TO:	**CHAIR AND MEMBERS CIVIC WORKS COMMITTEE MEETING ON JUNE 8, 2016**
FROM:	**JOHN BRAAM, P.ENG. MANAGING DIRECTOR, ENVIRONMENTAL & ENGINEERING SERVICES AND CITY ENGINEER and JOHN M. FLEMING, MCIP, RPP MANAGING DIRECTOR, PLANNING & CITY PLANNER and WILLIAM C. COXHEAD MANAGING DIRECTOR, PARKS AND RECREATION**
SUBJECT:	**LONDON ON BIKES DRAFT CYCLING MASTER PLAN**

RECOMMENDATION

That, on the recommendation of the Managing Director, Environmental & Engineering Services and City Engineer, the Managing Director, Planning & City Planner and the Managing Director, Parks and Recreation, the following actions **BE TAKEN** with respect to the London ON Bikes Cycling Master Plan development:

a) the draft London ON Bikes Cycling Master Plan Report **BE REFERRED** to the Cycling Advisory Committee for final review and comment; and,

b) the current restrictions in the Streets Bylaw with respect to sidewalk cycling **BE MAINTAINED**, it being noted that related research and consultation has occurred during London ON Bikes processes and the Cycling Advisory Committee endorses this recommendation.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

- Civic Works Committee – June 19, 2012 – London 2030 Transportation Master Plan
- Civic Works Committee – November 11, 2013 – Bicycles on Sidewalks
- Civic Works Committee – September 10, 2012 – Bicycles on Sidewalks
- January 6, 2015 – Civic Works Committee – London Cycling Master Plan Study Appointment of Consulting Engineer
- June 2, 2015 – Civic Works Committee – London ON Bikes Cycling Master Plan Status Report
- February 2, 2016 – Civic Works Committee – London ON Bikes Cycling Master Plan Status Report

2015 - 19 STRATEGIC PLAN

London ON Bikes supports the objectives identified in the Strategic Plan. London ON Bikes contributes to Building a Sustainable City – Convenient and Connected Mobility Choices, by implementing and enhancing safe mobility choices for cyclists. London ON Bikes also plays a role in Strengthening Our Community – Amazing Art, Culture and Recreational Experiences with an investment in parks.

DISCUSSION

Purpose

This report provides a summary of the London ON Bikes Draft Cycling Master Plan and recommends referral to the Cycling Advisory Committee for review and final comment prior to final approval by Council. The draft Executive Summary is attached as Appendix A. The complete Draft Cycling Master Plan is available on www.LondONBikes.ca.

The report also provides a recommendation related to the current sidewalk cycling restrictions in the Streets Bylaw. This addresses a Civic Works Committee Deferred Matters item (File No. 19).

Context

London is a great cycling city. The cycling culture is the result of long standing contributions and partnerships of various agencies, volunteer organizations, cycling groups and committees. The cycling culture has been supported by decades of City cycling related infrastructure, program and policy development. For example, the implementation of the Thames Valley Parkway and arterial road in-boulevard bike paths began in the 1980s.

The City of London's formal planning efforts to further support the cycling culture within the city were successfully launched in 2005 with the development and adoption of the City's first Bicycle Master Plan. The first master plan was followed by a strategic implementation plan which was completed in 2007. The completion and adoption of both of these plans has led to the further development of a comprehensive network of on- and off-road cycling facilities.

Cycling aligns with London's current policy framework. The Official Plan and Smart Moves 2030 Transportation Master Plan identify the need to develop a sustainable transportation network that promotes environmentally beneficial transportation choices for all users through a complete streets approach. The Parks & Recreation Strategic

Master Plan and the Thames Valley Corridor Plan place a high priority on expanding and completing gaps in the City's cycling network due to its success in providing low cost, accessible, multi-generational recreation for all Londoners. Both the London Strengthening Neighbourhoods Strategy and the Age Friendly London Action Plan attribute significant value with developing infrastructure that encourages active forms of transportation, while improving connectivity in and between London neighbourhoods.

Cycling in Ontario is gaining prominence. The Province of Ontario released #CycleON, Ontario's Cycling Strategy in 2013. The Province then followed with the release of the associated Action Plan 1.0 which identifies many items consistent with the policies and directions of London's Strategic Plan, the Smart Moves 2030 Transportation Master Plan, the Parks and Recreation Master Plan and The draft London Plan. The Province, in conjunction with the Ontario Traffic Council and municipalities also recently published Ontario Traffic Manual Book 18 – Cycling Facilities. This manual provides updated guidance on facility selection and design with consideration of the recent evolution of cyclist needs and desires.

LONDON ON BIKES

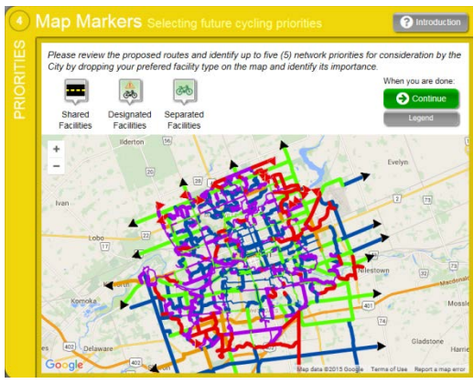
London is embracing this momentum with the development of a new cycling master plan. London ON Bikes, the process to create a new Cycling Master Plan for London was initiated in early 2015. The development of the London ON Bikes Cycling Master Plan is a key next step to further progress the cycling culture that has been growing in London. London ON Bikes will guide future efforts on infrastructure, programs and policies to make London a more bicycle-friendly city.

City cycling services get delivered via many different service areas and consequently the core project team includes members of Transportation Planning & Design, Environmental Programs, Environmental and Parks Planning, Transportation and Roadside Operations and Parks and Community Sports. MMM | WSP has extensive experience preparing active transportation master plans and was appointed the consultant to assist with the development of this plan.

Community Engagement

The study has benefitted from much public input. London ON Bikes has followed the class environmental assessment (EA) process for master planning. The formal EA points of public consultation were held at Gathering on the Green, London Bicycle Festival, Dundas Street Festival and the London Public Library Central Branch throughout 2015. The team was successful in creating awareness by attending popular events where Londoners were willing, and often eager, to discuss cycling. The London ON Bikes team attended dozens of other events in addition to the formal meetings throughout 2015 and early

2016 including the London Tweed Ride, Ribfest, SunFest, Home County Festival, Home Show and others. Input was facilitated through one-on-one discussions, interactive display boards, formal public meetings and interactive surveys on the project website www.LondONBikes.ca.



London ON Bikes has benefitted from many valued partnerships that exist within the cycling community. The draft Master Plan presented in this report will be a feature at the London Bicycle Festival organized by the Thames Region Ecological Association on June 26, 2016.

The London ON Bikes team has presented and discussed the study with London Cycle Link, London Cycling Club, Canadian Institute of Transportation Engineers, Canadian Association of Retired People, the Age Friendly London Network, London Strengthening Neighbourhoods, Nature London and the Building and Development Liaison Group. The London Youth Advisory Council also provided a report to the project team with cycling focussed ideas from the youth of London. The London ON Bikes team has also solicited feedback from interested local partner groups including the Middlesex London Health Unit, London Health Sciences Centre, London Police, Western University, Fanshawe College and adjacent municipalities.

Council's advisory committees have also been interested in the project. Presentations have been made and feedback provided from the following advisory committees:

- Cycling Advisory Committee (CAC)
- Transportation Advisory Committee (TAC)
- Environment and Ecological Advisory Committee (EEPAC)
- London Diversity and Race Relations Advisory Committee (LDRRAC)
- Accessibility Advisory Committee (ACCAC)
- Advisory Committee on the Environment (ACE)

The Cycling Advisory Committee has been particularly active. The committee has provided input into the master plan process at several points in the study development. A review of the report by the Cycling Advisory Committee prior to finalization is recommended.

RECOMMENDATIONS

Infrastructure

The current cycling infrastructure network is a combination of on-road lanes, in-boulevard paths and open space pathways that forms a network over 300 km long. Many Londoners have indicated they would like to see more cycling facilities. A key deliverable of the new Master Plan is a map of proposed new cycling routes.

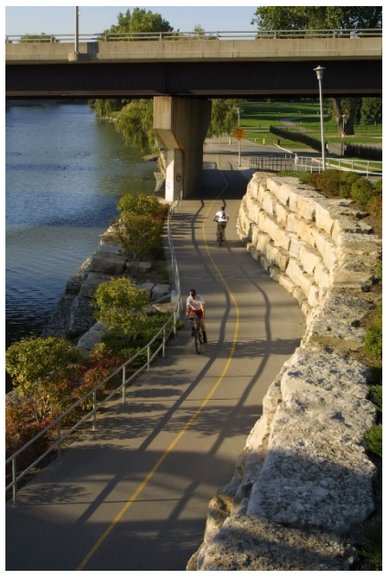
In the on-road context, the proposed facilities are a combination of:

- shared facilities such as signs or sharrow pavement markings to assist cyclists in finding less busy, cycling friendly routes;
- designated facilities such as bike lanes or paved shoulders; and,
- separated facilities such as buffered lanes, cycle tracks or in-boulevard paths where appropriate.

There is an increased call for cycling facilities separated from vehicular traffic. Ontario Traffic Manual (OTM) Book 18 guides facility selection based on the context of the road including traffic volumes and speed. The new Cycling Master Plan and the use of the new manual in project design will result in more types of cycling facilities that aim to attract a broader range of users including those who are interested but who have concerns with cycling in London. The new OTM Book 18 recognizes that cycling safety concerns are common across Ontario and that consistent approaches will benefit both cyclists, motorists and other road users.

A key recommendation is the implementation of separated facilities on appropriate higher speed, higher traffic volume roads. These will be configured with buffers identified with pavement markings, bollards, curbs or other delineation. At a few key locations of high potential ridership, these will take the form of cycle tracks which are on-road facilities typically separated by bollards, curb or other barriers. Cycle tracks have recently been implemented in Toronto, Montreal, Ottawa and Hamilton. The near-term London cycle tracks are proposed for the downtown on Colborne Street between Horton Street and Dufferin Avenue and Queens Avenue between Colborne Street and Ridout Street. These projects will be subject to a design and community consultation process.

The Thames Valley Parkway and the neighbourhood pathways that link to it are the backbone of London's parks system. The ongoing development and management of London's pathway system is consistently identified as the most cost effective recreational amenity available to Londoners, helping to build a strong, safe and active community. For all of these reasons and others, this plan calls for the continued expansion of the off-road recreational pathway system. The plan recommends key connections and expansions of the Thames Valley Parkway and greater pathway networks. The selection of off-road facilities is guided by connectivity, routes that result in cost effective/sustainable implementation and long term management and environmental protection.



The existing cycling network is over 300 km long. The phasing of new recommended infrastructure is divided into short term (1 to 5 year), medium term (6 to 15 year) and long term (beyond 16 year) horizons. The short and medium terms were analyzed for implementation under the life of this plan. The Master Plan identifies 305 kilometres of facilities for implementation in the short and medium terms. This is detailed by facility type in the table below.

	Existing and Proposed Facility Types (Roadway / Linear Pathway km)										
Phase	**Total**	Signed Bike Route	Edgeline	Sharrow	Paved Shoulder	Bike Lane	Buffered Bike Lane	Buffered Paved Shoulder	Cycle Track	In-Boulevard Pathway	Off-road Pathway
Existing	**331**	51	0	10	0	62	0	0	0	42	166
Short	**92**	15	1	4	9	17	12	4	4	3	26
Medium	**213**	100	2	15	30	14	12	3	3	16	18
Total	**638**	**166**	**3**	**28**	**39**	**93**	**25**	**7**	**7**	**61**	**209**

The estimated capital investment required to implement the recommended short to medium term infrastructure is shown in the table below.

	Short to Medium Term Capital Investment		
	Short-term (0 – 5 years)	**Medium-term (6 – 15 years)**	**Short + Medium Term (total)**
Within the Road Right-of Way	$11,349,000	$20,014,000	$31,363,000
Outside of the Road Right-of-Way	$13,406,000	$8,777,000	$22,183,000
Total	**$24,754,000**	**$28,791,000**	**$53,545,000**
Cost Rationalization			
Funded Projects	$21,283,000	$14,688,000	$35,970,000
Unfunded Projects	$3,472,000	$14,103,000	$17,575,000
Cost Per Annum	$694,000	$1,410,000	N/A
Annual Cost per Resident to address unfunded projects	$1.82	$3.70	N/A

Given Council's recent approval of a multi-year budget, the identification of short-term projects are largely guided by these funding levels. Additional works are identified in the event funding opportunities arise or additional funds become available through project cost savings.

In the short-term, 85% of the capital works to expand the cycling network are funded. In the 15-year horizon, two thirds of the projects have funding sources identified. $36 million of the total estimated required funding has already been allocated via approved budgets and forecasts and approved major projects. Approximately $17 million of the total cost is currently unfunded and will require additional consideration regarding funding options in future budgets and development charges background studies. The underfunded value equates to $1.82 per person, per year during the first five years and $3.70 per person per year over the course of the 6 to 15 year period (medium term).

Supportive infrastructure such as bicycle parking, lockups, destination infrastructure, wayfinding signage and partnership funds can further encourage use of the linear infrastructure described above. Municipal Council recently approved a 10 year capital program valued at $2.85 million using the Federal Gas Tax funding source. This program will deliver strategic initiatives to encourage and promote.

The master plan also recommends exploring external funding opportunities. An example of this is the Province's new Ontario Municipal Cycling Infrastructure Program that is allocating $10 million to municipal cycling infrastructure. This is one of the Action Plan 1.0 "Improve Cycling Infrastructure" items. The Province recently announced the selected projects. London was successful with an application for the Kiwanis Park Pathway extension and is entitled to $325,000 of provincial funding for the project. Recent media reports suggest that the province is also considering a Climate Change Action Plan that considers $200 million to build cycling infrastructure including curb-separated bike lanes.

Operations and Maintenance

The project team heard public requests for better maintenance of cycling facilities. This includes items such as plowing in the winter and sweeping in the summer. Despite London's winter weather, many cyclists strive to ride year-round.

The year-round maintenance of cycling facilities is an evolving area with different techniques being explored. The London ON Bikes team recently hosted an Operations and Risk Workshop with representation from the City of Hamilton, City of Toronto, County of Middlesex, Ontario Good Roads Association, Share the Road Coalition, London Police and private legal counsel. The goal of the workshop was to learn lessons from other municipalities and experts in the field.

The City's current winter maintenance practices are driven by the Provincial Minimum Maintenance Standards for roadways and an approach to maintain key linkages on the Thames Valley Parkway. The Minimum Maintenance Standards are currently under review and the updates could stipulate additional maintenance obligations related to on-road cycling facilities. The City should develop new maintenance practices of both on-road and separated facilities in the context of the new standards.

Improved operations and maintenance can maximize the return on the capital investments above. The non-winter operations costs for the entire existing and proposed long term cycling network, which includes items such as sweeping and pavement marking renewal, are estimated at $2.3 to $2.9 million.

The Master Plan recommends the establishment of a Winter Cycling Network. The Winter Cycling Network represents a core network of on-road high ridership routes that connect strategic destinations. The routes identified will be considered for higher levels of winter maintenance as new protocols are developed. Operational costs associated with winter snow plowing can vary depending on the type of cycling facility and level of service. The Municipal Act Minimum Maintenance Standards are currently under review and may identify requirements related to on-road cycling facilities. It is recommended that operations and maintenance practices related to all facilities be reviewed upon the release of the updated standards. The annual additional operating costs associated with existing and proposed facilities identified on the winter network only are estimated at $280,000 to $480,000 depending upon determined service levels. Expansion of improved winter maintenance beyond the winter network could be required by the new Minimum Maintenance Standards and will increase these costs.

The Thames Valley Parkway is not identified in the Winter Cycling Network due to potential for ecological and environmental impacts associated with the required maintenance practices and risk management considerations. City park pathways are classified as recreation facilities which are governed by different standards and have

different liability thresholds as compared to Municipal ROWs. However, conditions for cyclists on London's pathways will improve. Council recently approved additional winter maintenance funding for the Thames Valley Parkway. This funding will enable Class 3 and 2 sidewalk snow clearing of the Thames Valley Parkway and parks pathways that are preferred pedestrian routes. Class 3 and 2 sidewalk winter maintenance standards involve snow plouwing to a snow-packed condition within 24 hours after 8 cm of snow accumulation. While sidewalk maintenance levels on the pathways will leave snow packed conditions and will not ensure adequate cycling conditions at all time, accessibility for cyclists will increase.

Programs and Polices

The draft Master Plan identifies strategic programming actions. Some of these include:

Developing a Wayfinding & Signage Strategy: Signage and wayfinding can help users optimize their use of the network and link the off- and on-road facilities. Actions are underway on this item. New wayfinding signage standards will be applied to the updated and redesigned Bike Map which is underway.

Identifying Touring Loop Routes: Identification of branded cycle tour routes linking key destinations of cultural and natural significance can promote cycling to novice or recreational cyclists. Ten routes are proposed in the plan. The development of a series of London bike history plaques is also underway.

Exploring a Bike Share System: The plan recommends further investigation of the viability of bike share for London. Bike shares comprise a system of for-rent bicycles located at key destinations can provide residents and visitors with easy opportunities to ride. A number of these systems exist in Canada at the current time.

CANBike: The Plan endorses the CANBike educational program and promotes the identification of partnerships to deliver training opportunities. There currently is a CANBike London group offering courses to grade-school aged children. Share the Road, a provincial advocacy organization, is also involved in updating the course content and making it more accessible to cyclists of all ages.

Creating a Cycling Specific Website: The creation of the www.LondONBikes.ca website for the study has proven successful. An ongoing online hub of cycling can maintain this momentum. Examples exist in other municipalities.

Identifying & Enhancing Local Cycling Destinations: In coordination with wayfinding and touring loop initiatives, the identification and enhancement of cyclist-friendly destinations can help support and motivate occasional recreational cyclists to get out and ride. Enhancements include amenities such as benches and washrooms. Five City parks have been identified as cycling destinations and work is progressing on identifying other neighbourhoods and business areas.

Enhancing Bicycle Parking: This encompasses a variety of solutions to provide cyclists with locations to safely and securely lock their bicycle at destinations. Solutions include posts, racks, corrals, lockers and complementary fix-it stations.

Establishing Performance Measures: The City is currently measuring the usage of facilities. The technology to count cyclists is evolving quickly and administration has kept current with new technologies. The Master Plan endorses these activities and recommends an expansion of performance measures to track the activities and success of other engineering, education and enforcement efforts. These range widely from measurements of bicycle parking facilities to maintenance to recognitions.

Cycling on Sidewalks

The plan includes policy recommendations. A key recommendation relates to cycling on sidewalks. The City of London Streets Bylaw prohibits cyclists from riding on sidewalks with the exception of those under the age of 14. The amendment to permit children was approved in 2012 after a review of policies in other municipalities. At the time of the amendment, Civic Administration was asked to report on the possibility of permitting individuals over 65 years of age with associated restrictions in Business Improvement Areas where there may be pedestrians. London ON Bikes was used as an opportunity to research and consult with Londoners on this topic. A two-page discussion paper was distributed widely to solicit input.

The research on this topic contradicts the common perception that cyclists are safer on sidewalks. The lack of vehicle driver anticipation of higher speed bicycles on sidewalks in the boulevard places cyclists at higher risk, particularly on streets with many accesses and intersections. The presence of sightline conflicts between accesses and intersections and the sidewalk also appears to increase collision rates.

Public opinions expressed on the topic varied. Some Londoners feel sidewalks should be reserved for those who walk and are concerned with cyclists moving a higher speeds. This concern is founded on the reality that most sidewalks are 1.5 m wide. This width satisfies AODA requirements but does not account for passing cyclists that would require an additional 1.2 to 1.5 m of sidewalk width. Others express safety concerns related to cyclists on roadways and some motorists prefer cyclists to be off the roadway. The Cycling Advisory Committee recommended that the Streets Bylaw not be revised in relation to this topic.

The Highway Traffic Act prohibits cyclists from riding on sidewalks unless authorized by a specific municipal bylaw. The Ontario Traffic Manual Book 18 defines as sidewalk as a travelled way intended exclusively for pedestrian use. At the municipal level, variability exists across the province. The cases studied indicate a preference for reserving sidewalks for pedestrians. Staff is not aware of any exceptions for senior age riders.

Based on the research, many discussions with Londoners, and the recommendation of the Cycling Advisory Committee, Civic Administration recommends no change to the Streets Bylaw.

NEXT STEPS

The London ON Bikes process has been thorough. Much outreach, research, analysis, field work and internal staff collaboration has been completed. The input from many interested participants has been incorporated. The draft Master Plan report packages the resulting recommendations.

The Cycling Advisory Committee has been keenly involved in the London ON Bikes process. A review of the report by the committee is appropriate prior to finalizing the report. Upon the receipt and consideration of comments, the Master Plan will return to Civic Works Committee and Council for acceptance.

The EA master planning process requires a formal advertised public review period upon the completion of a master plan. Subject to Council approval of the finalized document later this year, the document would subsequently be made available for public review and comment for a period of 30 days. Given the current availability of the draft report on the project website, staff continues to welcome public feedback in the interim.

CONCLUSION

Cycling is growing as a mode of transportation, a recreational activity and a tourist activity. Various social and economic indicators point to more future growth. The benefits of cycling are multi-fold including mental and physical health benefits, environmental sustainability, economic vitality and tourism spin-offs. Efforts to retain and attract businesses and employees to London include strong links to the quality of life in London and specifically refer to our parks and pathway system. Good cycling facilities provide active-living opportunities for all Londoners, regardless of age and ability.

The London ON Bikes Cycling Master Plan development is nearly complete. The new Master Plan provides infrastructure, program and policy recommendations to guide City cycling efforts in the coming years. The draft plan provides the guidance required to transition London into a better cycling city.

The community engagement activities have been extensive and have resulted in a very good level of feedback. Many Londoners are keen to cycle and have opinions on what improvements would encourage this. This input has guided the Master Plan.

It is recommended that the draft report be referred to the Cycling Advisory Committee for review prior to finalizing. Upon the receipt and consideration of Cycling Advisory Committee comments, the Master Plan will return to Civic Works Committee and Council for acceptance. This will be followed by a final advertised public review period in accordance with the EA process.

Acknowledgements

This report was authored by Doug MacRae, Division Manager, Transportation Planning & Design with input from Jeff Bruin and Andrew Macpherson, Environmental and Parks Planning, Allison Miller and Jay Stanford of Environment, Fleet and Solid Waste, John Parsons, Transportation and Roadside Maintenance and Scott Stafford, Parks and Community Sports.

SUBMITTED BY:	**RECOMMENDED BY:**
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RECOMMENDED BY:	**RECOMMENDED BY:**
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Appendix A: Draft Cycling Master Plan Executive Summary, May 2016

cc: Cycling Advisory Committee
Doug MacRae, Division Manager, Transportation Planning and Design
Jay Stanford, Director, Environment, Fleet and Solid Waste
Andrew Macpherson, Manager, Environmental and Parks Planning
John Parsons, Division Manager, Transportation and Roadside Operations
Scott Stafford, Division Manager, Parks and Community Sports

Appendix A
Draft Cycling Master Plan
Executive Summary
May 2016

EXECUTIVE SUMMARY

London ON Bikes (LOB) – London's new cycling master plan – has been developed to respond to the need for an improved vision, infrastructure, programs, policies and actions. The plan is informed by best practices, lessons learned, current design guidelines and legislation and reflects the priorities and principles of city staff, stakeholders and residents who contributed to its development. LOB provides a blueprint for the future of the City's cycling network, including key pathways, supportive programing as well as outlines a recommended investment and implementation strategy to 2031.

In 2005, the City's first cycling master plan was developed. In 2007, an implementation strategy was developed to continue the momentum and success. Almost 10 years has passed. Great progress has been made in improving cycling and pathway infrastructure, policies and programs in London since 2005, culminating in a bronze Bicycle Friendly Community award in 2009. The following is a summary of the key content found within the London ON Bikes Cycling Master Plan report.

EX.1 The Purpose

LOB is founded on three key principles – the **opportunity statement** (consistent with the Municipal Class Environmental Assessment requirements), the **vision** and supporting **objectives.** Each principle was shaped by input received from residents, stakeholders and interest groups through a comprehensive consultation and engagement program. They shaped the actions and recommendations and provide a common basis for future planning, design and development.

OPPORTUNITY

A comprehensive City-wide cycling network was developed that accommodates both commuter and recreational cyclists. The network was prioritized and identifies initial as well as long-term initiatives to facilitate implementation. The network is supported by policies, initiatives and strategies to guide coordination, facilitation, encouragement and education.

VISION

Cycling is a form of active transportation which has important social, health, environmental and economic benefits. Cycling is encouraged throughout the city of London and cycling infrastructure is implemented to provide convenient and connected mobility choices for all Londoners as part of their growing and sustainable city.

OBJECTIVES

Connectivity

Build on the existing system and identify improvements on and off-road.

Consistency

Provide consistent design guidance that builds on best practices.

Comfort

Provide facilities that are considered comfortable for various cyclists.

Maintenance

Recommend appropriate practices and level of service.

Prioritization

Prioritize network improvements for strategic implementation.

Promotion

Increase awareness and interest in cycling city-wide.

EX.2 The Plan

The plan was developed using a four phase process. The approach is consistent with a Municipal Class Environmental Assessment (MCEA) Master Plan Approach #1. The approach requires that Phases 1 and 2 of the MCEA process be met – including two rounds of public / stakeholder consultation.

City of London residents expect to be involved in the planning process. They expect to be consulted and look for opportunities to provide their input. The consultation / engagement program used to inform the development of London ON Bikes was no different. The process used to develop London ON Bikes was informed by ongoing consultation and engagement through:

- **Formal Outreach:** in-person engagement with members of the public through public events and information centres and with stakeholders through meetings and workshops.
- **Informal Outreach:** Education on project objectives and promotion of opportunities for involvement such as project newsletters and promotional materials e.g. posters.
- **Online Engagement:** consultation activities hosted online – on the project website – which are interactive and reflect the questions asked through formal engagement.

EX

London ON Bikes is made up of four key elements:

1. **The Proposed Network:** an interconnected system of on and off-road cycling facilities that provide cyclists of all ages and abilities with a range of routes and facility types to choose from.
2. **Policy Considerations:** A set of policy considerations and recommendations which are intended to be used as a guide as municipal policies are updated.
3. **Strategic Actions:** Proposed actions and strategies that support the Five E's of a bicycle friendly community including engineering, education, encouragement, enforcement and evaluation.
4. **An Implementation Strategy:** A proposed approach to guide the short, medium and long-term implementation of the cycling network and supportive policies and programs.

The implementation of all of these elements of this cohesive plan is needed in order for the long-term city-wide cycling vision and objectives to be realized. The following sections provide highlights from each of the core elements of the plan.

EX.3 The Network

The London ON Bikes network was developed using an iterative process which:

- Builds upon existing conditions and previously proposed routes / facility types (2005 Cycling Master Plan);
- Identifies route alternatives and a set of evaluation criteria which are used to evaluate the alternatives;
- Integrates public / stakeholder input; and
- Identifies proposed facility types using a process based on Ontario Traffic Manual Book 18 and other on and off-road facility design guidelines.

London's existing cycling network – made up of 330 kilometres of on and off-road cycling facilities – was the basis from which future routes were selected and recommended. London has a well-developed system made up of **in-boulevard pathways**, **the Thames Valley Parkway**, **pathways through parks**, **signed bicycle routes** (including sharrows) and **bike lanes**. These existing routes and facilities were investigated along with new links and alternatives.

When developing a connected and continuous system of cycling facilities it is important to compare and assess the route alternatives to a set of common criteria. Route selection criteria were identified early in the process and were reviewed and confirmed through the first round of consultation. The revised criteria built upon criteria identified in the 2005 Cycling Master Plan as well as other design guidelines. The criteria include **access and potential uses**, **connectivity and directness**, **environmental protection**, **attractiveness and aesthetics**, **safety and comfort**, **cost**, **consideration of future use**, **tourism** and **environmental sustainability**. More details about each of the criteria and the considerations which informed the alternatives assessment are found in **Technical Appendix E**. Using the existing conditions and route selection criteria as a base, a set of route alternatives were identified and investigated. The routes included:

- **Spine Routes:** north-south and east-west routes that link key destinations.
- **Local Neighbourhood Routes:** Routes on local neighbourhood roadways and through neighbourhood parks to connect to the spine routes.
- **Touring Routes:** links that provide access to rural areas of the city and surrounding municipalities.

The investigation included a comprehensive desk-top exercise and field work which was documented using GPS waypoints and photographs. The information gathered through this investigation combined with background data and information was assessed and used to select preferred routes. Key information that influenced the selection of preferred routes included:

- Existing Roadway Width;
- Traffic Volume & Speed;
- On-Street Parking;
- Scheduled capital projects for both the road and pathway network;
- Public / Stakeholder input; and
- On-going Planning Projects.

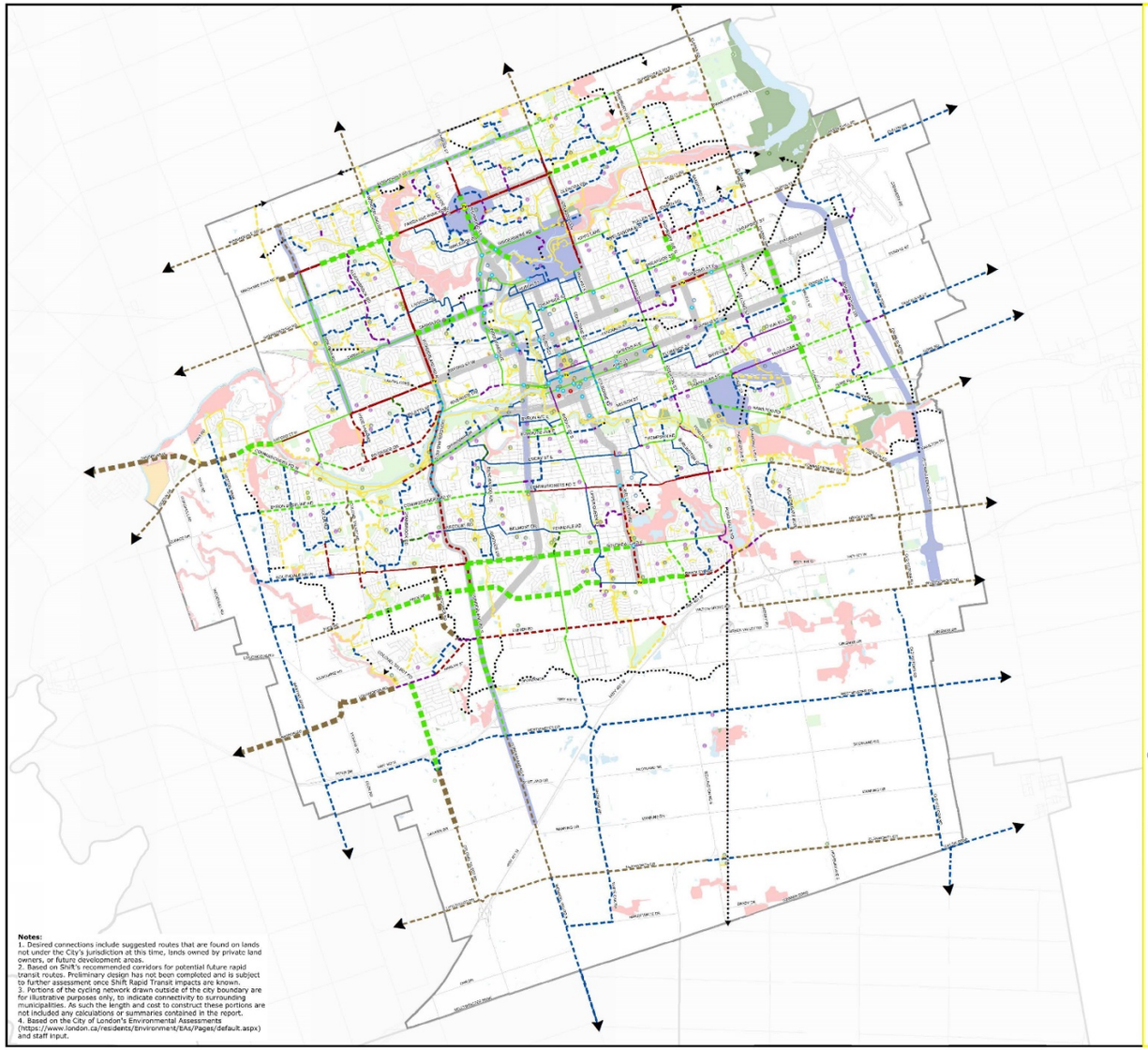
Once the routes were selected and reviewed with the public, a process to identify and select cycling facilities within and outside of the road right-of-way was developed. This process is based on the approach in Ontario Traffic Manual Book 18: Cycling Facilities as well as other best practices related to pathway route selection and design.

EX

The process is made up of three steps for facilities found within and outside of the road right-of-way. The steps are similar but reflect the key differences related to each. **Figure 1** illustrates the process used to select cycling facilities.

Figure 1 – Facility Selection Process for London ON Bikes

The preferred route network and facility types are illustrated on **Maps EX1** and **EX2**. A summary of the total existing and proposed cycling network by facility type is presented in **Table 1.** Illustrations of the facility types noted in **Table 1** are presented in **Figure 2**. Coloured lines surrounding the illustration correspond to the colours used to illustrate the facility types on the network maps.



City of London Cycling Master Plan Update

Draft May 2016

Map

EX-1

City-wide Map
Proposed Cycling Network by Proposed Detailed Facility Types

Legend

Existing Cycling Routes
- Multi Use Pathway
- In-Boulevard Facility
- Bike Lane
- Signed Bike Route with Sharrow
- Signed Bike Route

Proposed Facility Types
- Multi-Use Pathway
- In-Boulevard Facility
- Cycle Track
- Buffered Bike Lane
- Bike Lane
- Buffered Paved Shoulder
- Paved Shoulder
- Signed Route with Edgeline
- Signed Bike Route with Sharrow
- Signed Bike Route
- Desired Connection[1]

Key Destinations
- Community Destination
- Potential Rapid Transit Station
- Hospital
- Public Library
- School
- Sport Facility
- Transit Hub
- Potential Transit Village

Other
- Road Network
- Railway
- Potential Future Rapid Transit Route[2]
- Future Development Lands
- Connection to Surrounding Municipality[3]
- Environmentally Significant Area
- Future / On-going / Completed Environmental Assessments (Study Area)[4]
- Park
- Conservation Authority Land
- Provincial Park
- Watercourse

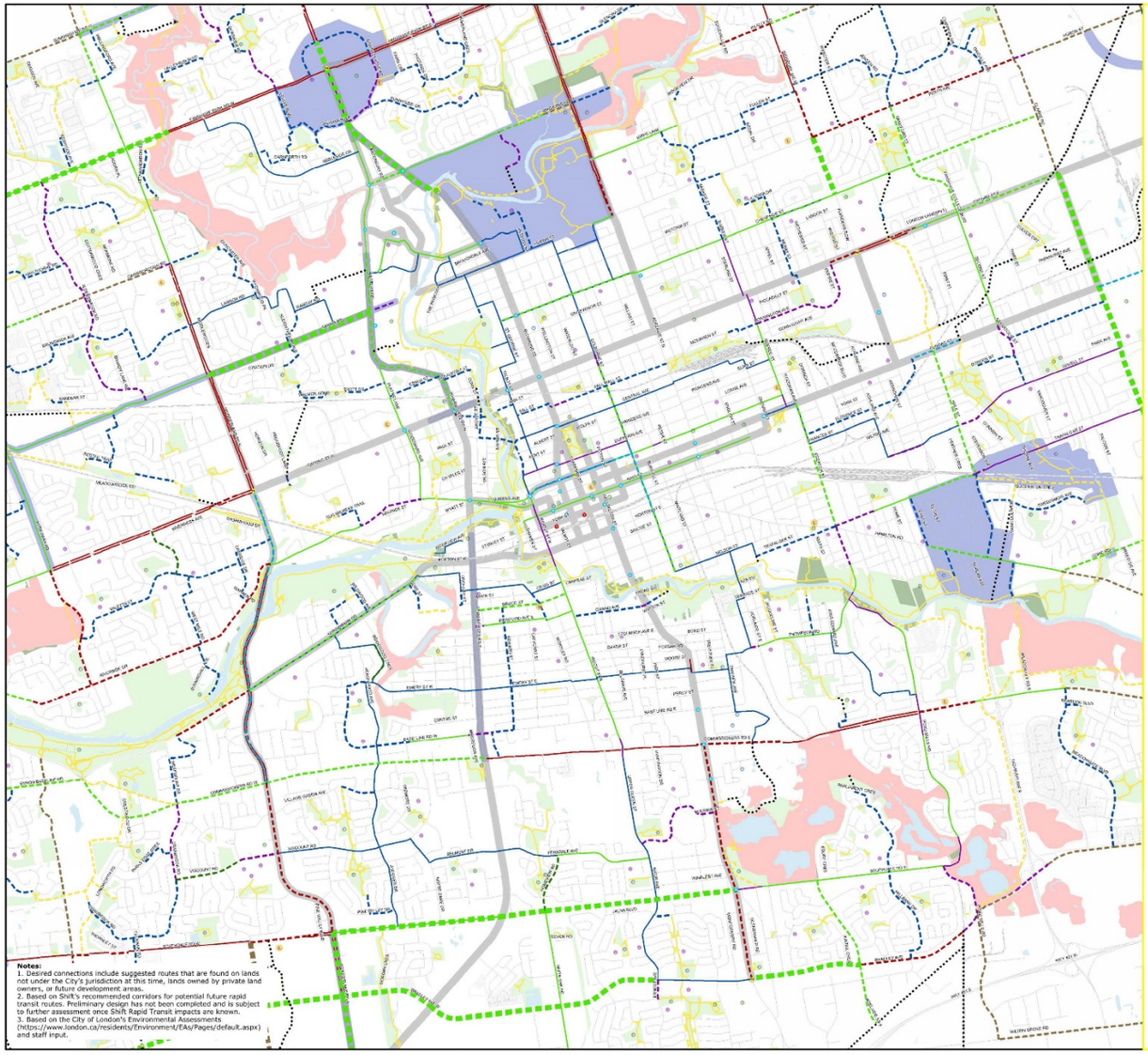
LONDON BIKES

MMM GROUP

N

0 1 2 4 Kilometres

Notes:
1. Desired connections include suggested routes that are found on lands not under the City's jurisdiction at this time, lands owned by private land owners, or future development areas.
2. Based on Shift's recommended corridors for potential future rapid transit routes. Preliminary design has not been completed and is subject to further assessment once Shift Rapid Transit impacts are known.
3. Portions of the cycling network drawn outside of the city boundary are for illustrative purposes only, to indicate connectivity to surrounding municipalities. As such the length and cost to construct these portions are not included any calculations or summaries contained in the report.
4. Based on the City of London's Environmental Assessments (https://www.london.ca/residents/Environment/EAs/Pages/default.aspx) and staff input.



City of London Cycling Master Plan Update

Draft May 2016

Map EX-2

Central Area Map
Proposed Cycling Network by Proposed Detailed Facility Types

Legend

Existing Cycling Routes
- Multi Use Pathway
- In-Boulevard Facility
- Bike Lane
- Signed Bike Route with Sharrow
- Signed Bike Route

Proposed Facility Types
- Multi-Use Pathway
- In-Boulevard Facility
- Cycle Track
- Buffered Bike Lane
- Bike Lane
- Buffered Paved Shoulder
- Paved Shoulder
- Signed Route with Edgeline
- Signed Bike Route with Sharrow
- Signed Bike Route
- Desired Connection[1]

Key Destinations
- Community Destination
- Potential Rapid Transit Station
- Hospital
- Public Library
- School
- Sport Facility
- Transit Hub
- Potential Transit Village

Other
- Road Network
- Railway
- Potential Future Rapid Transit Route[2]
- Future Development Lands
- Environmentally Significant Area
- Future / On-going / Completed Environmental Assessments (Study Area)[3]
- Park
- Conservation Authority Land
- Parcel Property
- Watercourse

LONDON BIKES

MMM GROUP

N

0 0.5 1 2 Kilometres

Notes:
1. Desired connections include suggested routes that are found on lands not under the City's jurisdiction at this time, lands owned by private land owners, or future development areas.
2. Based on Shift's recommended corridors for potential future rapid transit routes. Preliminary design has not been completed and is subject to further assessment once Shift Rapid Transit impacts are known.
3. Based on the City of London's Environmental Assessments (https://www.london.ca/residents/Environment/EAs/Pages/default.aspx) and staff input.

Table 1 –Existing & Proposed Facility Types for London ON Bikes (Full Build-out 15+ years)

Facility Type	Existing (km)[1]	Proposed (km)[1]	Total (km)[1]
Shared Facilities			
Signed Bike Route	50.8	157.9	**208.7**
Signed Bike Route with Edgeline	0	2.6	**2.6**
Signed Bike Route with Sharrow	10	23	**33**
Designated Facilities			
Paved Shoulder	0	79.5	**79.5**
Bike Lane	60	48.3	**108.3**
Separated Facilities			
Buffered Bike Lane	0	31.9	**31.9**
Buffered Paved Shoulder	0	10.7	**10.7**
Cycle Track	0	9.2	**9.2**
In-Boulevard Multi-use Pathway	42	28.2	**70.2**
Multi-use Pathway	166	77.8	**243.8**

[1] On-road facilities are measured per roadway km. (i.e. includes bike lanes typically on both sides of the road). Pathways in-boulevard or in public open space are based on linear km of pathway (i.e. both directions share the same measurement in length).

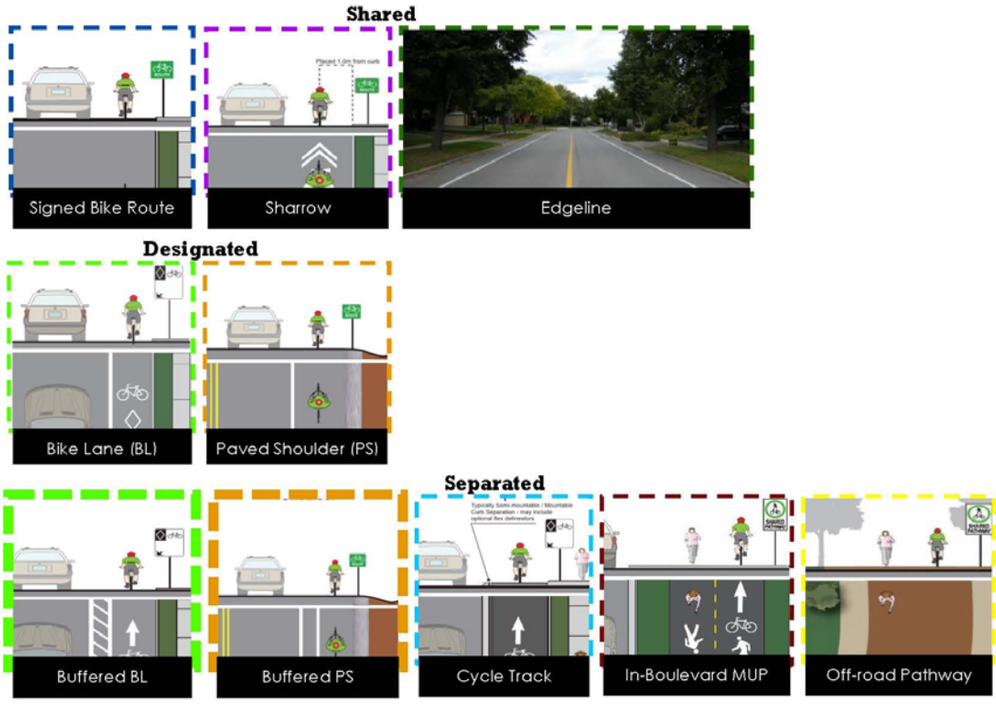


Figure 2 – Overview of Proposed Cycling Facility Types

The design of cycling facilities should be based on the most current guidelines and best practices. A set of design guidelines were developed for London ON Bikes and are presented in **Technical Appendix G**. The guidelines were developed based on the following design guidelines and standards:

- Ontario Traffic Manual Book 18: Cycling Facilities (here).
- Ontario Traffic Manual Book 15: Pedestrian Crossing Treatments (here).
- Ministry of Transportation Ontario (MTO) Bikeways Design Guidelines .
- National Association of City Transportation Officials Urban Bikeways Design Guide and Urban Street Design Guide (here).
- American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities (here).
- Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (here).
- Transportation Association of Canada (TAC) Bikeway Traffic Control Guideline for Canada (here).
- Accessibility for Ontarians with Disabilities Act – Built Environment Standards (here).

The guidelines are meant to be used as the London ON Bikes network is being implemented and should be updated as primary reference guidelines are reviewed and revised.

EX.4 The Policies & Action Plan

Six policy trends have been identified based on input received, discussions throughout the planning process and policy trends throughout Southern Ontario. The policy trends include:

- Cycling facilities related to **complete streets**;
- Cycling on **sidewalks;**
- Cycling infrastructure and **e-bikes**;
- **Risk management** and **liability;**
- Cycling and pathways in **new development areas**; and
- **Accessibility.**

For each of the policy areas, key considerations based on current best practices and trends are highlighted, the current context in London is noted, recommendations are identified and affected policies and plans are highlighted.

The policies are complemented by an action plan. There are a total of eleven actions currently underway or being proposed to enhance and influence cycling throughout London. Many of the actions support a number of the five E's (Engineering, Education, Encouragement, Evaluation and Enforcement). An overview of the eleven actions, their objectives and the "E's" that they support are presented in **Table 2**.

Table 2 – Overview of Current and Proposed Actions

Action	Objective	Five E's Support
1: Wayfinding & Signage Strategy	To create a consistent visual identity in the form of a wayfinding and signage strategy to achieve connectivity between the on and off-road system and awareness of route alternatives.	Engineering & Encouragement
Status	Discussion and research in progress.	
2: Winter Cycling Network	To provide cyclists with year-round commuter and recreational cycling opportunities which are considered comfortable, and to guide decision making related to maintenance.	Engineering & Encouragement
Status	In progress. To be discussed and further researched once the Minimum Maintenance Standard (MMS) has been updated and adopted.	
3: Touring Loop	To provide residents and visitors (with a focus on novice / recreational cyclists) with opportunities to tour the city by bike.	Encouragement & Education
Status	Discussion and research in progress.	
4: Bike Share	To identify a system of "for rent" bicycles located at key destinations providing residents and visitors with an opportunity to use a bike – on demand.	Encouragement
Status	Discussion and research in progress.	
5: CANBike Program	To educate residents – specifically youth – on how to safely and comfortably cycle throughout the city – on and off-road.	Education
Status	CANBike London already exists. Further expansion should continue to be examined.	
6: Cycling Webpage	To establish an online "hub" of cycling specific information, to celebrate successes, continue the discussion, provide education materials and promote future opportunities.	Encouragement & Education
Status	Discussion and research in progress. Content of the LOB website could be used to develop a potential layout or content.	
7: Local Cycling Destinations	To educate the public on specific locations throughout the city that are supportive of, and have cycling amenities.	Encouragement & Evaluation

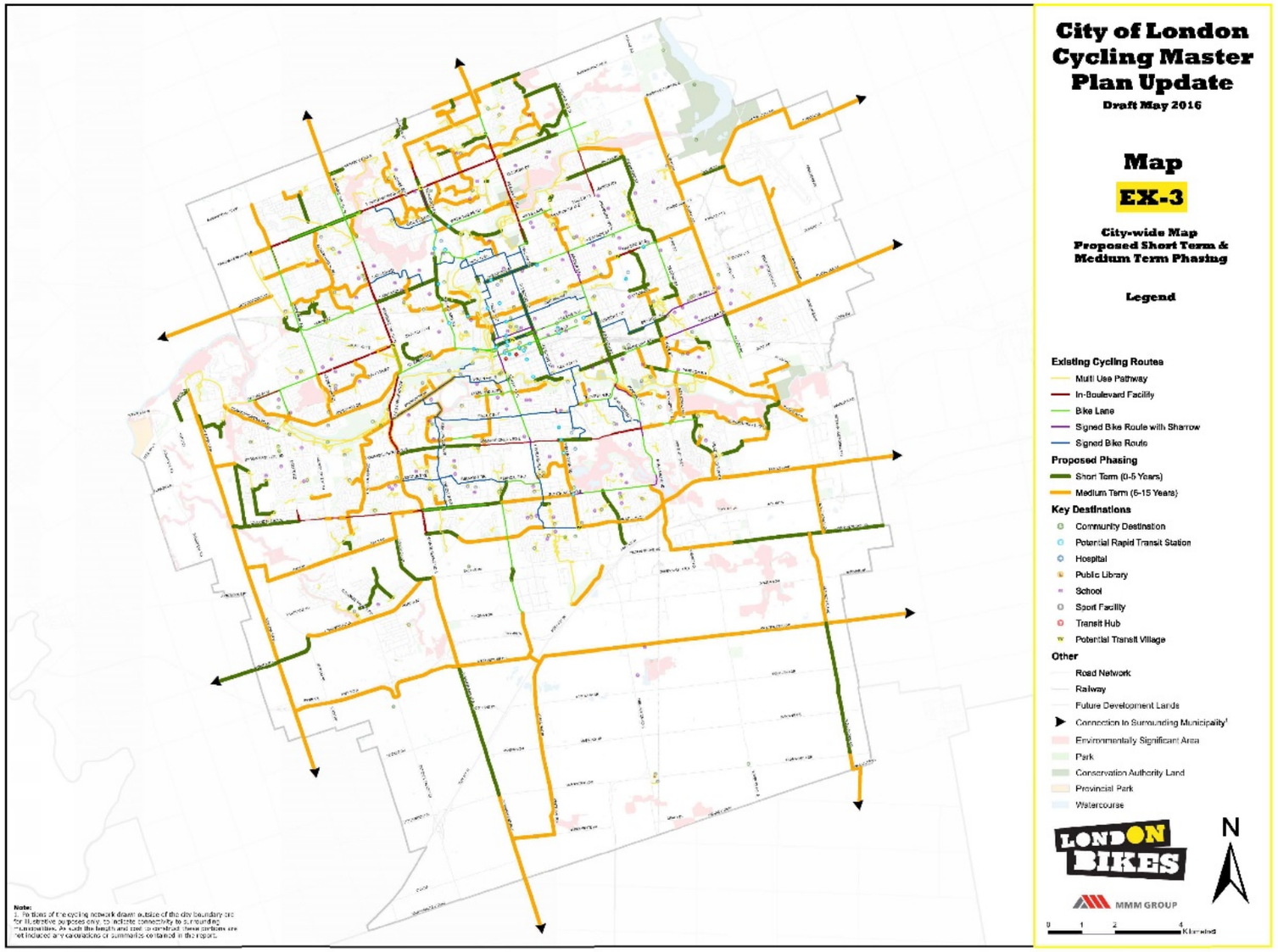
Action	Objective	Five E's Support
Status	Discussion and research in progress. Additional consideration for signage concepts and details related to implementation to be considered.	
8: Bicycle Parking	To provide cyclists with a variety of secure locations throughout the city where they can lock-up their bicycle.	Encouragement
Status	Discussion and research in progress.	
9: Performance Measures	To establish a process and procedure to track and document successes and progress made as a result of the implementation of London ON Bikes.	Evaluation
Status	Discussions started. Research to being in 2016 and 2017 to explore the development and implementation of performance and monitoring measures.	
10: Cycling Crossings	To provide design direction on potential locations where crossings need to be enhanced to safely accommodate cyclists.	Evaluation & Engineering
Status	Consideration and coordination with the City's capital program is planned. Further discussions are needed.	
11: Enforcement	To increase relationships with the London Police Service to improve enforcement and safe cycling practices.	Enforcement & Education
Status	Discussions and research in progress.	

EX.5 The Implementation Strategy

Successful implementation requires a clear strategy and a set of tools. London ON Bikes is intended to be implemented over a 15+ year timeline. It focuses on the short-term (0-5 years) and medium-term (6 – 15 years) horizons. **Maps EX3** and **EX4** illustrate the proposed cycling routes identified for implementation within these two phases. An overview of the facility types proposed within these phases is presented in .

Table 3 – Proposed Facility Types in the Short and Medium-term

	Facility Types (Roadway / Pathway km)										
Phase	**Total**	Signed Bike Route	Edgeline	Sharrow	Paved Shoulder	Bike Lane	Buffered Bike Lane	Buffered Paved Shoulder	Cycle Track	In-Boulevard Pathway	Off-road Pathway
Existing	**331**	51	0	10	0	60	0	0	0	42	166
Short (0 – 5 years)	**92**	15	1	3	9	17	12	4	2	3	26
Medium (6 – 15 years)	**212**	199	2	15	30	14	12	3	3	16	18
Total	**635**	**165**	**3**	**28**	**39**	**91**	**24**	**7**	**5**	**61**	**210**



Note:
1. Portions of the cycling network drawn outside of the city boundary are for illustrative purposes only, to indicate connectivity to surrounding municipalities. As such the length and cost as carried in these portions are not included in any calculations or summaries contained in the report.

City of London Cycling Master Plan Update

Draft May 2016

Map EX-3

City-wide Map
Proposed Short Term & Medium Term Phasing

Legend

Existing Cycling Routes
- Multi Use Pathway
- In-Boulevard Facility
- Bike Lane
- Signed Bike Route with Sharrow
- Signed Bike Route

Proposed Phasing
- Short Term (0-5 Years)
- Medium Term (5-15 Years)

Key Destinations
- Community Destination
- Potential Rapid Transit Station
- Hospital
- Public Library
- School
- Sport Facility
- Transit Hub
- Potential Transit Village

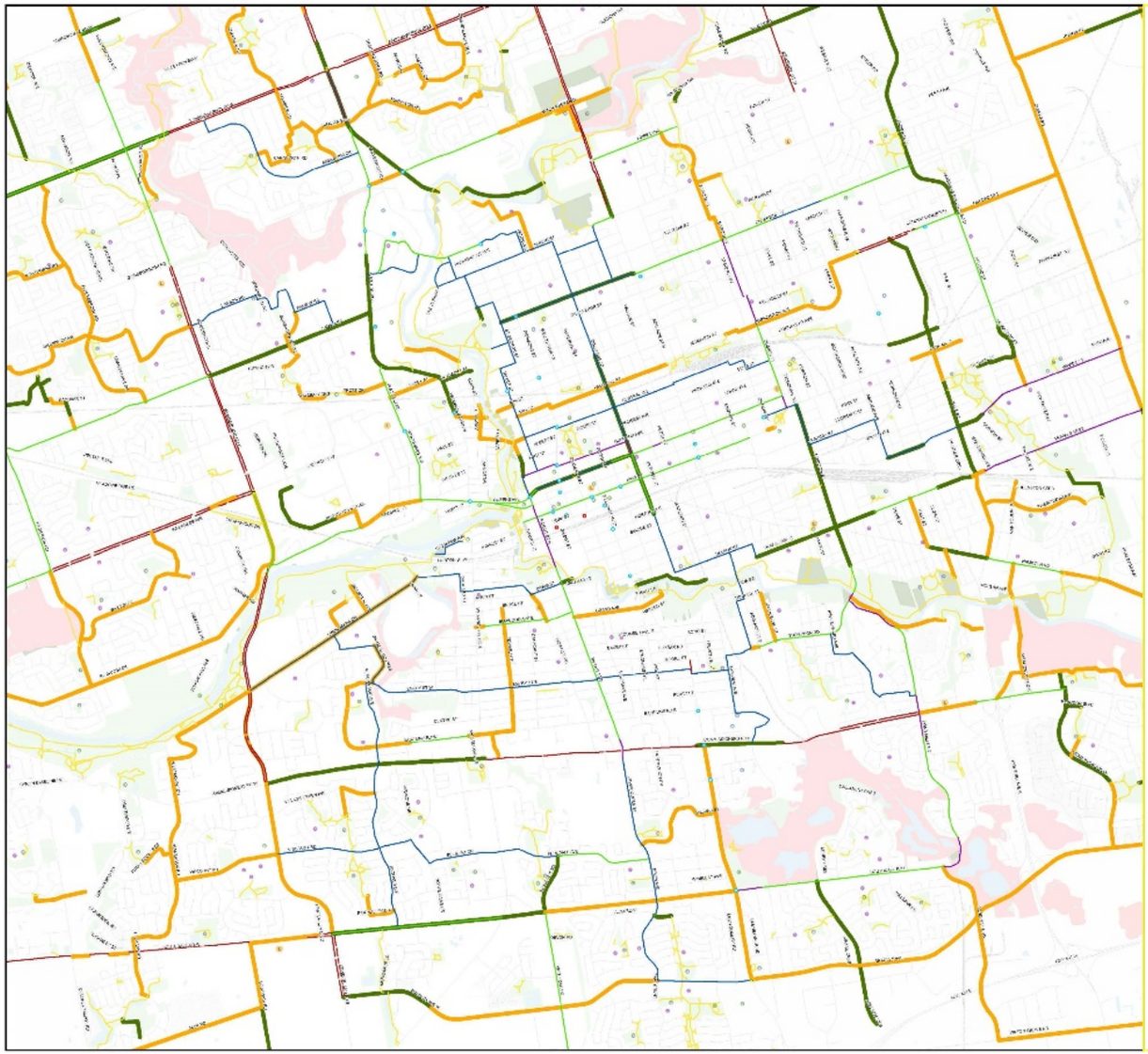
Other
- Road Network
- Railway
- Future Development Lands
- Connection to Surrounding Municipality[1]
- Environmentally Significant Area
- Park
- Conservation Authority Land
- Provincial Park
- Watercourse

LONDON BIKES

MMM GROUP

N

0 1 2 4 Kilometres



City of London Cycling Master Plan Update

Draft May 2016

Map

EX-4

Central Area Map
Proposed Short Term & Medium Term Phasing

Legend

Existing Cycling Routes
- Multi Use Pathway
- In-Boulevard Facility
- Bike Lane
- Signed Bike Route with Sharrow
- Signed Bike Route

Proposed Phasing
- Short Term (0-5 Years)
- Medium Term (6-15 Years)

Key Destinations
- Community Destination
- Potential Rapid Transit Station
- Hospital
- Public Library
- School
- Sport Facility
- Transit Hub
- Potential Transit Village

Other
- Road Network
- Railway
- Future Development Lands
- Environmentally Significant Area
- Park
- Conservation Authority Land
- Watercourse

LONDON BIKES

MMM GROUP

N

0 0.5 1 2 Kilometres

All other proposed routes are intended to be implemented within the long-term horizon 15+ years unless opportunities such as a road reconstruction project arise that would enable a cost-effective implementation. Routes beyond the 15 year short and medium-term phases have not been costed in the London ON Bikes master plan. It is recommended that the master plan be reviewed and updated every 5 to 10 years. Though a proposed phasing strategy has been identified, like the master plan, it is meant to be a flexible tool which can be adapted should additional routes be identified or if implementation is deferred or expedited. A five step process was used to review and select the appropriate phasing for the proposed routes that make-up the cycling network. The process took into consideration three key pieces of input:

- **Public comments:** including input received from the second public information centre – where attendees were asked to highlight their top three priority routes.
- **Capital plans and priorities:** cycling routes have been identified in a number of key Council approved planning and implementation documents including the 4 –year capital budget, planned infrastructure renewal list, Smart Moves, Parks & Recreation Master Plan, among others.
- **Network objectives:** overarching objectives established early in the process such as connectivity and continuity, overcoming key barriers, prioritization of separated infrastructure, north-south and east-west connections and major loop routes.

Implementation is meant to be supported by a set of tools that will help to guide future decision making, planning, design and implementation. There are a number of tools identified in **section 4.0** of London ON Bikes including:

- Defined roles and responsibilities for those who will be involved in the implementation of the plan;
- A decision making process which builds on the process defined in the 2005 Master Plan and has been updated based on recently adopted guidelines;
- Defined next steps based on the Municipal Class EA process; and
- Operations and maintenance considerations and references.

A plan of this scale will require annual investments. The benefits of implementing a comprehensive city-wide cycling network on an annual basis and where possible with larger capital projects will maintain momentum and achieve cost efficiencies. Network costs developed for London ON bikes are intended to be used for initial budgeting purposes.

The cost of implementation has been categorized as **funded** and **unfunded** projects. An overview of the cost to implement London ON Bikes is presented in **Table 4.**

Table 4 – Overview of Proposed Costing for London ON Bikes

	Short-term (0 – 5 years)	Medium-term (6 – 15 years)	Short + Medium Term (total)
Within the Road Right-of Way	$9,673,209	$20,013,329	$29,686,539
Outside of the Road Right-of-Way	$13,405,635	$8,777,120	$22,182,755
Total	$23,078,044	$28,790,449	**$51,869,294**
Cost Rationalization			
Funded Projects	$19,607,112	$14,687,532	$35,970,320
Unfunded Projects	$3,471,672	$14,102,918	$17,575,134
Cost Per Year (unfunded projects)	$694,334	$1,410,292	N/A
Annual Cost per Resident (381,000 - 2016) to address unfunded projects	$1.82	$3.70	N/A

Approximately $36 million of the total estimated cost has already been allocated for through approved major road projects, monies made available for cycling specific infrastructure.

Approximately $17.5 million of the total cost is currently unfunded which will require additional consideration regarding funding options. This equates to $1.82 per person, per year during the first five years, and $3.70 per person per year over the course of 10 years (medium term).

EX.5.1 Additional Implementation Considerations

Implementation not only refers to the proposed routes and facility types (i.e. the cycling network) but must also take into consideration the cost of supporting assets such as bike parking, bike lockups, cycling destination infrastructure, roadway wayfinding signage, potential partnership investment in a bikeshare program, etc. These types of supportive programs / initiatives are in the process of being researched and discussed by City staff and have also been identified as some of the key actions (EX.4) to achieve the LOB vision and objectives.

During the 2016 – 2019 multi-use budget deliberations, Municipal Council approved a 10 year capital program valued at $2.85 million with projected expenditures of $150,000 in 2016 and $300,000 per year from 2017 to 2025 using the Federal Gas tax as the funding source.

In addition to supportive amenities, as the routes and facilities that make up the cycling network are implemented, improved operations and maintenance are needed. Costs associated with the operation and maintenance of cycling facilities are necessary to provide a quality user-experience, encourage repeat use, and maximize the return on the capital investments.

Operational costs can vary depending on the type of cycling facility and level of service. Operation and maintenance of roadways and pathways pertains to seasonal practices such as sweeping in the summer and ploughing and salting in the winter.

London currently uses the Minimum Maintenance Standards as a guide for on-road route operations and maintenance. Operation and maintenance of the off-road system is addressed on a case by case basis. Operations and maintenance of both systems are dependent on available budget, the available tools and staff capacity. Estimated costs for the maintenance of the cycling network during non-winter seasons – informed by best practices from comparable municipalities – are presented in **Table 5**. The information is meant to be used as references until the MMS is updated and adopted.

Table 5 - Maintenance Costs for Facility Types during **Non-Winter** Seasons (Paint vs cold plastic pavement marking renewals, sweeping, etc.)

Facility Type	Existing (km)	Proposed (km)	Total (km)[1]	Per km Cost (per year)	Estimated Cost (per year)
Signed Bike Route	50.8	157.9	208.7	$260	$54,262
Signed Bike Route with Edgeline	0	2.6	2.6	$6,260 - $7,660	$16,276 - $19,916
Signed Bike Route with Sharrow	10	23	33	$3,060 - $6,460	$100,980 - $213,180
Paved Shoulder	0	79.5	79.5	$6,260 - $7,660	$497,670 - $608,970
Bike Lane	60	48.3	108.3	$6,260 - $7,660	$677,958 - $829,578
Buffered Bike Lane (Hatched)	0	31.9	31.9	$7,660 - $9,260	$244,354 - $295,394
Buffered Paved Shoulder (Hatched)	0	10.7	10.7	$7,660 - $9,260	$81,962 - $99,082
Cycle Track	0	9.2	9.2	$6,260 - $7,660	$57,592 - $70,472
In-Boulevard Multi-use Pathway	42	28.2	70.2	$1,685 - $2,310	$118,287 - $162,162
Multi-use Pathway	166	77.8	243.8	$1,685 - $2,310	$410,803 - $563,178
Total					**$2,260,144 - $2,916,194**

1. See Section 4.3 in the London ON Bikes master plan report for cost assumptions

Table 6 below summarizes an estimated annual maintenance cost by facility type for the proposed winter cycling network.

Table 6 - Maintenance Costs for **Winter** Cycling Network

Facility Type	Existing (km)	Proposed (km)	Total (km)[1]	Per km Cost (per year)	Estimated Cost (per year)
Signed Bike Route	15.1	1.3	16.4	-	-
Signed Bike Route with Edgeline	-	0.7	0.7	$1,000	$700
Signed Bike Route with Sharrow	5.8	3.2	9.0	-	-
Bike Lane	33.7	9.4	43.1	$1,000	$43,100
Buffered Bike Lane	-	8.3	8.3	$1,000	$8,300
Cycle Track	-	5.6	5.6	$13,500 - $25,000	$75,600 - $140,000
In-Boulevard Multi-use Pathway	19.3	3.9	23.3	$6,750 - $12,500	$157,275 - $291,250
Total					**$284,975 - $483,350**

The City will review the annual year-round maintenance costs including the winter network, based on an approved level of service strategy and data collected from field operations.

EX.5.2 How will the Plan be Funded?

Understanding that additional funds will be required to achieve the implementation of all recommendations identified in the plan, there are three potential sources which could be explored to help fund the proposed projects / initiatives:

- **Economies of Scale:** coordination with large scale infrastructure projects so that cycling facilities are implemented at the same time as road reconstruction, utility projects such as water mains to reduce the burden of cost.
- **External Funding Sources:** External funding options at the provincial and federal level such as the federal / provincial gas tax, Ontario Municipal Cycling Infrastructure Program, green municipal fund, infrastructure stimulus program, etc.
- **Partnerships:** Establishing new or enhancing existing public-public or public-private partnerships to identify opportunities to partner on implementation.

EX.6 Summary of Recommendations

Recommendations are identified throughout the body of London ON Bikes. **Table 7** summarizes the 38 recommendations found throughout the plan. It is important to note that the City has already begun action on a number of the recommendations noted below. London ON Bikes is meant to be used as a supporting document to reinforce the work being completed and to continue with the necessary changes being made.

Table 7 – Summary of London ON Bikes Recommendations

#	Recommendations
1	The proposed cycling network illustrated on Maps EX-1 and EX-2 should be adopted as the guide for the implementation of cycling infrastructure in London.
2	As the network changes over time, the mapping and corresponding GIS database should be updated to reflect the most up to date cycling conditions / routes.

EX

#	Recommendations
3	OTM Book 18 and the other design guidelines / standards identified in this plan should be used as primary references when designing the cycling network in conjunction with existing pathway design guidelines prepared.
4	The information contained within Technical Appendix G is to be used as a guide when designing cycling facilities, developing communication materials or updating other municipal guidelines.
5	The policy considerations and recommendations should be reviewed and, where appropriate, should be integrated into Municipal policies (see specific municipal policies identified in section 2.3 for each policy consideration).
6	In principle and based on the Planning Act, municipal policies should be updated on a regular basis – every 5 – 10 years to ensure that they remain consistent and reflective of current trends and practices.
7	Review the 11 proposed strategic actions recommended within section 3.2 and consider them as new programs or initiatives are examined or as the City continues to research potential initiatives.
8	Review and confirm a preferred signage strategy and wayfinding concept and work with local partners to implement signage along key cycling routes including gaps / missing linkages as they are implemented.
9	Review and discuss the adoption and maintenance of a winter cycling network. In the early stages of implementation the City should prioritize existing routes that provide connections to the downtown core.
10	Continue to explore the opportunity of recreational cycle touring loops. The updated loop routes – now consistent with the London ON Bikes network – should be reviewed and confirmed.
11	Once the touring loops are confirmed, a range of promotional tools such as route guides, signage, online interactive mapping, etc. should be explored.
12	Continue to explore and develop a business case for a city-wide Bike-Share Program based on models suitable for London.
13	Work with Middlesex London Health Unit, school boards and other partners to explore the possibility of implementing a permanent CANBike program in schools throughout the city, building on the existing program.
14	Building on the existing information found on the city website and the project specific website developed for London ON Bikes, a dynamic online Cycling Hub should be developed.

#	Recommendations
15	Continue to identify opportunities to enhance and promote cycling destinations throughout the city including but not limited to park spaces, major tourism points (e.g. Covent Garden Market and the Western Fair District, etc.)
16	Continue to implement bicycle parking with a focus on implementing bike corrals within the downtown core and stylized bike racks in various neighbourhoods throughout the city.
17	The proposed performance measures should be reviewed, confirmed and used to monitor the implementation and success of London ON Bikes.
18	The proposed crossing improvements should be identified and additional considerations for potential projects should be explored for both off-road pathway crossings and intersection improvements.
19	London Police Service should consider enhancing their cycling program including investments in additional bicycle patrols (i.e. equipment and staff resources).
20	The proposed phasing plan identified for London ON Bikes should be adopted. The focus should be placed on implementing those priorities identified within the short and medium-term horizon.
21	The proposed facility mapping should be considered when updating other supportive policies such as the Official Plan, Transportation Master Plan, and Parks and Recreation Master Plan.
22	The implementation tools identified in London ON Bikes should be used as an internal guide for City staff to facilitate the implementation of the cycling network, supportive programs and initiatives.
23	The KMZ (Google Earth) database should be considered as a potential communication tool and to better understand some of the current conditions of proposed routes.
24	Periodically review the potential partners and the opportunities for partnership identified in Table 7.
25	City staff from various divisions and service areas should continue to work together to coordinate the implementation of London ON Bikes. A point person from each service area should be identified to track progress made and next steps as required.
26	Identify opportunities for the involvement of staff from other municipal service areas – based on further investigation of potential roles and responsibilities.
27	Utilize the updated decision making process to inform how the master plan is implemented and how additional routes are planned, designed and constructed.

EX

#	Recommendations
28	As a project moves forward to implementation City staff should investigate the environmental impacts and determine the appropriate schedule to determine the appropriate next steps.
29	The City should develop level of service standards for the maintenance and operations of cycling facilities based on the updated Minimum Maintenance Standards, once these are available.
30	The City should identify London specific maintenance and operation practices for specific facility type such as in-boulevard facilities and cycle tracks. As new facilities are implemented, the City should consider whether the current maintenance practices address them appropriately.
31	Review and consider standardize reporting methods based on the suggested approach identified in section 4.3.3.3.
32	The unit costs spreadsheet should be used as a tool to inform future budgeting and costing for the on-road system of facilities. For the off-road system, previously developed guidelines and costing should be used.
33	When determining annual budgets, costs for facility maintenance and cycling programs / education should also be included.
34	Continue to identify projects which can be funded by existing programs established by various services areas within the city (i.e. lifecycle renewal projects).
35	Explore external funding sources and partnerships to help fund the proposed "enhancements" as well as other programs and promotional initiatives.
36	Continue to identify opportunities to coordinate large-scale capital projects to achieve economies of scale and build the costs for cycling facilities into those budgets.