss of on-street parking lanes; low funding levels; and, connection of major destinations.

6. The development of educational and promotional programming:

Infrastructure alone is not sufficient to promote and encourage safe and viable cycling in London. Programming is equally important. Sections 7 and 8 of the attached Bicycle Master Plan acknowledge the key roles that must be fulfilled by members of the City's Environmental Programs & Customer Relations Division (e.g., the Transportation Demand Management Coordinator), the Parks Planning and Design Section of the Planning Division, the Transportation Advisory Committee (TAC) and other community partners to develop promotional and educational initiatives in support of the implementation of the Bicycle Master Plan.

In 2004 Municipal Council approved the *SHIFT* (Solutions to Help Individuals Find Transportation) Alternatives Program in an effort to provide a clearer understanding to Londoners on their vital role in modifying behaviours with respect to transportation choices. The *SHIFT* Alternatives Program is closely tied to other long-term strategies, such as the Transportation Master Plan, the Bicycle Master Plan, and the Official Plan. *SHIFT* is also closely tied to several areas of community and City operations including transit (the London Transit Commission), healthy living (the London and Middlesex Health Unit) and community-led initiatives (the Bike Festival – promoted by the Thames Region Ecological Association, and the Bike Rings and Racks Program – by the Urban League). As the overall *SHIFT* framework evolves through public consultation and feedback, additional elements will be more closely aligned and integrated under the updated framework.

7. The development of facility supportive amenities:

Every cycling trip has two basic components: the route used by the cyclist, and the end-of-trip facilities available at the destination. End-of-trip facilities may include bicycle parking, showers and change rooms for commuters. When the end-of-trip facilities do not meet the needs of the user, the user will seek other means of transportation. There is, however, no zoning by-law requirement for new developments to provide for end-of-trip amenities.

To enhance and promote the use of the bicycle, the Master Plan calls for the provision of safe



and secure parking facilities at all major centres and activity nodes. This call will necessitate amendments to the City's Z-1 Zoning By-law and Site Plan Control By-law. Recommended parking and design standards are further discussed in Part 2 to this report.

PART 2 – BICYCLE PARKING STAN DARDS

What does Official Plan Policy say in regards to the Provision of Bicycle Parking?

Policy 18.2.13 (v) and (vi) of the Official Plan states that:

- (v) Council shall require as a condition of approval of development or redevelopment, the provision of adequate, sheltered and secure parking facilities for bicycles at major activity nodes and employment centres. Council shall also encourage facilities such as change rooms and showers in places of employment to enhance the use of the bicycle for work-based travel. Bicycle parking standards shall be prepared and implemented to ensure that the parking needs of cyclists are met.
- (vi) Council shall provide accessible and sufficient bicycle parking areas at all municipally owned and operated facilities in order to promote the use of the bicycle as an alternative to motor vehicles.

What is the legislative authority to require the provision of bicycle parking facilities?

Amendments to the City of London Z.-1 Zoning By-law are required to introduce bicycle parking regulations specifying the required number of parking spaces. The City's Site Plan Control Bylaw is enacted pursuant to Section 41 of the Planning Act. Section 41(7) (a)(3) of the Act provides that a municipality may require the owner of the land (as a condition of approval of site plan) to provide:

> "Off-street vehicular loading and parking facilities, either covered or uncovered, access driveways, including driveways for emergency vehicles, and the surfacing of such areas or driveways".

On the advice of the City's Legal Department, this authority includes requirements that may be imposed respecting the location, size and sheltering requirements for bicycle parking facilities.

What do other jurisdictions require by way of bicycle parking standards?

Planning staff have reviewed the bicycle parking requirements of a number of Canadian and American municipalities. The results of this survey have been summarized in Tables 2 and 3. These municipalities have been chosen to illustrate the different methods that are used to address parking standards for bicycles. In preparing the Tables, the following considerations have been made:

- To facilitate comparison, all figures have been expressed as "x" spaces/1000 sq. m. of floor area or "x" % of required car parking spaces.
- Total parking spaces include an average of covered and outdoor spaces.
- Where a range in requirements or types of land use has been varied, the average appears in the chart. Comparison is limited to typical land uses only since applications to type of land use vary between municipalities.

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Table 2*

Municipality	Multiple Residential	Office	Commercial	Recreation	Industrial
Guelph ON	1/du	4%	5%	10%	4%
Ottawa ON	1.125/du	1.5/1000	1.5/1000	4.3/1000	0.8/1000
Vancouver BC	1/du	1.3/1000	1.3/1000	2/1000	1/1000
Saanich BC	1/du	4/1000	4/1000	10/1000	1/1000

Table 3*

Municipality	Multiple Residential	Office	Commercial	Recreation	Industrial
Portland OR	10%	5%	5%	5%	2.5%
Watertown MA	6%	6%	6%	6%	6%
Madison WI	1/du	10%	10%	10%	10%
Boulder CA	10%	10%	10%	10%	10%
Eugene OR	0.5/du	10%	10%	10%	10%
Seattle WA	5%	5%	5%	5%	5%
Blacksburg VA	0.25/du	5 minimum	10/1000	5 minimum	5 minimum

Should bicycle parking requirements be applied to all new development?

No, consideration should be had for both the intensity and the nature of the development being contemplated. The Official Plan states that Council shall require the provision of bicycle parking facilities at all major activity centres and employment nodes. The use of the word "major" implies the preclusion of less intense land uses in the consideration of bicycle parking facilities.

To define intensity for the purpose of providing exemptions, staff would recommend the use of the City's vehicular parking requirements detailed in Section 4.19 of the Z.-1 Zoning By-law. Section 4.19 provides for the calculation of vehicular parking requirements by specific land use. The more "intense" the land use, the greater the number of vehicular parking spaces required.

The Zoning By-law should specify a threshold number of vehicular parking spaces after which the provisions requiring bicycle parking would be mandated. Bicycle parking spaces would be required in addition to the required number of vehicular parking spaces. In determining an appropriate threshold, consideration should be had for the small business that may be unnecessarily encumbered by additional regulation.

Recommendation #1

The Zoning By-law should preclude the consideration of bicycle parking spaces for land uses that would require 9 or fewer vehicular parking spaces. Uses requiring 10 or more vehicular parking spaces would be required to provide for bicycle parking as mandated in the Zoning By-law.

The Zoning By-law should also have consideration for the use being contemplated. Certain land uses, given their size, the nature of services or products offered, clientele, or hours of operation, for example, may not lend themselves to bicycle traffic, and it would be inappropriate to require the provision of bicycle parking spaces. The Zoning By-law should, by way of specific

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exemption, preclude the consideration of bicycle parking facilities for such uses.

Recommendation #2

The Zoning By-law should include specific exemptions for certain land uses that would not typically attract the cyclist.

How should the number of required bicycle parking spaces be determined?

Municipalities tend to regulate the number of bicycle parking spaces as a percentage of the total number of car parking spaces required or based on the total gross leasable floor area of the contemplated use.

In-as-much as the linkage between parking and the size of the anticipated facility is already set through the by-law for automobiles, it would be best to build on this established requirement by using a percentage method. The adoption of a bicycle parking standard based on a percentage of the total vehicular parking requirement would also ease interpretation of the Zoning by-law.

Recommendation #3

Bicycle parking standards should be based on a percentage of the total vehicular parking requirement for the anticipated use.

What is a reasonable parking percentage?

To address this issue, various municipal standards from across Canada and the United States have been reviewed. Percentage requirements generally range in the order from 4 to 10% with a number of municipalities choosing to adopt a uniform standard for all office, commercial, recreational, institutional and industrial land uses. Table 5 provides a comparison of the percentage options vis-à-vis in a non-residential land use required vehicular parking scenario.

Table 5

Required # of Vehicular Parking Spaces	Required Number of Bicycle Parking Spaces*						
	4%	5%	6%	7%	8%	9%	10%
10	0.4	0.5	0.6	0.7	0.8	0.9	1
15	0.6	0.75	0.9	1.05	1.2	1.35	1.5
20	0.8	1	1.2	1.4	1.6	1.8	2
30	1.2	1.5	1.8	2.1	2.4	2.7	3
40	1.6	2	2.4	2.8	3.2	3.6	4
50	2	2.5	3	3.5	4	4.5	5
75	3	3.75	4.5	5.25	6	6.75	7.5
100	4	5	6	7	8	9	10
150	6	7.5	9	10.5	12	13.5	15
200	8	10	12	14	16	18	20

* Bicycle parking spaces would be subject to rounding.

In evaluating a percentage requirement for local implementation, consideration should be had for:

• the associated cost implications for the impacted business (i.e. the cost of infrastructure) ;



- the associated site implications (is a site large enough to accommodate the required vehicular and bicycle parking; outdoor storage, signage, etc.); and,
- the City's stated goal of promoting and encouraging cycling.

Planning staff would recommend the adoption of a 7% factor. The 7% standard, while lower than others adopted in Canada and the United States, would meet the intent of the Official Plan to encourage and promote cycling. The 7% standard would also provide for the development of sufficient on-site facilities without further constraining other design considerations such as on-site vehicular parking, outdoor storage, signage, etc.

Recommendation #4

Bicycle parking should be calculated at a rate of 7% of the required number of automobile parking spaces for all office, commercial, recreational, institutional and industrial land uses.

How should bicycle parking requirements be calculated for apartment buildings?

Bicycle parking facilities for specific types of medium and high density residential development are typically mandated. Rates can be based on a space per unit ratio and can range from a low of 0.25 spaces per unit to a high of 1.25 spaces per unit. Canadian municipalities tend to require one bicycle parking space for every unit in a multi-unit apartment building.

The City's Z.-1 Zoning By-law defines an apartment building to mean a building that is divided horizontally and/or vertically into five or more separate dwelling units but does not include a converted dwelling or townhouse dwelling.

Recommendation #5

Planning staff recommend the adoption of a regulation that would require the provision of 1 bicycle parking space for every unit in an apartment building containing 5 or more residential units. The By-law should also include exemptions for specific types of multi-family development that, given tenancy or other considerations, would not be expected to generate significant bicycle use.

Should the Zoning By-law contain minimum and maximum standards for non-residential land uses?

Under the proposed Zoning By-law amendment, non-residential land uses requiring more than 10 vehicular parking spaces would be required to provide for bicycle parking. The required number of bicycle parking spaces in a non-residential scenario, as proposed, would be equivalent to 7% of the required vehicular parking spaces. Should the by-law, however, contain "enticements" to provide for additional bicycle parking above and beyond the mandated standard?

The City of Windsor has recently adopted a standard that provides for a reduction in the required number motor vehicle parking spaces in conjunction with the development of additional bicycle facilities beyond the by-laws mandated minimum standard. In the case of Windsor, the number of required motor vehicle parking spaces is reduced at a ratio of one vehicular parking space for each four additional bicycle parking spaces provided. To prevent abuse, the By-law further stipulates that the reduction in motor vehicle parking spaces shall not exceed 15% of the required motor vehicle parking spaces.

In an effort to both promote and encourage cycling, the Zoning By-law should include provisions that would allow for the development of additional bicycle parking facilities above and beyond

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the proposed 7% standard proposed for non-residential development.

Recommendation #6

In a non-residential land use scenario, the Zoning By-law should include a provision that would allow for a reduction in the required number of automobile parking spaces where such a reduction would facilitate the establishment of additional bicycle parking facilities. The Zoning By-law should stipulate, however, that in no case shall the reduction exceed 10% of the required number of motor vehicle parking spaces.

What type of bicycle parking spaces should be provided?

A number of the municipalities' surveyed differentiated between long and short term parking. Long term bicycle parking refers to a facility designed to safely store bicycles for several hours or days at a time. These facilities are protected from the weather and may include lockers, storage rooms, or covered and fenced areas with restricted access. For reasons of user convenience, balconies are generally not considered a long-term parking facility. Typical land uses requiring long term parking include multi-unit apartment buildings and intense employment nodes.

Short term bicycle parking refers to accessible and conveniently located bicycle racks. These facilities are usually visible to passer-bys to discourage theft and vandalism. Typical land uses requiring short term parking include commercial and recreational land uses. Some municipalities specify the percentage of bicycle parking that should be long-term vs. short-term as shown on Table 6:

Municipality	Land Use	Short	Long
Saanich BC	Apartments	0	100%
	Office, Retail Commercial, Restaurants	50%	50%
	Industrial	20%	80%
	Library, Museum, Recreation, Community Uses	80%	20%
Santa Cruz CA	Apartments	0%	100%
	Office, Industrial	40%	60%
	Retail Commercial	80%	20%
	Recreation	90%	10%
	Park & Ride/Transit	20%	80%
Vancouver BC	Apartments	0%	100%
	Community Centres, Library, Gallery, Museum, Fitness Centre	67%	33%
	Office	30%	70%
	Retail Commercial	82%	18%
	Industry	0%	100%

Table 6

In those instances where a municipality has chosen to differentiate between long and short-term bicycle parking, long-term parking requirements for apartment buildings, office and industrial land uses can range from 50 to 100%. Retail, institutional and recreational land uses would require 10 to 30% long-term bicycle parking. It is recommended that the "type" of bicycle parking facility (long-term vs. short term) be dealt with through the site plan review process. The Zoning process, on the other hand, will ensure that the required number of bicycle spaces are provided.



Recommendation #7

For reasons of climate, long-term bicycle parking should be required for all residential apartment buildings. The provision of long-term bicycle parking facilities should also be encouraged at the site plan review stage for major office and industrial developments to accommodate employees.

How should bicycle parking requirements be calculated for the Downtown and the City's defined Business District Commercial areas?

In the Downtown Area and street-oriented Business District Commercial Areas where space is limited and building lot coverage high, the City should consider providing adequate bicycle parking in municipally owned lots and on street boulevards. Conversion or adaptive re-use of existing buildings should not trigger the requirement for providing additional on-site parking spaces. Major redevelopment involving property consolidation and new construction should, however, be required to provide for bicycle parking facilities at the mandated rate.

Recommendation #8

It is recommended that the City of London provide adequate bicycle parking facilities in municipally owned lots and on street boulevards for land uses in the defined Downtown Area and Business District Commercial Areas.

How should bicycle parking requirements be calculated for municipally owned and operated facilities?

Some recreational and institutional land uses tend to have a higher frequency of people arriving by bicycle than other uses. Municipally owned and operated facilities should provide more than the minimum required bicycle parking spaces where bicycle activity is expected to be high. This can be implemented as a Council policy and does not necessarily require an amendment to the Zoning By-law or Site Plan Control By-law.

Recommendation #9

In instances of demonstrated need, Council adopt a policy that would provide for the installation of sufficient bicycle parking facilities at municipally owned and operated facilities.

Does the municipality have the legislative authority to require change rooms and shower facilities for employees at major activity centres and employment nodes?

No. Neither the Ontario Building Code, the Planning Act nor the Municipal Act confers such statutory powers to the municipality. To increase the number of shower and change facilities for cyclists, however, the municipality, through the City's Transportation Demand Manager, should work with private businesses to promote bicycle commuting and investigate bonus provisions for inclusion in the Z.-1 Zoning By-law that would encourage developers to provide showers and change space.



Recommendation #10

Planning staff recommend that further study be conducted into the feasibility of including bonus provisions in the City's Z.-1 Zoning By-law to provide for shower and change room facilities at major activity centres and employment nodes.

PART 4 – NEXT STEPS

In support of the Master Plan, associated amendments to the City's Z.-1 Zoning By-law and Site Plan Control By-law have also been prepared. Staff would now recommend that the report proposing amendments to the City's Official Plan, Z.-1 Zoning By-law and Site Plan Control Bylaw be circulated for public review and comment. In addition to the general circulation, staff would seek input from:

- the Bicycle Advisory Committee
- the Transportation Advisory Committee
- the London Development Institute;
- the Urban League;
- the London and Area Planning Consultants;
- the Public and Separate School Boards, the University of Western Ontario, Fanshawe College, private educational schools;
- the London Transit Commission; and,
- the EEPAC.

Following the public consultation process, the Acting General Manager of Planning and Development will schedule a Public Participation meeting before the Planning Committee and the Environment and Transportation Committee to consider the Master Plan, the associated Official Plan Zoning and Site Plan Control By-law amendments, and the costing considerations.

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