



LONDON BIKES



City of London Cycling Master Plan

Final Report | September 2016



London
CANADA

MMM GROUP



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City of London
Cyclist on an Off-road Pathway



1.0 INTRODUCTION

London ON Bikes is the City of London's primary cycling resource and action plan. This Master Plan is meant to be used as a guide and a blueprint for future planning, design, development and programming related to Cycling. The document is meant to be used by City staff as well as its partners – technical agencies and local stakeholders. The implementation of the plan is meant to be a coordinated and collaborated effort based on the relationships built as a result of London ON Bikes.

Cycling is an important part of London's existing and future multi-modal transportation and recreation system and part of the "bigger strategic picture" for the City. As a tool, London ON Bikes contains the information needed to support future decision making. The following is a description of the information provided within each section of this master plan.

Section 1.0 Background » Background information to support London ON Bikes including an overview of the study process, London's cycling history, potential benefits, existing demand, best practices and the cycling needs of the community.

Section 2.0 Development » An overview of the process used to develop the cycling network, following the Municipal Class Environmental Assessment (EA) requirements. The section identifies the proposed vision and objectives, the network and supportive policies.

Section 3.0 Growing » Proposed cycling actions aimed at increasing cycling City-wide. The actions address engineering, education, encouragement, enforcement and evaluation – the same principles used for the Provincial #CycleON Action Plan.

Section 4.0 Implementation » Proposed strategies to help implement London ON Bikes. The section includes details on phasing, costing and funding, operations and maintenance and process to move from the planning stage through to design and construction.



1.1 The Planning Framework

Why do municipalities develop infrastructure master plans? A master plan can be an effective tool for improving a city in a way that reflects a common vision and set of objectives. London ON Bikes was developed as a collaborative effort between the City's service areas / divisions, community stakeholders, residents and founded on national and international best practices.

1.1.1 Project Process

London ON Bikes was developed between March 2015 and 2016. The master plan development process included four (4) phases. Each phase was informed by input provided by stakeholders and residents. **Figure 1** provides an overview of study steps, the timeline they were completed in, the objectives and results.

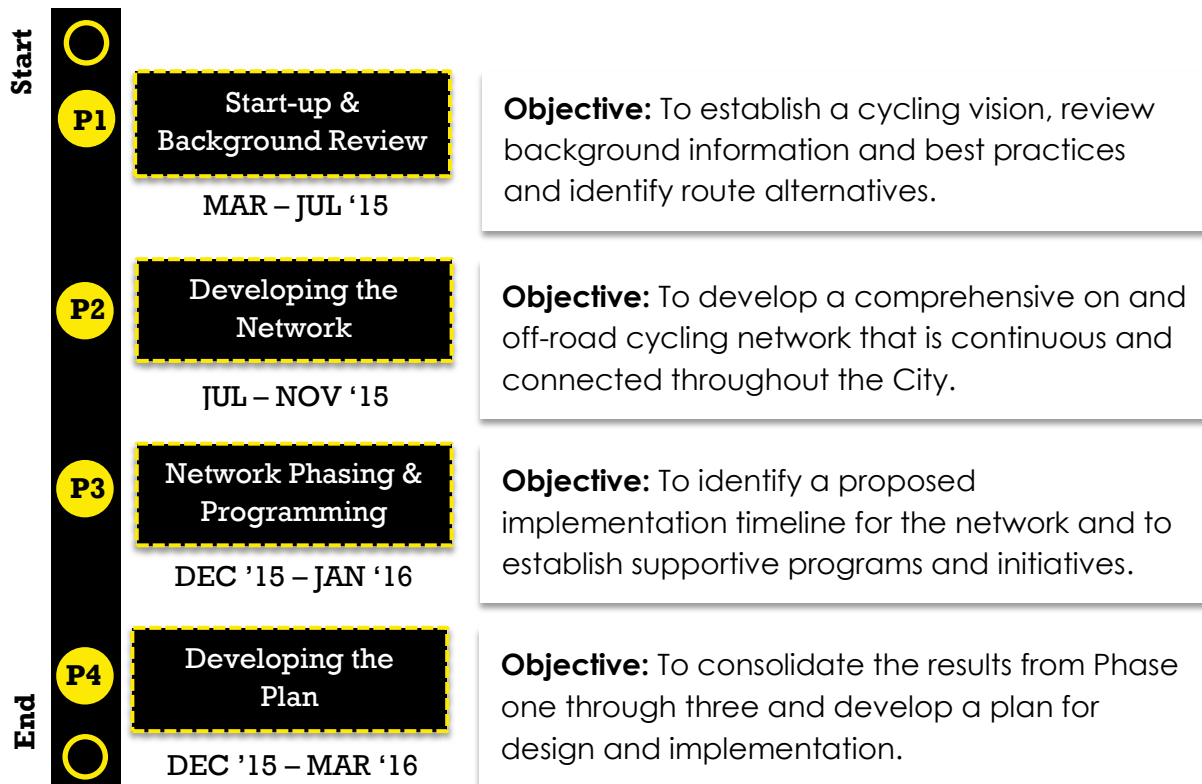


Figure 1 – London ON Bikes Project Process

Infrastructure (noun): The facilities (e.g. buildings, roads, water mains, hydro etc.) that are needed to make a City work / operate day-to-day.

Master Plan (noun): Long-range planning documents that identify infrastructure needs and a strategy for implementation.





1

1.1.2 Master Plans & Municipal Class EAs

Major infrastructure projects are typically completed using a process outlined in the Ontario Environmental Assessment Act known as the Municipal Class Environmental Assessment (MCEA). This five phase process (see **Figure 2**) is designed to engage the public, consider and assess alternative solutions and costs, and apply good engineering judgement. It also ensures environmental and social impacts are considered and impacts addressed.

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In addition to infrastructure projects, the EA process provides direction on the development of master plans. The master planning process is discussed in **section A.2.7** of the Municipal Class Environmental Assessment guide prepared by the Municipal Engineers Association. When developing a master plan “the master plan must address at least the first two phases of the Class EA process”. Because of the varying scopes and scales of master plans, there are five approaches which are defined in Appendix A of the MCEA guide. Approach #1 was used to prepare London ON Bikes. The expectations of this approach are defined below:

- Phases 1 and 2 of the MCEA process are expected to be undertaken;
- A master plan document will be prepared at the conclusion of Phase 1 and 2 of the process;
- The master plan document should be made available to the public for comment prior to approval by the City;
- The assessment completed for the master plan is done at a broad level thereby requiring more detailed investigations at the project-specific level in order to fulfil the MCEA documentation requirements for the specific schedule B and C projects identified within the master plan;
- The master plan is intended to be used to support future investigations for specific projects identified within it; and
- Schedule B projects require the filing of a project file and Schedule C projects have to fulfil Phases 3 and 4 prior to filing an Environmental Study Report (ESR) for public review.

London ON Bikes identifies a preferred cycling network. Preliminary assessments have been completed to help inform the selection of proposed routes and facility types. Some of these routes / facility types will require future site-specific assessment and investigation through future EAs and / or detailed design assignments.



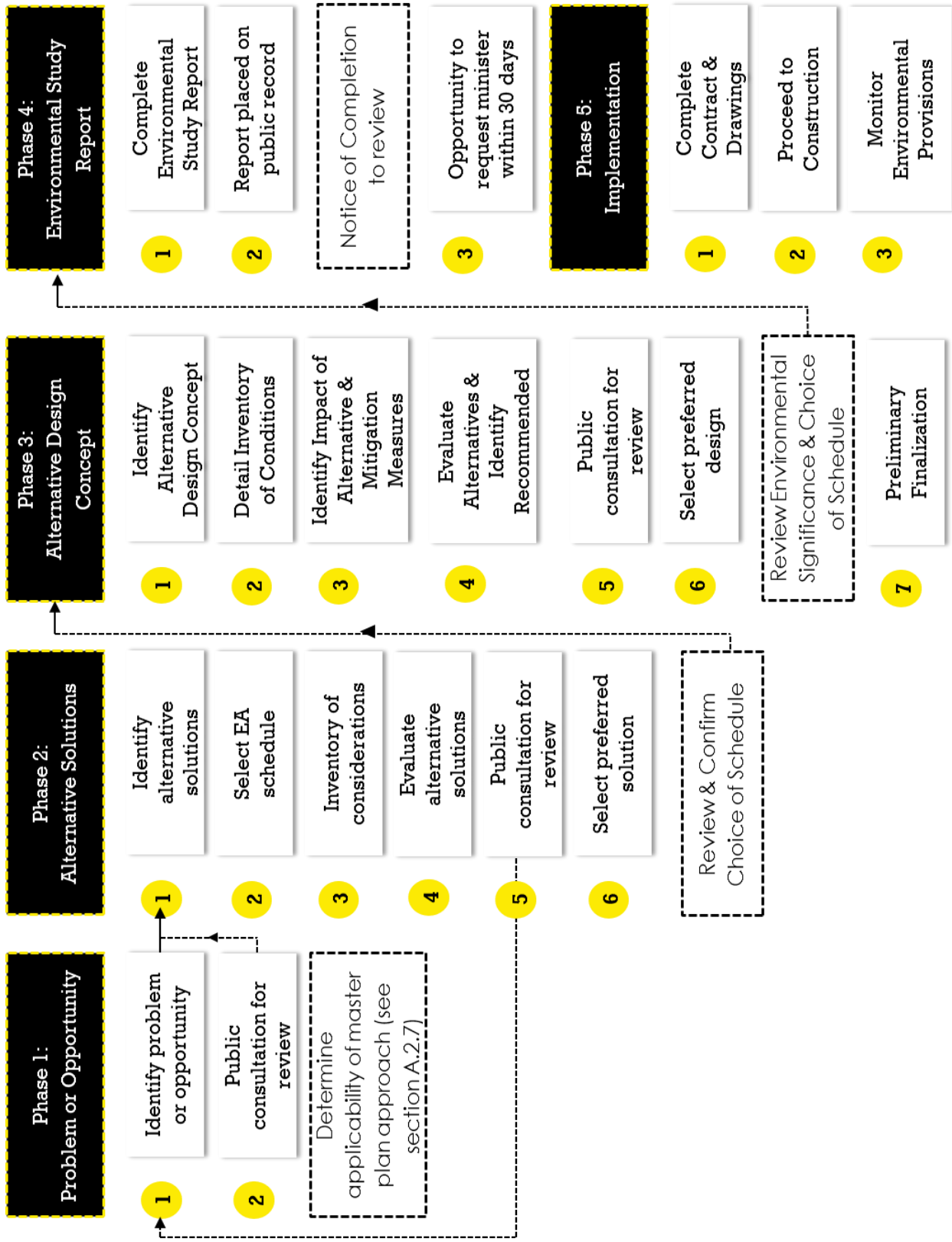


Figure 2 - Overview of the MEA Municipal Class Environmental Assessment Process (2011)
 Source: www.municipalclassea.ca/





1

1.2 The History

Londoners have long supported cycling. Over time, the City has emerged as a “Bicycle Friendly Community” through the implementation of cycling infrastructure, policies and promotional initiatives.

2

One of the primary objectives of London ON Bikes is to **build on past successes**. Successes include both soft and hard infrastructure implemented over the past 10 years – since the adoption of the City’s first Cycling Master Plan (2005). The following sections highlight the successes and foundation from which policies, programs and initiatives were recommended.

3

1.2.1 Previous Policies & Plans

Policies and plans that support cycling are found at all levels of government. At the provincial level, the Provincial Policy Statement and more recently the province’s #CycleON Action Plan and the Ontario Trails Strategy, provide policy guidance and support for cycling route development.

4

In London, the first comprehensive policy document identifying a long-term strategy to improve cycling was the 2005 Bicycle Master Plan. The master plan was complemented by the Bicycle Master Plan Implementation Strategy in 2007 and the Parks and Recreation Master Plan. Understanding the policies that support cycling as well as policies that may need to be updated to reflect new principles and priorities is an important step of the master planning process. As part of the development of London ON Bikes, existing municipal policies were reviewed based on key planning principles typically found in cycling supportive planning documents (see text box on page 6). The policies were assessed based on how much or how little each topic was addressed. The results of the policy scan are found in **Technical Appendix A**.

In addition to how policies address cycling, it is also important to understand their relationship to one another. Understanding the policy structure is an important step in understanding how to affect future change. **Figure 3** illustrates the relationship between various municipal policies.

Soft infrastructure (noun): Refers to programs and initiatives that support infrastructure such as a public service announcement on how to use a bike box.



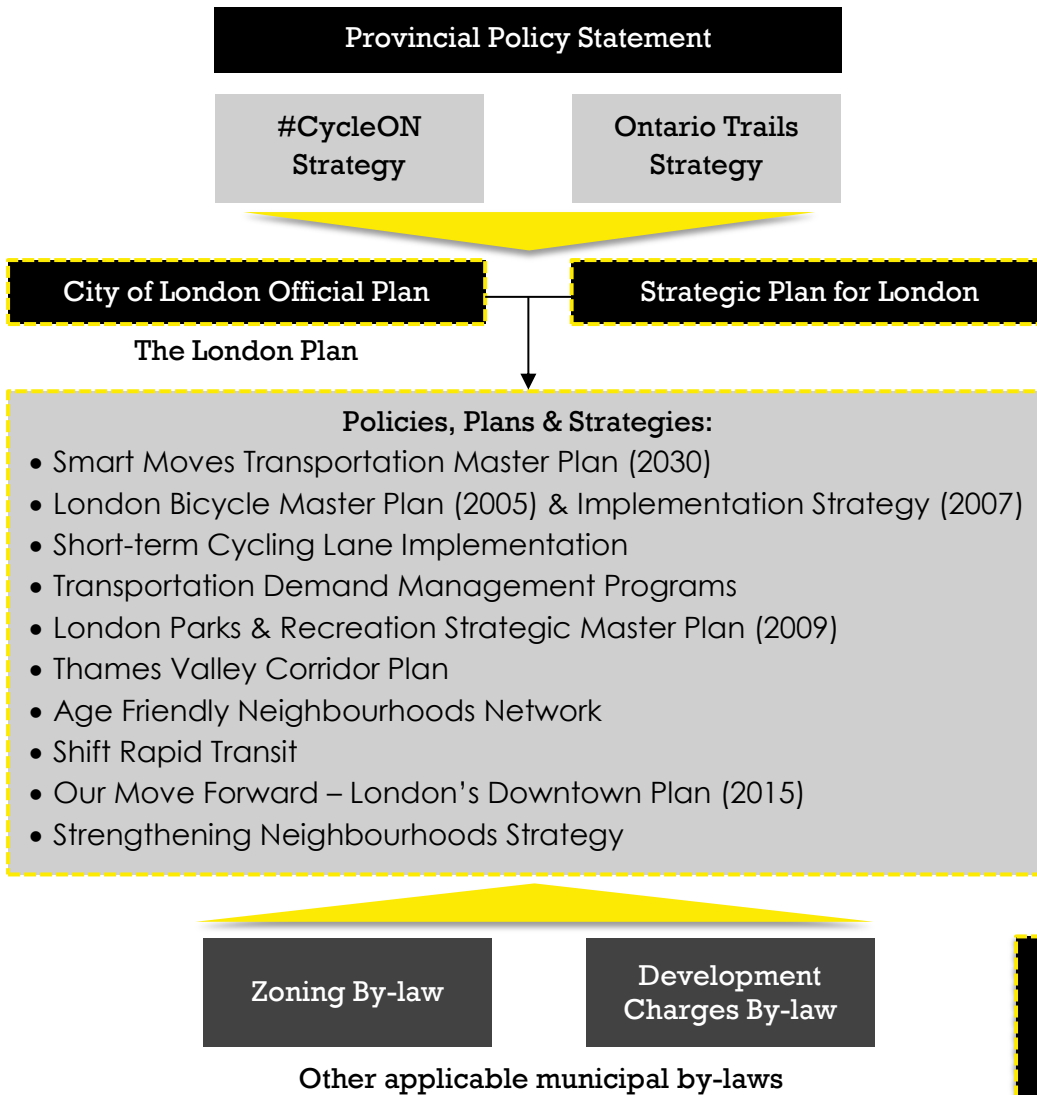


Figure 3 – Overview of Applicable Policies that Impact Cycling in London

1.2.2 Cycling Infrastructure

Build cycling infrastructure, and the likelihood is that people will use it. In the past 10 years the focus has been on implementing a system of cycling routes. Identified as a priority in the 2007 Implementation Strategy, the connected spine system of pathways along the Thames River was improved to provide direct access for cyclists to the downtown core and surrounding neighbourhoods. In recent years, the City has expanded the cycling system by constructing “on-road” cycling routes to improve and enhance the multi-modal transportation and recreation system; to accommodate growing demand from local cyclists; to achieve mode split targets outlined in the Transportation Master Plan; and reflect current best practices.





1

Cycling facilities can be categorized by the level of separation from motor vehicle traffic. There are three common “levels of separation”. These include:

- **Shared Facilities:** where the cyclist is asked to share the roadway with motorists.
- **Designated Facilities:** where cyclists are provided their own “designated” space delineated by a painted line.
- **Separated Facilities:** where cyclists are provided either physical or spatial separation from motorists and other road users.

2

3

When developing the master plan, **328 existing lane kilometres of cycling facilities** were identified. The total number of lane kilometres by facility type and graphic examples of each are illustrated in **Figure 4**. Additional details are provided in **section 2.3**.

4



Figure 4 – Existing Cycling Facilities in London, ON

On-road (noun): facilities implemented between the curbs on both sides of the road, allocated for transportation purposes.

Mode Split (noun): The percentage of travelers using a particular type of transportation or number of trips using said type of transportation.





1.2.3 Promoting Cycling in London

Increasing the number of cyclists in London requires facilities as well as initiatives that encourage people to cycle more and educate people how to cycle comfortably and safely. Developing and implementing cycling supportive and Transportation Demand Management (TDM) programs and initiatives is a priority for London. In 2013, 26 short-term TDM and active transportation promotion actions were identified, in part, with the aim of:

- Improving cycling facilities;
- Facilitating cycling for Londoners who want to ride more often;
- Creating a stronger community;
- Decreasing the number of cars on the road;
- Supporting the local cycling-related economy; and
- Encouraging healthier lifestyles.

Cycling actions are organized into four categories. The categories and a sample of some of the actions are presented in **Figure 5**.

Bicycle Parking	Cycling Projects	Cycling Events	Bicycling Promotion
Bike Parking (General)	Bicycle History Plaques	Bicycle Festival	General Cycling Information
Bike Parking (Stylized)	Bike Destinations	Ben Gomberg Speaking Event	Bike Safety Information
Secure Downtown Parking	Cyclist Count Data	Other Events	Bike & Walk Map
Bike Corrals	Recreational Cycling Routes		Cycling Master Plan Update
Bike Fix-it Stands	Share the Road Signage Program		UCycle

Figure 5 - Cycling Supportive Programs Implemented by City Staff

Transportation Demand Management (noun): The use of policies, programs, services and products to influence whether, why, when, where and how people travel. TDM measures help shape the economic and social factors behind personal travel decisions.





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In addition to the programs noted above, cycling programs and actions have also been identified through the Road Safety Strategy 2014 – 2019. The strategy was developed by the London-Middlesex Road Safety Committee with the goal of implementing programs that will bring a 10% reduction in fatal and injury collisions by 2019.

2

The London-Middlesex Road Safety Committee is made up of primarily London based organizations such as CAA, Fanshawe College, London Health Service, London Police Services, Middlesex County, Middlesex-London Health Unit, Ontario Provincial Police, Ministry of Transportation ON, Western University and Young Drivers of Canada. The strategy identifies 36 actions. A number of these actions are aimed at improving cycling safety. The actions that specifically address cycling are presented in **Table 1**.

3

4

Table 1 – London Road Safety Strategy – Cycling Actions Overview

No.	Action	Description
6	Pro-active Enforcement Program	Enhanced use of pro-active enforcement strategies – specific to high-risk intersections as determined by a collision screening program.
10	Signage & Safety Standards Consistency	Coordination of County and City standards for signage and safety measures at rural intersections.
24	Safe Routes to School Program	Review local issues around schools as an integral part of an active safe routes to school program.
26	Active & Safe Routes to School (ASRTS)	ASRTS is a community partnership. Interested schools are provided with a comprehensive strategy to meet the needs for safety and active transportation at their school.
28	Cyclist Crossing Enforcement Strategy	As a supplement to education and awareness countermeasures, targeted strategies for cyclists who cross the road in contravention of the act or applicable by-law will be enforced at select locations.
29	Collision Data Improvement Program – Cyclist	A plan will be devised toward sharing the LHSC Emergency Department Admissions data on cyclist injury among participating agencies.
30	Annual Addition of Bike Lanes	Continue the expansion of dedicated bike lanes on major roads as per the City's Cycling Master Plan.
31	Share the Road Signage and Educational program	Middlesex County, City of London, Middlesex-London Health Unit and London Middlesex Road Safety Committee launch a new Share the Road educational campaign.



1.3 The Business Case

In the past, some have questioned the rationale for cycling investments. Research shows building and promoting cycling as an option to get to work, school or for fitness and recreation can benefit communities in many ways. Establishing a business case which demonstrates the value of investments in cycling can help to articulate the importance of future commitments to improvements by the City and support from the community.

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Health: People who are inactive are at significant risk of cardiovascular disease, diabetes, cancer, hypertension, bone and joint disease and depression. Cycling burns more calories than driving and when incorporated into daily lives can have significant positive impacts.



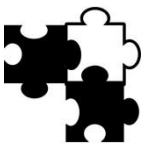
Environment: One litre of gas emits about 2.3kg of carbon dioxide when burned. Green House Gases (GHG) are one of the primary contributors to climate change. Transportation is a major contributor accounting for approximately one third of Ontario's GHG emissions.



Tourism: Cycling tourism is growing in Ontario at a fast rate. Research completed in 2010 indicates that over two million visitors went cycling while on their trip and spent approximately \$391 Million, an 18% increase in cycling tourism spending over the past year.



Safety: Research shows that as there are more cyclists on the road motorists become more aware of how to interact with them. Cyclists tend to feel more comfortable if there are other cyclists on the road which make them more likely to cycle.



Social: Cycling brings people together. It not only is a group activity but it can establish community goodwill and involvement – as shown through London Cycle Link and London's Cycling Advisory Committee. It builds strong families and communities by generating a common goal.



Economic: Economic benefits can include increased home values, lower personal transportation costs, return investment and employment. The capital cost to implement most cycling infrastructure is far less than widening a road and more trips can be accommodated in less space.

Business case (noun): an evaluation and justification for a proposed project or undertaking on the basis of its expected economic, social or environmental benefits.



1.4 The Support

1

Support for cycling is growing. Londoners' interest, involvement and enthusiasm have been made clear through the development of London ON Bikes and through the work of local interest groups to advocate for much needed improvements. The following sections establish the support based on input that residents provided, data collected on current cycling trends / demands and best practices from comparable municipalities.

2

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1.4.1 What are Londoners Saying?

Approach #1 of the MCEA process requires two rounds of public consultation. London ON Bikes went beyond these requirements and harnessed the interest and past efforts (e.g. London Cycling Advisory Committee, London Cycle Link, Middlesex-London Health Unit, Nature London, London Police Service, Fanshawe College and Western University, among others) to undertake a comprehensive, inclusive and equitable consultation and engagement program.

4

There were three (3) different forms of engagement – Formal, online, and informal outreach. **Figure 6** illustrates the various consultation activities (within the three categories) used to gather input from local residents, stakeholders, interest groups and technical agencies between January 2015 and December 2015.

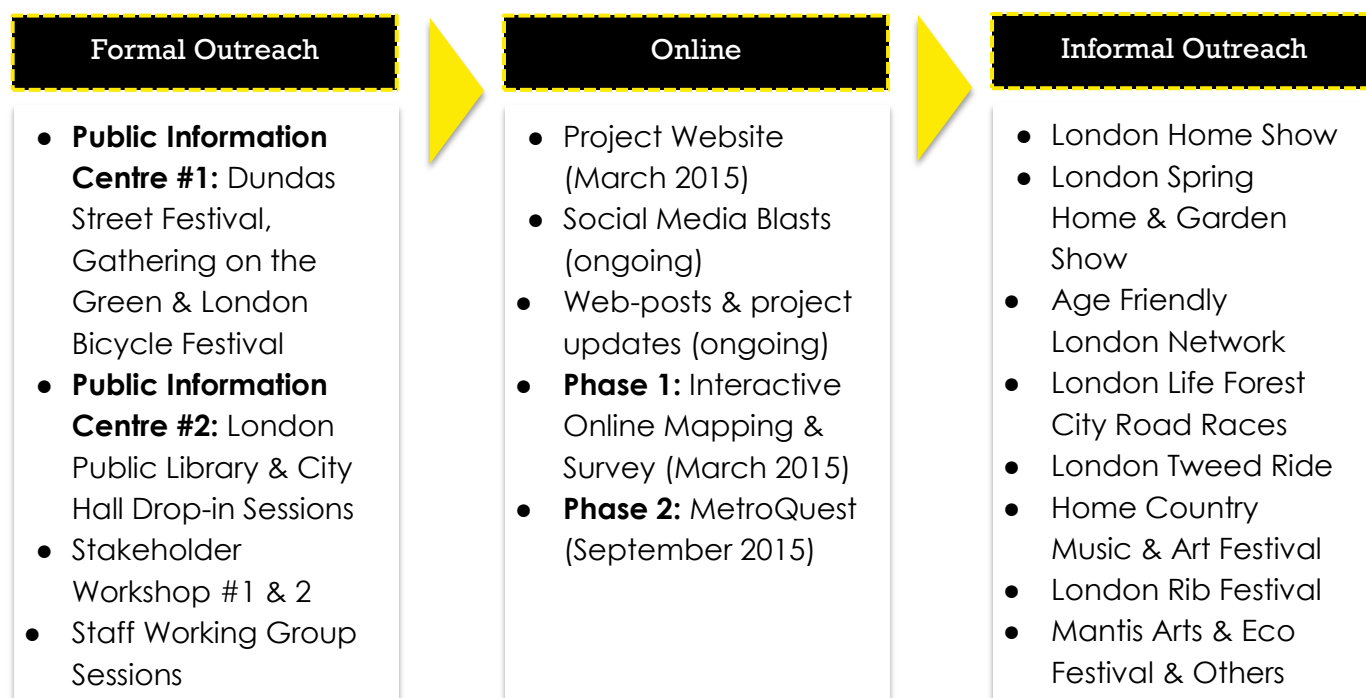


Figure 6 – London ON Bikes Consultation & Engagement Opportunities



Also included in the consultation program but not documented in Figure 6 was the development of an online hub for project information www.londonbikes.ca (see **Figure 7** – Snapshot of Project Webpage). The webpage was used as the primary location for project updates. It included an online survey, interactive mapping tool, web-activities and posted project materials. The website gave residents the opportunity to be more engaged in the project process and established a dynamic location for discussion.



Figure 7 – Snapshot of Project Webpage

A series of presentations were also made to select groups including the Cycling Advisory Committee, London Cycle Link and other City advisory committees. Periodic updates were also made to the City's Civic Works Committee. These opportunities to meet with and share ideas were valuable. They helped to foster collaboration and inform the content of London ON Bikes. Over the course of the project, over one thousand London residents were engaged. They provided numerous comments, questions and ideas on how to improve cycling. A detailed summary of the consultation activities and the input received is found in **Technical Appendix B**. A few frequently raised comments are presented below.



More bicycle Parking at key locations



Updated promotion tools (i.e. mapping)



Separation between cyclists and motorists



Improve cycling safety and comfort



Linkages to all neighbourhoods



Improved crossings for cyclists



Connectivity between facilities



Balancing budgets with improvements

Engagement (noun): the action or process of formally consulting, interacting and discussing with professionals, residents and stakeholders within a specific community.



1.4.2 Existing Demand

1

Londoners' are asking for safe, convenient and enjoyable cycling experiences. The demand is demonstrated by the growing number of people who choose to cycle. Cyclist counting technology has been implemented throughout the city to better understand current demand for on and off-road routes. 13 counters have been installed to assess bike lanes, signed bike routes and multi-use pathways. For the bike lanes and multi-use pathways, permanent bike counters are installed. The program will continue to grow to other facilities and areas throughout the city.

2

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As part of the consultation program, residents were encouraged to track their cycling trips using the online application "Map my Ride". The tool is a subjective, Global Positioning System (GPS) enabled, smart-phone app which allows people to track their bike rides. Information was gathered from the Map my Ride app as well as another online route tracking tool – "Strava". The information gathered through Map my Ride shows the density of cyclists on routes based on trips recorded. Strava includes more detailed information i.e. the number of cyclists at intersections and their typical wait time.

The information gathered from the three sources noted above was used to establish a "snapshot" of the existing cycling demand and routes used within London. Key highlights include:

- The highest volume of cyclists were documented on the off-road multi-use pathways with the greatest number documented in Springbank Park;
- High volumes of cyclists are documented at intersections in the downtown core with the highest volume documented at intersections where the wait time is low;
- The percentage of cyclist traffic is greatest during the peak hours i.e. 8:00 a.m. and 4:00 p.m. for on-road routes during the week-day; and

Initial Locations of Bike Counts:

- Bike Lanes:
 - Cheapside Street
 - Quebec Street
 - Ridout Street
- Multi-use Pathways:
 - Watson Park
 - Gibbons Park
 - Springbank Park (x2)
 - Stoney Creek Valley
 - King Street Pedestrian Bridge
- Rural Share the Road Signage
 - Carriage & Gideon
 - Sharon & Woodhull
 - Oxford & Westdel Bourne
 - Byron Baseline & Westdel Bourne
 - Carriage & Highway 402



- Cyclist volumes are highest on the off-road pathway during the weekends. On the on-road routes cyclist volumes are highest during weekdays.

A sample of the responses provided through the Strava mapping tool are presented in **Figure 8**. As shown in the legend, routes that experience higher volumes of cyclists are illustrated in red. Intersections that experience a high volume of cyclists are also presented using varying sizes of circles.



Figure 8 - Samples of Results provided by Strava Mapping tool

More detailed results from each of the tools noted above are provided in **Technical Appendix C**.



1.4.3 Best Practices

Learning from others is beneficial. An understanding of common trends, investments and priorities from comparable municipalities can help to support local improvements. Best practices from ten (10) municipalities within and outside of Canada were reviewed. A snapshot of lessons learned from comparable municipalities was created. A summary of the municipalities investigated is found in **Table 2**.

Table 2 – Overview of Best Practices Review

Municipality	Population	Mode Split Existing ¹	Mode Split Target	Cycling Routes ²	Master Plan
London	381,000	~1%	5%	324km	●
National					
Ottawa	870,250	2.5%	5%	700+ km	●
Toronto	2,800,000	1.7%	-	842km	●
Victoria	340,000	10%	-	64km	●
Hamilton	519,949	0.7%	10%	426km	●
Windsor	210,891	1.1%	-	40km	●
Kitchener	219,153	1.1%	2.7%	165km	●
International					
Portland	609,456	6.1%	25%	480+ km	●
Minneapolis	400,070	3.5%	-	204km	●
Madison	243,244	2.6 – 3.6%	-	262.6km	●
Copenhagen	569,557	36%	-	454km	●

¹ Mode Split represents the percentage of people using cycling as their primary option for transportation. London's value is approximate as a portion of a total active transportation share.

² Cycling Routes were documented as total roadway lane km for on-road facilities for all municipalities considered

From the ten municipalities investigated, three were selected for more detailed review. The following principles and lessons were highlighted - see **Technical Appendix D** for more details.

Minneapolis

- Build on the existing bicycle ridership (i.e. students and recreational)
- Provide facilities that a broad range of cyclists feel comfortable using
- Implementation of cycling facilities in a variety of contexts: off-road corridors, major arterials and quieter streets

Victoria

- Build an effective relationship with advocacy organizations
- Take time to understand the needs of prospective cyclists
- Provide sufficient budget to implement the outcomes of bicycle planning initiatives

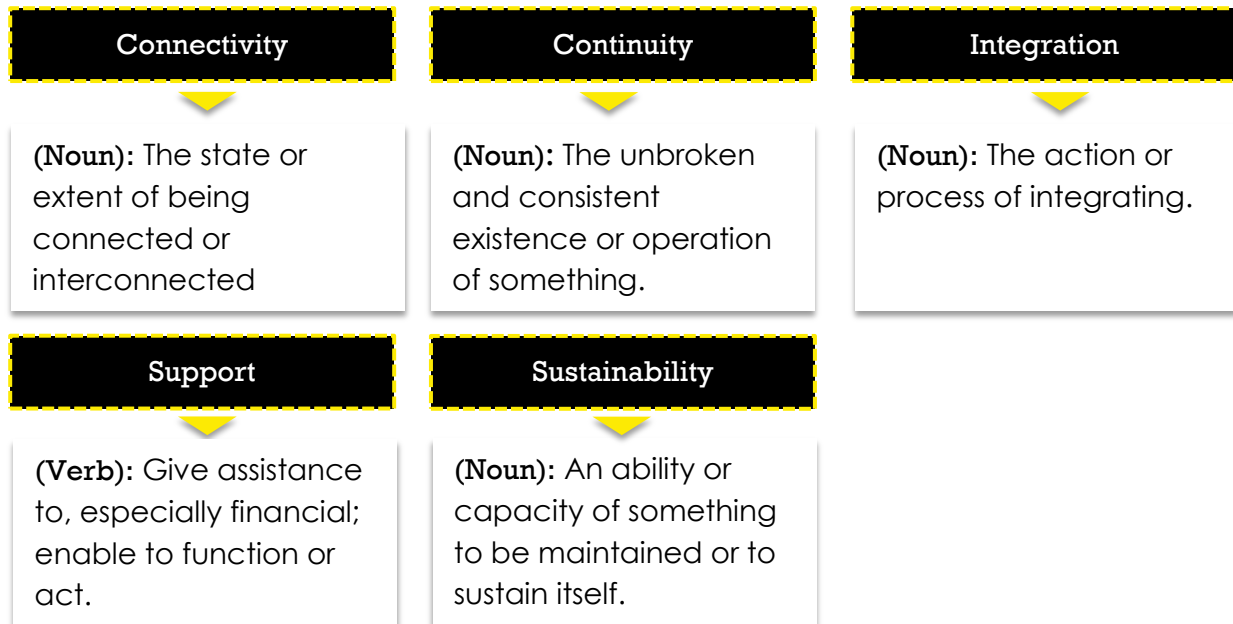
Ottawa

- Integrate land use and transportation planning policies
- Prioritize high-quality facilities that accommodate a wide range of cyclists
- Provide routes that link to major community destinations



1.5 The Needs

The cycling needs of London residents are directly influenced by the strategies and recommendations included in London ON Bikes. As part of the consultation program, residents, stakeholders and advisory committees were asked to provide their input on what was “needed” to improve cycling in London. Using this input, five, high-level cycling needs were identified.



CONNECTIVITY	
Considerations	What is Needed
A focus on bridging gaps in the existing cycling network – both on and off-road.	Identification and prioritization of gaps and missing links in the on-road and pathway system which when implemented establish extensive north-south and east-west linkages.
A dense urban core, suburban neighbourhoods and rural areas to the south making it challenging to travel by bike city-wide.	Identify cycling linkages and improvements in key neighbourhoods providing direct linkages between major trip generators and destinations.
Surrounded by a rural county with major cycling destinations and cycling tourism opportunities in surrounding areas.	Understand and connect to existing and previously proposed connections in surrounding municipalities and major cycling touring trip generators.





1

CONTINUITY

Considerations	What is Needed
Locations along the network where the transition from one facility to another are not clearly defined.	As new facilities are proposed design solutions to address transitions (i.e. signage, pavement markings, etc.) need to be considered based on the context of implementation.
Cyclists interacting with other forms of traffic at conflict points such as intersections.	High volume intersections identified and the design of intersections taking into consideration OTM Book 18 and MTO Bikeways Design Guidelines as well as other best practices.
Points in the system where on or off-road facilities meet roadways (both major or minor).	Understanding where pathways cross major roadways and identifying enhancements to accommodate safe and convenience by cyclists.

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SUPPORT

Considerations	What is Needed
Encouragement from local committees and interest groups helping to further community involvement.	Continued communication and ongoing collaboration with key groups including presentations, events and programs.
Buy-in from Council is growing highlighting the priority of cycling City-wide.	Continued communication and involvement of Council at all stages of the decision making process and highlighting successes as a result of work completed.
Funding is important to ensure that progress is made to implement infrastructure and supportive programs.	Ongoing discussions about appropriate budget allocation for all components of the project from planning through to construction, programming and maintenance.





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INTEGRATION

Considerations	What is Needed
Facility types that conflict with the surrounding land-uses and other infrastructure.	Consideration for surrounding land use and transportation characteristics when designing new cycling infrastructure and considering the possibility of retrofitting past facilities.
**Various departments are responsible for different components of the cycling network.	Building on the success of the previous Cycling Master Plan, developing ongoing relationships, coordinating and collaborating with partners and establishing a more transparent implementation process.
Cycling facilities and trips require other amenities and programs to encourage people to cycle throughout London.	Prioritizing the implementation of supportive amenities such as bike parking, events, signage and wayfinding, etc.

SUSTAINABILITY

Considerations	What is Needed
Consideration and awareness of environmental features and the impacts of future implementation.	When planning, designing and constructing routes, consideration should be made for policies included in the PPS and OP which restrict projects that result in net impacts to environmental features. Emphasis on low impact development.
Balancing budget availability with the objectives of the master plan and input from the public.	Designing an implementation program that reflects existing funding opportunities as well as external opportunities to implement improvements that meet master plan objectives.
Achieving effective and efficient implementation of the master plan along with other program and infrastructure commitments.	Coordinate the implementation of cycling infrastructure with large-scale capital projects and identify opportunities for future coordination.



2.0 DEVELOPMENT OF THE PLAN

The proposed cycling network is the cornerstone of London ON Bikes. The plan was developed using a process which builds on the input received from the public and stakeholders, the MCEA requirements (see **section 1.1.2**), best practices and lessons learned and the facility selection tool identified in Ontario Traffic Manual Book 18: Cycling Facilities. Using this process, guiding principles were established which lay the foundation for the proposed network, policies and strategies.

The following sections outline the process used to develop London ON Bikes – specifically the network; the foundational principles of the plan - the problem / opportunity statement, long-term vision and objectives; and the outcomes of the process.

2.1 The Process

The process used to develop London ON Bikes consisted of nine steps. It was an iterative process which builds upon the 2005 Council approved Bicycle Master Plan and Parks and Recreation Strategic Plan. The process was shaped by input gathered through consultation and engagement with London residents, interest groups, stakeholders and advisory committee members.

The majority of the process focuses on the development of the cycling network. The steps are consistent with phases 1 and 2 of the MCEA process and are founded on sound planning and engineering judgement. **Table 3** outlines each of the steps that make up the process used to develop London ON Bikes.

Table 3 - Overview of the London ON Bikes Development Process

1	Develop the Guiding Principles	Establish a problem / opportunity statement, long-term vision and set of objectives which shape the recommendations found within the report.
2	Understand Existing Conditions	To develop an understanding of “what is on the ground” now and to establish a current state of cycling within London.





3	Determine Criteria	To develop and confirm a set of consistent criteria to compare the route alternatives among each other.
4	Identify Route Alternatives	To build upon the previously approved routes and identify additional route alternatives for further investigation.
5	Investigate Alternatives	To undertake preliminary investigations of route alternatives at a master planning level of detail to identify select context specific considerations.
6	Identify Preferred Routes	To assess route options using the confirmed route selection criteria and results of the field investigation to identify preferred routes.
7	Determine Facility Types	To apply a process (based on best practices and provincial guidelines) to determine the most appropriate facility types for each route.
8	Identify Priorities, Strategies & Policies	Identify route phasing and specific priorities, policies and strategies to support cycling within London.
9	Identify Costs	Identify costs associated with the construction and maintenance of cycling facilities.

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2.2 Developing the Guiding Principles

2.2.1 The Problem / Opportunity

The problem / opportunity statement sets the stage for master plan strategies and recommendations and what they are aiming to achieve. In essence the statement identifies the problem that needs to be fixed or the opportunity that is available to be achieved. A cycling **opportunity** was identified for London.

London's comprehensive City-wide cycling network accommodates both commuter and recreational cyclists of various ages and abilities. It provides cyclists with a range of route and facility alternatives that are considered safe and comfortable by all users. The network is supported by policies, initiatives and strategies to guide coordination, facilitation, encouragement and education. Together they lay the foundation to help London residents shift from a car to a cycling culture.



2.2.2 The Vision & Objectives

Building on the opportunity statement, a master plan typically establishes a vision which the policies, programs, actions and recommendations in the plan are intended to help achieve (when implemented). The vision statement for cycling in London captures the interests and opinions of staff, stakeholders and the public and is also supported by other local policies, plans and initiatives. The long-term vision for London is to grow cycling within the City to a point where:

*"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."
(London Strategic Plan)*

The culture of cycling within London is encouraged and achieved throughout the City by providing infrastructure which is considered comfortable, safe and convenient. The cycling routes and facilities provide connections to all mobility choices for all Londoners. Cycling is part of the City's vision to grow as an age-friendly, sustainable City.

The vision is supported by six (6) core objectives. The objectives are meant to provide clarification on how the vision will be achieved and help to shape the policies, actions and recommendations identified through the master plan report. The objective, similar to the vision, reflect the City's existing priorities as well as long-term changes that the community wishes to achieve.



#1: Identify a network that builds upon the existing system and identifies improvements including new routes, enhancements to previous routes and transitions between on and off-road infrastructure.



#2: Provide design guidance in a consistent manner that builds on the guidelines provided in Ontario Traffic Manual Book 18: Cycling Facilities and City of London Design Standards for Recreational Pathways.



#3: Provide facilities that are considered comfortable for people of all ages and abilities including youth and seniors.





#4: Recommend appropriate maintenance practices and level of service to ensure that select on and off-road routes could be used year-round. For all routes, maintenance practices are determined by facility type and location.



#5: Prioritize network improvements to ensure that the network is strategically implemented to grow route connectivity.



#6: Build upon programs and initiatives developed by different departments, the health unit and tourism organizations to increase awareness and interest in cycling.

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2.3 Developing the Network

The development of a comprehensive GIS database and digital mapping was the foundation for London ON Bikes. The process was also informed by extensive public and stakeholder consultation at key milestones. More details on the outcomes of each step are presented on the following pages.





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1. Understanding the Current State

Using existing GIS information, a snapshot of the current state of cycling was created. Information was updated based on input from staff and field reviews. **Maps 1** and **2** illustrate the existing cycling routes in London at the time the plan was developed.

When reviewing the existing conditions the team identified a couple of key considerations:

- **In-Boulevard Pathways:** In-boulevard pathways are typically found along major arterial roads. Surface type (i.e. asphalt to concrete or a combination of the two) and design (i.e. width) can vary. Additional direction on how to design (both retrofit and new build) and maintain these facilities is needed.
- **Thames Valley Parkway (TVP):** This extensive pathway system follows the three branches of the Thames River and provides connectivity for both pedestrians and cyclists. The popularity of the TVP has grown which has led to some concerns about conflicts between users. There are, however, some key missing links and river crossings which need to be completed to increase connectivity.
- **Park Pathways:** There are a number of pathways that have been developed through linear park spaces in local neighbourhoods. These pathways provide both recreational and commuter opportunities but in some cases include incomplete sections, or do not connect to any on-road linkages.
- **Signed Bike Routes:** Many existing signed routes seem appropriate for the current context; however, in some locations improvements may be needed. In addition, the signage that has been implemented may not be consistent with current design guidelines and may need to be reconsidered as routes are retrofitted or implemented.
- **Access:** There are some communities outside of the downtown core that have limited access to the rest of the City by bicycle. Within these areas, there is a growing demand for more infrastructure to connect residents to key destinations in London – residential, employment, cultural, natural, etc..





2. Identifying Comparative Criteria

Designing a network of cycling routes that reflects similar objectives and principles requires a set of consistent criteria that they can be compared against. Criteria were developed that reflect the original criteria prepared for the 2005 Cycling Master Plan, Smart Moves 2030 TMP, project objectives as well as key design considerations identified through consultation with the public and key stakeholders at the first public information centre.

The criteria and key questions that were asked to assess route alternatives are presented below. A detailed summary of how the criteria were prepared is presented in **Technical Appendix E**.

Access & Potential Uses	Connectivity & Directness	Environmental Protection
Does the route connect to significant origins, destinations or nodes?	Does the route enable cyclists to travel a far distance efficiently?	Does the route avoid or have minimal, mitigatable impacts on natural areas?
Attractiveness or Aesthetics	Safety & Comfort	Cost
Does the route have scenic value enriching the cycling experience?	Does the route reduce the potential for user conflict?	Do the benefits of implementing the route outweigh the cost?
Consideration of Future Use	Tourism	Environmental Sustainability
Could the route increase the number of cyclists?	Does the route support local tourism and link tourism destinations?	Could the route reduce the number of cars on the roadway?



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Map

1

City-wide Map Existing and Previously Proposed Routes

Legend

Existing Cycling Routes

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

Previously Proposed Routes

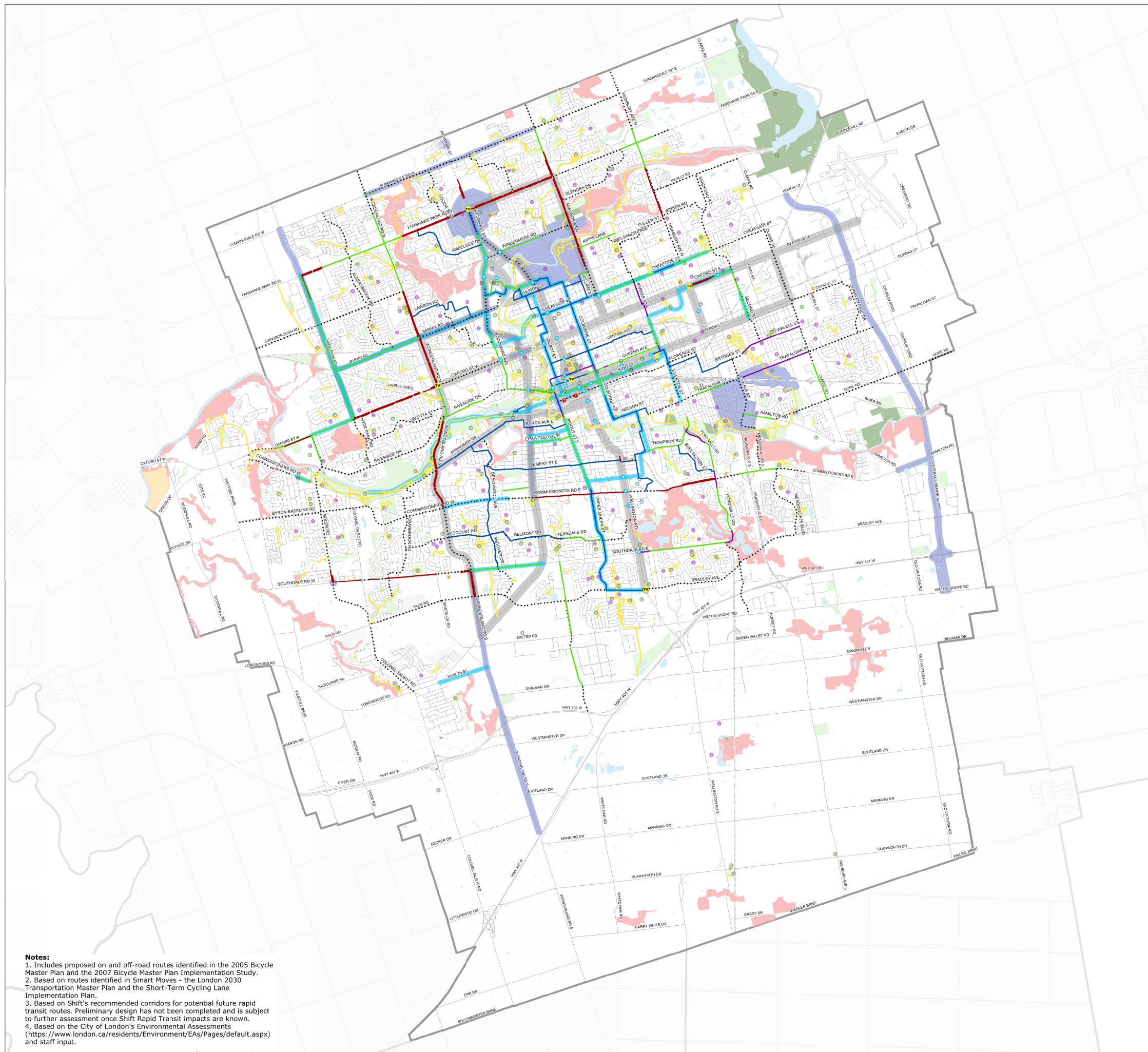
- Proposed Route¹
- Priority Project²

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 Route³
- Future Development Lands
- Environmentally Sensitive Area
- Future / On-going / Completed Environmental Assessments (Study Area)⁴
- Park
- Conservation Authority Land
- Provincial Park
- Watercourse



Notes:
 1. Includes proposed on and off-road routes identified in the 2005 Bicycle Master Plan and the 2007 Bicycle Master Plan Implementation Study.
 2. Based on routes identified in Smart Moves - the London 2030 Transportation Master Plan and the Short-Term Cycling Lane Implementation Plan.
 3. 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.
 4. Based on the City of London's Environmental Assessments (<https://www.london.ca/residents/Environment/EAs/Pages/default.aspx>) and staff input.

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Map

2

Central Area Map
Existing and Previously
Proposed Routes

Legend

Existing Cycling Routes

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

Previously Proposed Routes

- Proposed Route¹
- Priority Project²

Key Destinations

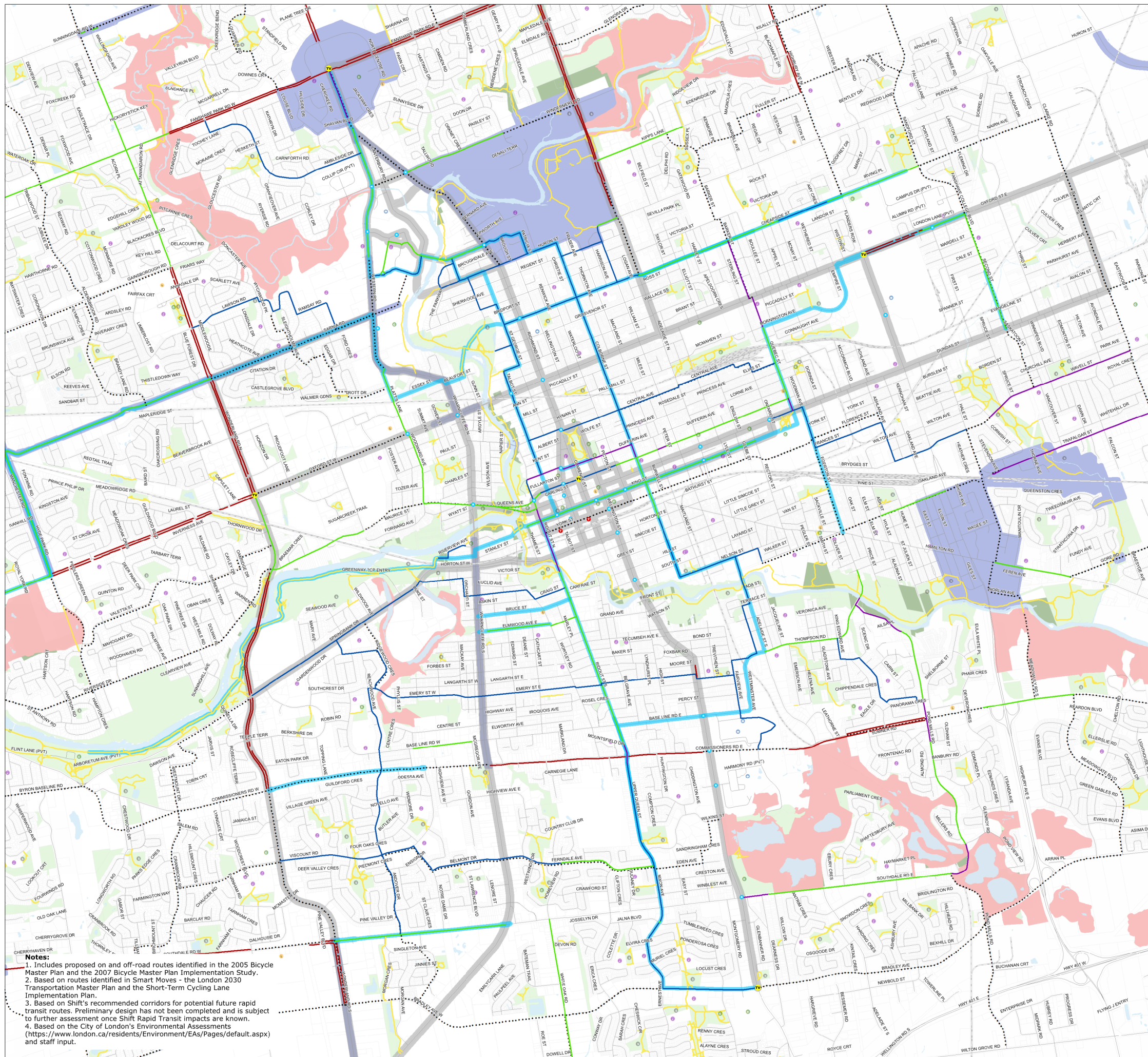
- Community Destination
- Potential Rapid Transit Station
- Hospital
- Public Library
- School
- Sport Facility
- Transit Hub
- Potential Transit Village

Other

- Road Network
- Railway
- Potential Future Rapid Transit Route³
- Future Development Lands
- Environmentally Sensitive Area
- Future / On-going / Completed Environmental Assessments (Study Area)⁴
- Park
- Conservation Authority Land
- Parcel Property
- Watercourse



0 0.5 1 2 Kilometres



Notes:

1. Includes proposed on and off-road routes identified in the 2005 Bicycle Master Plan and the 2007 Bicycle Master Plan Implementation Study.
2. Based on routes identified in Smart Moves - the London 2030 Transportation Master Plan and the Short-Term Cycling Lane Implementation Plan.
3. 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.
4. Based on the City of London's Environmental Assessments (<https://www.london.ca/residents/Environment/EAs/Pages/default.aspx>) and staff input.



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3. *Selecting Cycling Route Alternatives*

The process of selecting cycling route alternatives – also known as candidate routes - starts with an understanding of the types of routes that will make up the cycling network and the objectives of those routes. There are three types of routes that were considered for London ON Bikes:

- **Spine Routes:** North-south and east-west routes that link key destinations in a direct and efficient manner. The routes use major arterial/collector roads as well as the main TVP system of off-road pathways. Users may prefer the links to get to and from work, school or a frequent destination.
- **Local Neighbourhood Routes:** Routes on local neighbourhood roadways and in neighbourhood parks that build on the spine network. The links provide access to neighbourhood destinations but do not provide direct access and may be used more for recreational purposes.
- **Touring Routes:** Select linkages that provide access to the rural areas of the city and to surrounding municipalities which can be used for long distance cycling purposes.

Potential candidate routes were presented at the first public information centre and at stakeholder working group sessions held in June 2015. Three types of routes were presented:

- **Routes Within the Road Right-of-Way:** routes which are being considered along roadways between the two curbs.
- **Routes Outside of the Road Right-of-Way:** routes which are being considered either within the boulevard or within parklands / green spaces.
- **Desired Connections:** routes outside the urban growth boundary or outside known plans of subdivision where the alignment has not been reviewed through a formal process.

Attendees were asked to provide their input on the candidate routes and were also asked to identify additional routes. Input was documented on the maps presented and incorporated into the GIS database. The candidate cycling routes that were investigated through step 4 and assessed using the route selection criteria are illustrated on maps found in **Technical Appendix F**.





4. Investigating Route Alternatives

Field investigations to better understand the current conditions / context of the potential routes were also conducted to assess the various route alternatives. As routes were investigated, GPS waypoints and photographs were taken to document features that could influence the selection of the route.

The information gathered forms a “database” of conditions which can be overlaid in GoogleEarth™ and used as a tool as routes are implemented or the network is revisited when the master plan is next updated.

5. Selecting the Preferred Cycling Routes

The preferred cycling routes were ultimately selected based on the results of step 1 through 4, input provided from residents and stakeholders through the first public information centre and stakeholder meetings and the data / information collected through field investigations.

Information gathered that influenced the selection of preferred cycling routes is below:

- **Existing Roadway Width:** Routes were selected (where possible) where there was available width to implement a route without reconstruction. Bike lanes should be designed at a minimum width of 1.5m (measured from the curb face) and a motor vehicle lane can be a minimum of 3.3m (depending on the road traffic and speed) meaning that a road where a bike lane would be the most appropriate facility would typically require a minimum of 9.6m width.
- **Traffic Volumes & Speed:** Design guidelines recommend the use of the average annual daily traffic (AADT) volumes and the speed of traffic as a preliminary method of determining whether it is appropriate for a cycling facility. They should be considered in tandem to ensure that the “full” picture is being considered. If the operating speed is too high and there are a high number of cars/trucks travelling on the road it may be more appropriate to consider an alternate route.





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- **On-Street Parking:** Bike lanes adjacent to on-street parking lanes are not considered ideal by most cyclists, though they can work. There are some “newer” design treatments where a buffer or wider bike lane is introduced when on-street parking exists. However it is generally preferable to implement bike lanes on roads without on-street parking when feasible. The presence of on-street parking was assessed during the field investigation.
- **Environmentally Significant Areas (ESAs):** ESAs are not considered suitable areas for the development of multi-use pathways. These areas were mapped and identified.
- **Ongoing Planning Projects:** In some areas there are ongoing planning and engineering projects which will have a direct influence on how the roads and pathways will be aligned and designed. Many of these projects will be subject to ongoing EAs (e.g. Shift Rapid Transit). The design of future routes will be subject to future consideration upon the completion of these projects / EAs.

The recommended network of cycling routes and pathways is illustrated on **Maps 3** and **4**.

6. Determining Preferred Facilities.

Though the cycling network is meant to be one continuous and connected system, the approach used to determine appropriate facility types is different for on and off-road routes. Processes to identify the most appropriate facility were developed to reflect these differences.

The process used to identify the appropriate facility type for routes within the road right-of-way was consistent with the facility selection tool identified OTM Book 18. For routes outside of the road right-of-way, the process builds on this facility selection tool but reflects the context, location and unique considerations for pathway design. **Figure 9** illustrates the processes used.





Figure 9 – Facility Selection Process for London ON Bikes

The results of step 1 of the facility selection process are illustrated on **Maps 3** and **4**. The preferred facility types are illustrated on **Maps 5** and **6**. A summary of the total existing and proposed cycling network by facility type is presented in **Table 4**.

Graphics of the facility types noted in Table 4 are presented in **Figure 10**. Also included are the line colours that are used on **Maps 5** and **6**.



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Map

3

City-wide Map Existing and Proposed Cycling Route Hierarchy

Legend

Existing Cycling Routes

- Shared Facility
- Designated Facility
- Separated Facility
- Off Road - Primary Route
- Off Road - Secondary Route

Proposed Cycling Routes

- Shared Facility
- Designated Facility
- Separated Facility
- Off Road - Primary Route
- Off Road - Secondary Route
- Desired Connection¹

Key Destinations

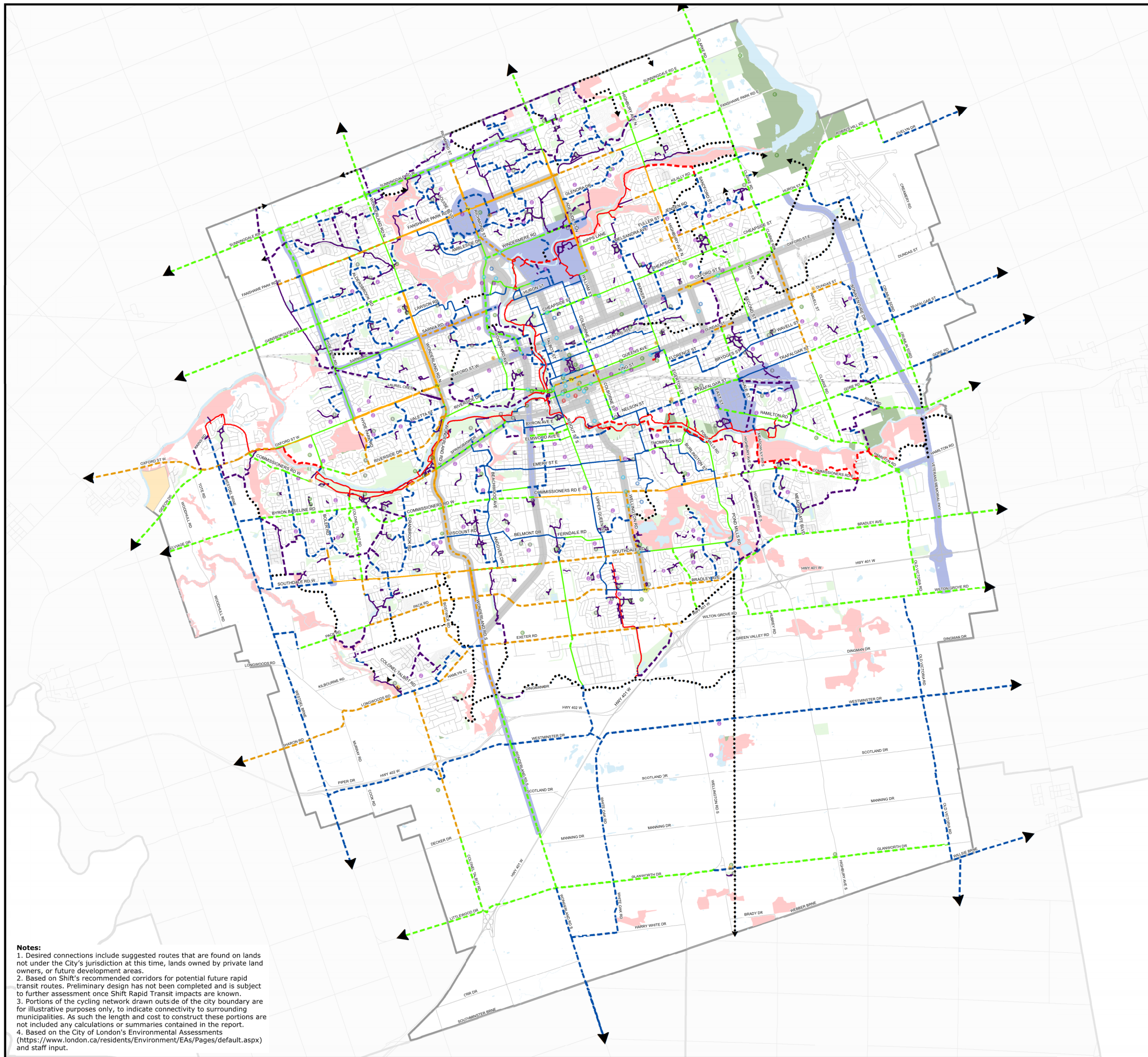
- Community Destination
- Potential Rapid Transit Station
- Hospital
- Public Library
- School
- Sport Facility
- Transit Hub
- Potential Transit Village

Other

- Road Network
- Railway
- Potential Future Rapid Transit Route²
- Future Development Lands
- Connection to Surrounding Municipality³
- Environmentally Significant Area
- Future / On-going / Completed Environmental Assessments (Study Area)⁴
- Park
- Conservation Authority Land
- Provincial Park
- Watercourse



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.



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Map

4

Central Area Map Existing and Proposed Cycling Route Hierarchy

Legend

Existing Cycling Routes

- Shared Facility
- Designated Facility
- Separated Facility
- Off Road - Primary Route
- Off Road - Secondary Route

Proposed Cycling Routes

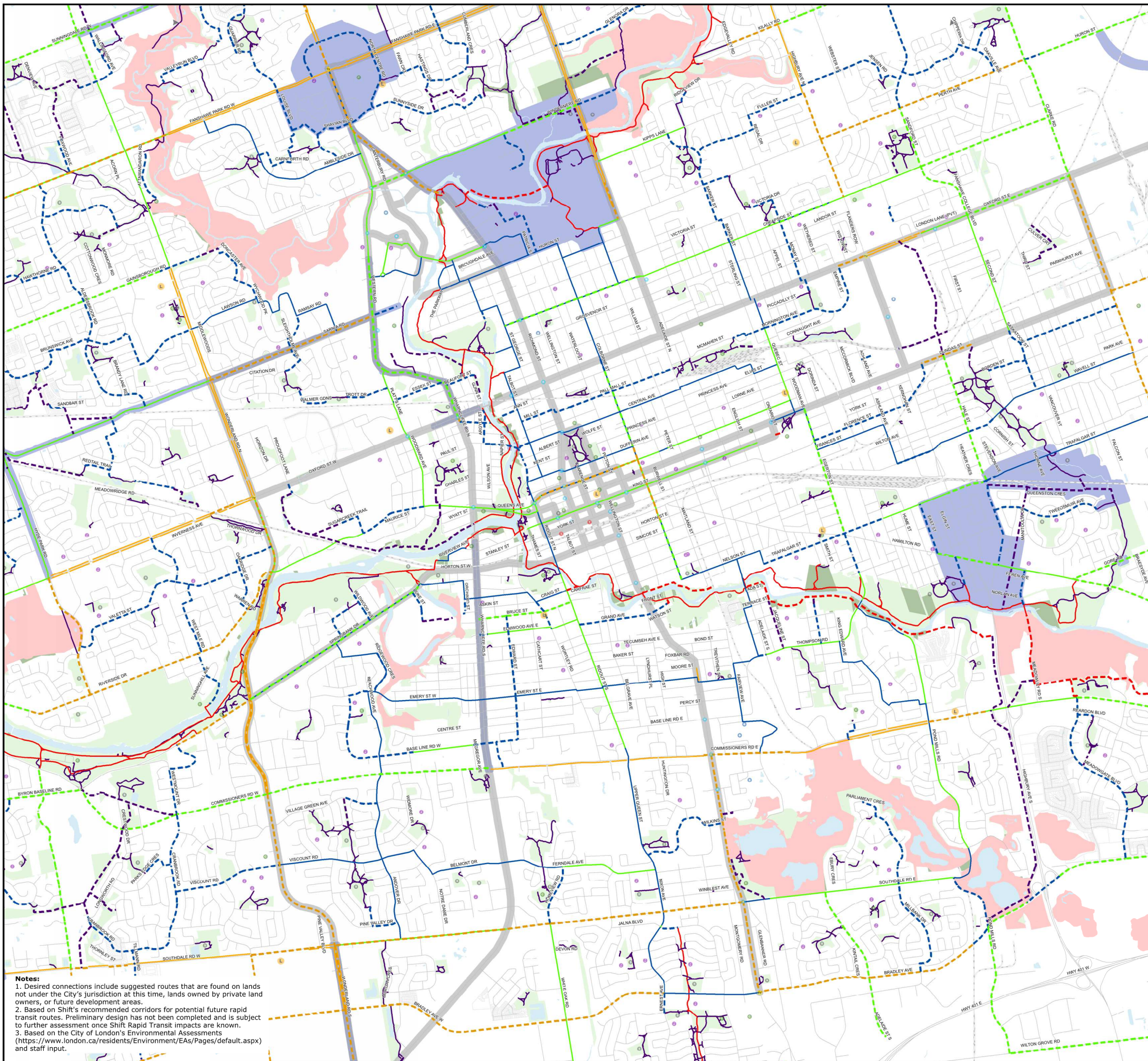
- Shared Facility
- Designated Facility
- Separated Facility
- Off Road - Primary Route
- Off Road - Secondary Route
- Desired Connection¹

Key Destinations

- Community Destination
- Potential Rapid Transit Station
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- Sport Facility
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Other

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Map

5

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

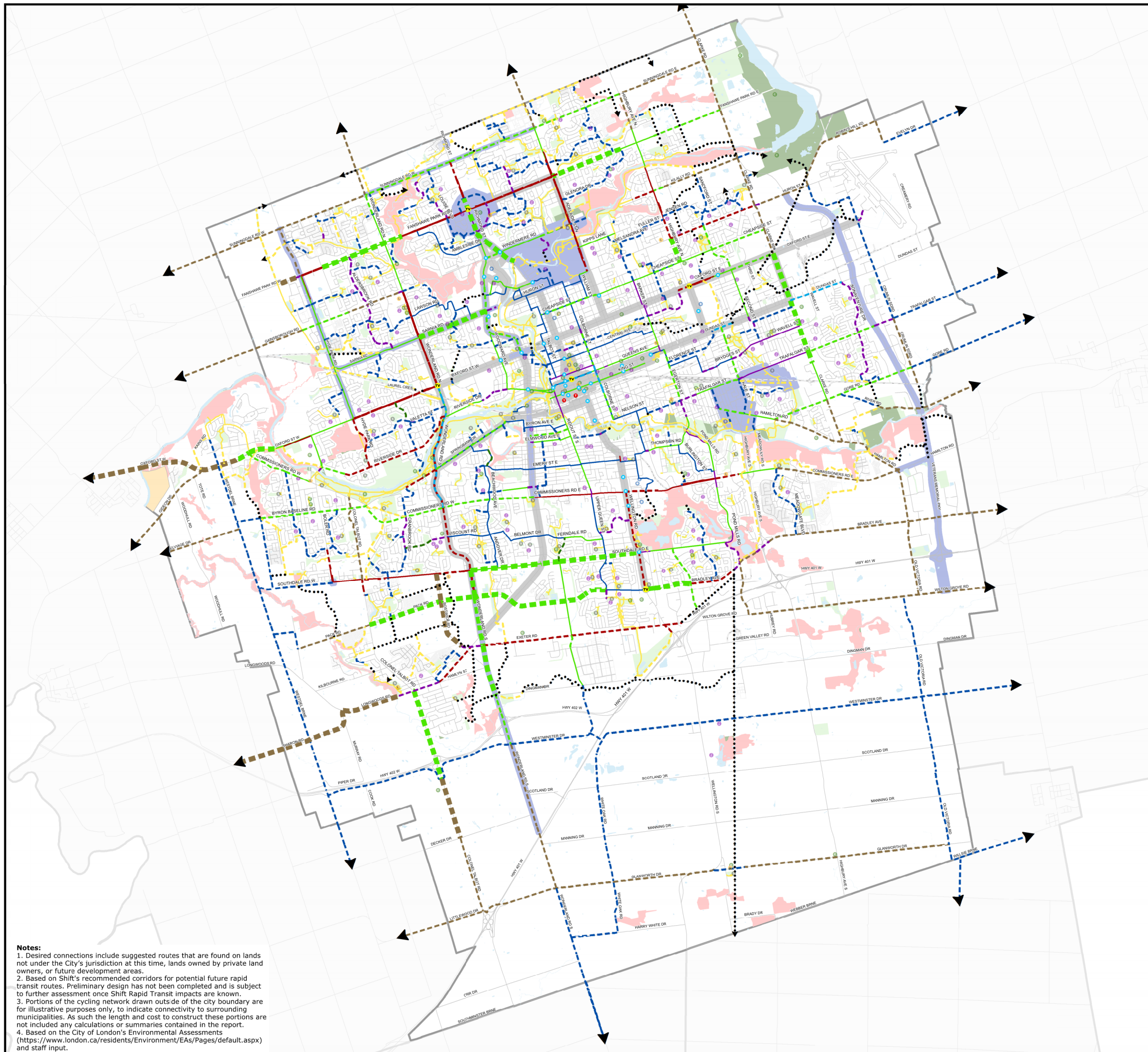
- Multi-Use Pathway
- In-Boulevard Facility
- Cycle Track
- Buffered Bike Lane
- Bike Lane
- Buffered Paved Shoulder
- Paved Shoulder
- Signed Route with Edgeline
- Signed Bike Route with Sharrow
- Signed Bike Route
- Desired Connection¹

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 Route²
- Future Development Lands
- Connection to Surrounding Municipality³
- Environmentally Significant Area
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- Park
- Conservation Authority Land
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- Watercourse



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.
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Map

6

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 Connection¹

Key Destinations

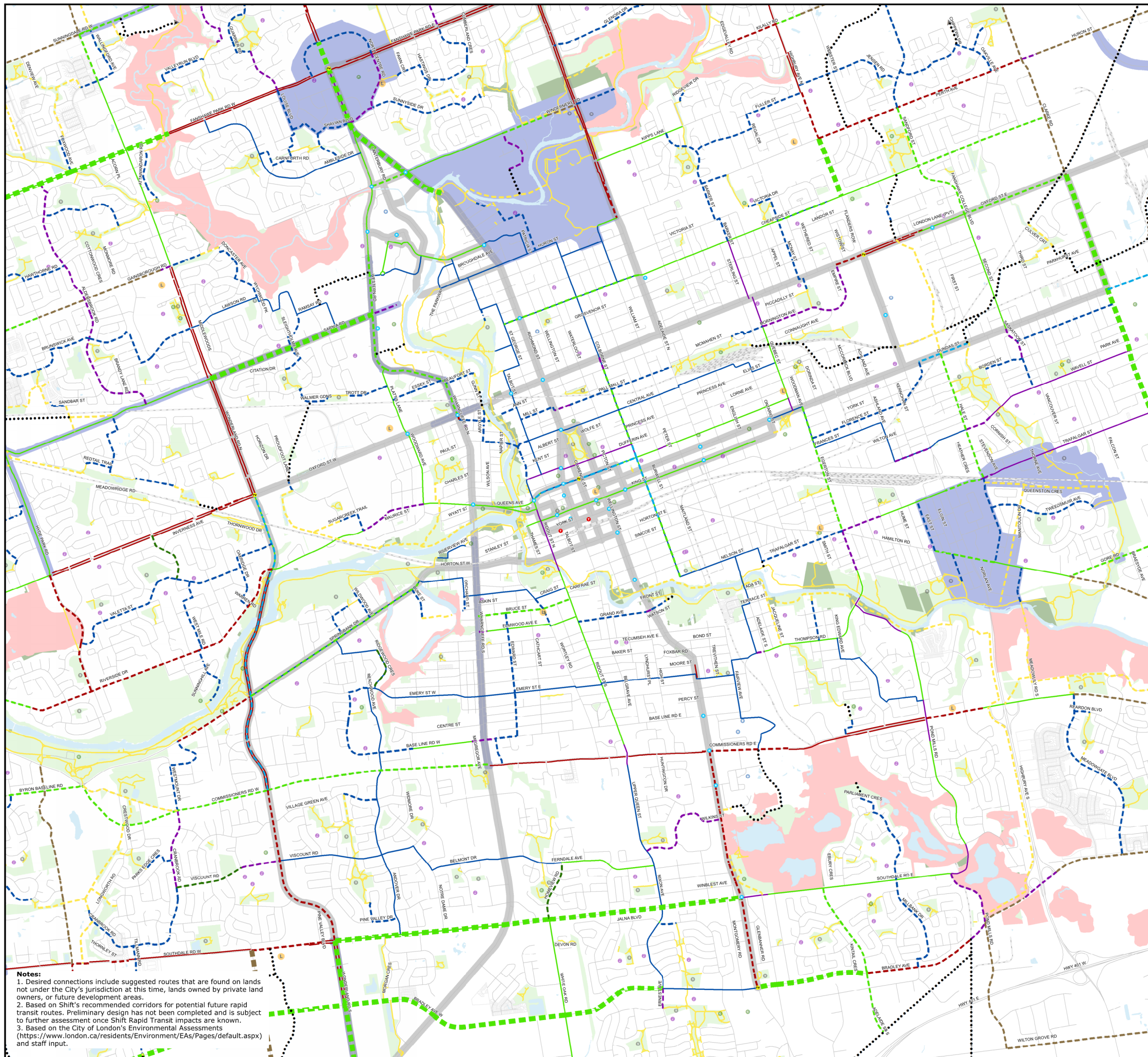
- Community Destination
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Other

- Road Network
- Railway
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- Future / On-going / Completed Environmental Assessments (Study Area)³
- Park
- Conservation Authority Land
- Parcel Property
- Watercourse



0 0.5 1 2 Kilometres



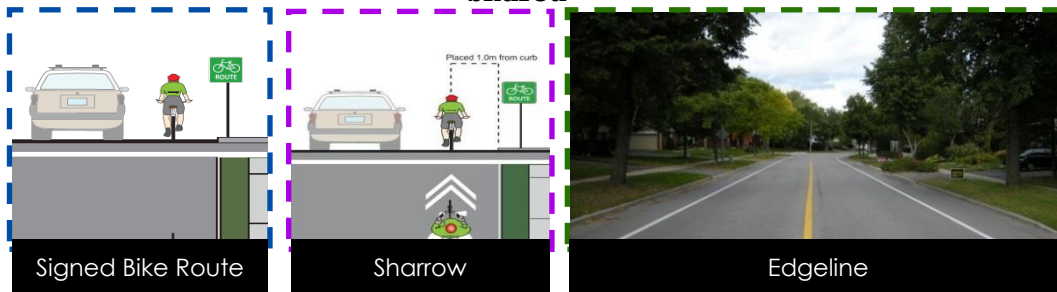
Notes:
 1. Desired connections include suggested routes that are found on lands not under the City's jurisdiction at this time, lands owned by private land owners, or future development areas.
 2. Based on Shift's recommended corridors for potential future rapid transit routes. Preliminary design has 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 4 – Overview of Existing & Proposed Facility Types for London ON Bikes

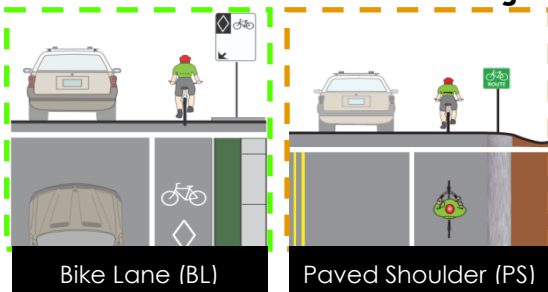
Facility Type	Existing (km) ¹	Proposed (km) ¹	Total (km) ¹
Shared Facilities			
Signed Bike Route	50.8	157.9	208.7
Signed Bike Route with Edgeline	0	2.6	2.6
signed Bike Route with Sharrow	10	23	33
Designated Facilities			
Paved Shoulder	0	81.6	81.6
Bike Lane	60	48.3	108.3
Separated Facilities			
Buffered Bike Lane	0	31.9	31.9
Buffered Paved Shoulder	0	10.7	10.7
Cycle Track	0	7.5	7.5
In-Boulevard Multi-use Pathway	42	28.2	70.2
Multi-use Pathway	166	78.7	244.7
Total	329	470	799

1. On-road facilities are measured per roadway km (i.e. includes bike lanes on both sides of the road). Pathways in-boulevard or in green space is based on linear km of Off-road Pathway.

Shared



Designated



Separated

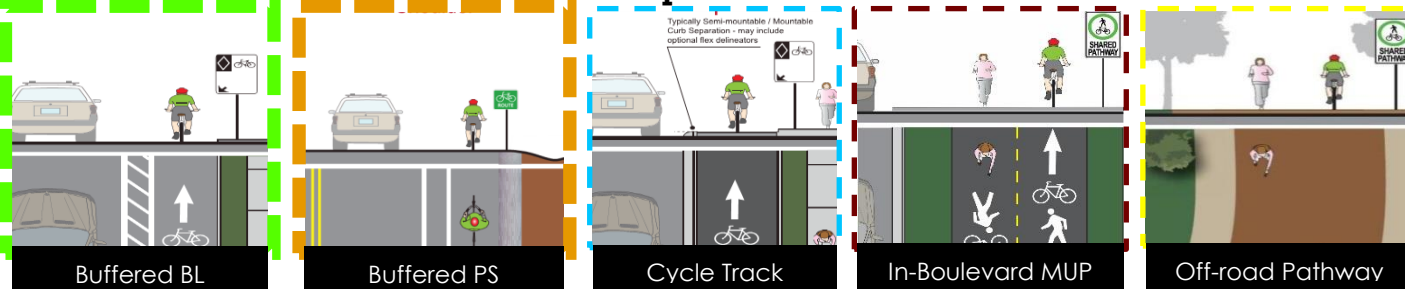


Figure 10 – Overview of Proposed Cycling Facility Types (colours correspond to the mapping)



Since the development of the 2005 Bicycle Master Plan and 2007 Implementation Strategy a number of guidelines and standards have been published which influence how cycling facilities are now designed. A list of applicable design guidelines and standards are provided below:

- 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](#)).

As part of the development of London ON Bikes, a set of design guidelines was prepared which reflect these new guidelines / standards. The new design guidelines primarily address cycling facility design for facilities within the road right-of-way and are found in **Technical Appendix G**.

The design guidelines presented in Appendix G are meant to replace those found within the 2005 master plan and 2007 implementation strategy, and are meant to complement other City guidelines such as:

- Urban Design Guidelines;
- Design Specifications and Requirements Manual; and
- 2007 Facility Accessibility Design Standards.

The outcomes of steps 7 through 9 are documented in **section 4.0**.



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Recommendations:

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1 The proposed cycling network illustrated on **Maps 5** and **6** is to be adopted as the guide for the implementation of cycling infrastructure in London.

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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.

3

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

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.

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2.3 The Policies

In addition to the network, policies play a key role in guiding the planning, design and implementation of cycling infrastructure. They directly impact future change and decision making. Based on the policy review completed (see **section 1.2.1**) and input received through the first round of formal and informal consultation / engagement, key policy trends were identified for future consideration.

Seven (7) policy trends were identified:

- Cycling facilities related to complete streets;
- Cycling on sidewalks;
- Cycling infrastructure and e-bikes;
- Risk management and liability;
- New developments;
- Established areas / intensification; and
- Accessibility.

The policy trends were investigated using best practices from comparable municipalities throughout Ontario. As a result, a number of policy considerations and recommended policy updates were identified. The following tables present the policy considerations for each of the trends, how it currently is being addressed in London and existing municipal policies which may need to be reviewed and revised (when next updated).





COMPLETE STREETS

Key Considerations	<ul style="list-style-type: none"> • The concept of complete streets is based on the principle that streets are meant to be designed for everyone. • They are meant to be designed and operate to allow for safe access by all potential users including pedestrians, cyclists, motorists, transit users, etc. depending on the content and function of the street. • The key to complete streets is that their design accommodates people of various ages and abilities. • Complete Streets can be implemented in both urban and rural environments and support streets as public spaces and destinations rather than just transportation corridors.
London Context	<p>Within London there is significant interest in the design and implementation of complete streets. Most recently the City's updated Official Plan makes reference to the development of a complete streets design manual. Consideration for how cycling is considered in the complete streets context will vary depending on the location but there are significant opportunities for coordination as the City moves forward with the implementation of the Rapid Transit strategy.</p>
Recommend	<p>Complete streets principles should continue to be integrated into future transportation related planning and design assignments.</p>
Policies / Plans Affected by London ON Bikes	<p>Smart Moves 2030 Transportation Master Plan Strategic Plan for the City of London Our Move Forward – London's Downtown Plan Urban Forest Strategy</p>

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CYCLING ON SIDEWALKS

<p>Key Considerations</p>	<ul style="list-style-type: none"> • The Highway Traffic Act (HTA) has been interpreted to generally prohibit cyclists from riding on a sidewalk unless authorized by a specific municipal by-law and/or directed by traffic signs or traffic control devices. A bicycle is defined as a vehicle under the HTA and states that a vehicle (including bicycles) shall be operated in a traffic lane. A sidewalk is not considered a traffic lane. • OTM Book 18 defines a sidewalk as a travelled way intended exclusively for pedestrian use. • According to the Provincial Manager of Specialized Patrol from the Ontario Provincial Police, the HTA does not specifically state that a bicycle cannot be operated on a sidewalk, but designates that a vehicle is to be operated in a lane and a sidewalk is not a lane. Given the OTM Book 18 definition of a sidewalk and the HTA provisions for vehicle travel, a cyclist is expected to operate a bicycle within a traffic lane or bike lane, unless otherwise permitted. • A discussion paper was developed which is intended to prompt discussions related to cycling on sidewalks with the public. As a result of the discussion paper, public opinions were heard and considered.
<p>London Context</p>	<p>Currently, the City of London Streets By-law (2014) prohibits cyclists from riding on sidewalks with the exception of those under the age of 14. Other policies speak to cycling on sidewalks including the Traffic and Parking By-law. Relevant sections of these policies include section 1.1, 2.12 and 2.13 from the Streets By-law and Section 1.0 and Part 1 of the Traffic & Parking By-law.</p>
<p>Recommend</p>	<p>Relevant policies should continue to prohibit cyclists from riding on sidewalks with the exception of those under the age of 14.</p>
<p>Policies / Plans Affected by London ON Bikes</p>	<p>Streets By-law (2014) Traffic & Parking By-law</p>

*A more detailed investigation of cycling on sidewalks has been prepared for the City's consideration. The document can be found in **Technical Appendix H**.





E-BIKES

Key Considerations

- A more detailed definition of where e-bikes are and regulations on where it is appropriate to use them (within the Province of Ontario) have been defined and adopted. These regulations provide municipalities with some challenges on where and how they should be permitted.
- When updating municipal policy, consideration should be made to:
 - Allow the use of e-bikes by police and emergency services in the line of duty so these can be used for use for patrols and emergency access;
 - Allow the use of e-bikes by municipal staff while performing duties, should the municipality wish to use e-bikes for some duties in the future rather than full sized service vehicles or gators; and
 - Monitor evolving best practices related to e-bikes, including any changes in legislation at the provincial level given this is an emerging issue that many municipalities are challenged to resolve.
- There should be additional consideration for how e-bikes can be integrated and accommodated into the design of cycling infrastructure. Though restricted on the pathway system, there should be consideration for defined locations where e-bikes may be permitted both on and off-road and a complementary education program the public on how to do so safely and comfortably.
- Where possible e-bikes should be considered as future cycling amenities are designed i.e. bicycle parking, bike share, fix-it stations, etc.

London Context

E-bike regulations are required not only for on-road facilities but also for the off-road pathway system. The potential for conflict between various users (i.e. pedestrians, cyclists and e-bikes users) requires more clarification on where and when e-bikes can be used. The Parks & Recreation By-law already defines and restricts the use of specific e-bikes along the City's pathways. In addition, speed limits have already been defined through municipal by-laws along pathways – another key consideration to restrict the use of e-bikes.

Recommend

Stay current with current regulations and restrictions on e-bikes as legislated by the Province and maintain City bylaws for consistency.

Policies / Plans Affected by London ON Bikes

City of London Streets By-law
Parks & Recreation By-law (PR-2)

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RISK MANAGEMENT & LIABILITY

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Key Considerations

- As bicycles are considered a vehicle under the Highway Traffic Act it means that if cycling facilities are improperly designed, constructed or maintained the City may be exposed to some level of liability.
- On-road facilities typically fall into the same liability category as roadways and sidewalks, as do off-road facilities that permit cycling.
- Because of past case law, cycling facilities would be considered under many of the same basic immunities as other Highways. This further reinforces the importance of adhering to provincial and national design guidelines and standards as they provide the greatest legal protection.
- The following considerations should be incorporated into day to day risk management:
 - Improve the physical environment and increase public awareness of user rights and obligations;
 - Design facilities in compliance with best practices;
 - Design facilities in compliance with applicable laws and regulations;
 - Monitor on and off-road facilities through regular patrols and document physical conditions;
 - Avoid use of the term "safe" or "safer" for cycling facilities;
 - Maintain proper insurance coverage.

London Context

The City's Risk Management Division is responsible for and dedicated to issues related to risk management and liability.

Recommend

As the cycling network is expanded, risk management and liability should be addressed. An approach to address issues related to risk management should be developed based on best practices to inform how to appropriately manage key concerns.

Policies / Plans Affected by London ON Bikes

Design Specifications and Requirements Manual
Smart Moves 2030 Transportation Master Plan





ACCESSIBILITY

Key Considerations	<ul style="list-style-type: none"> • The Accessibility for Ontarians with Disabilities Act (AODA) promotes the goal of making Ontario accessible for people with disabilities by 2025. The Accessibility Standards for the Built Environment applies to pathways, trails and sidewalks with the overall goal of designing spaces that remove barriers to buildings and outdoor amenities. • When designing off-road pathways facilities, the City should refer to the Built Environment Standards to ensure that the needs of all user groups are accommodated. • The requirements of the AODA must be met to the greatest extent possible, given the context of each route location, the surrounding environment and type of trail experience that is desired. Sections 80.8 and 80.10 provide the technical requirements for multi-use recreational pathways.
London Context	<p>The City of London adheres to the Accessibility Standards for Customer Service as well as the Integrated Accessibility Standards. The standards that impact cycling facilities include the standard areas of transportation and the design of public spaces. The City is already in compliance with many of these standards and is implementing their Accessibility Plan 2013 – 2017 to meet legislative deadlines. The City of London has also developed a technical design document – Facility Accessibility Design Standards (FADS) which empowers staff to design beyond the minimum requirements set out in the Ontario Building Code. These design standards speak to the design of trails and footbridges as well as pathways but makes no reference to access to cycling.</p>
Recommend	<p>Provincial and federal policy provides specific timelines and requirements that need to be met by municipalities in order to ensure that policies, processes and practices are consistent with the regulations set-out in the Act. As policies are updated, they should reflect the AODA regulations.</p>
Policies / Plans Affected by London ON Bikes	<p>Facility Accessibility Design Standards (2007) London Moves 2030 Transportation Master Plan Design Specifications and Requirements Manual</p>

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NEW DEVELOPMENTS

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Key Considerations

Planning for cycling facilities is a critical component of the land development process. When a new development is being designed and implemented, developers should be expected to work through a process to create an appropriate cycling network within their development area that reflects the intent of the master plan. Many developers understand and acknowledge the value of integrating cycling facilities into their projects. The added value that these features provide can have a positive effect on home sales and neighbourhood desirability. When integrating cycling into new development areas developers should consider topography, drainage, slopes, soil conditions, plant and animal communities, microclimates and human comfort, historic / cultural resources, public education and significant views and vistas.

London Context

The implementation of pathways throughout new development areas is not uncommon in London. Many of the new development areas have pathway systems. However, there are a number that lack on-road facilities or clear connections to surrounding areas. Efforts to implement cycling facilities within new development areas that connect to existing and proposed cycling routes identified in London ON Bikes should be considered a priority. Developers should demonstrate where and how these connections are being made at the time of Site Plan Approval and Plan of Subdivision. Site Plan bicycle parking requirements are beneficial but can sometimes be manipulated.

Recommend

Using London ON Bikes, information should be provided to local developers about the intended cycling connections within various areas of the city. The Site Plan development and approvals process should be reviewed and updated (as needed) to reflect the implementation of cycling facilities (i.e. connections to the cycling network). Connections should be made that are reflective of density, variety, hierarchy and character. The consideration of cycling facilities as part of the development process; conceptual / layout plans, detailed design drawings, development agreement requirements and inclusion under the development charges by-law should be explored. Site plan requirements should be reviewed to provide maximum benefit while considering the experience gained in past developments.

Policies / Plans Affected by London ON Bikes

Site Plan Approvals Process Reference Manual
Application for Draft Plan of Subdivision
Design Specifications and Requirements Manual





ESTABLISHED AREAS / INTENSIFICATION

Key Considerations	<p>Creating changes within established neighbourhoods in an effort to support intensification and urban growth can in some cases be challenging. The implementation of new cycling routes and facilities or the enhancement of existing facilities within established neighbourhoods is important to ensure that the transportation planning reflects the land-use planning existing and emerging trends. Though planned improvements are identified within a strategic planning document they may prove to be more challenging when they get to the point of detailed design and construction and will require a considerate and collaborative consultation process.</p>
London Context	<p>The London Plan is clear about the goals related to intensification for London. There are numerous established areas and neighbourhoods within the City which make up part of London's history and land use fabric. Many of these areas have employment, community and residential destinations which are attractive to residents and visitors. The London Plan sets out clear policies and direction on locations where intensification should take place and identifies the need for complete communities which includes complete streets which accommodate cyclists and other modes.</p>
Recommend	<p>Where new on or off-road facilities or linkages are proposed or significant improvements are being made to the existing route, varying levels of consultation will be required. The level of consultation should be determined based on the project location, required design approvals, scope / complexity, identification in London ON Bikes or other strategic planning documents and / or past support or issues raised by the community. Four levels of consultation should be considered:</p> <ol style="list-style-type: none"> 1. Notification – for projects proposed on City-owned lands produce a public notice 2. Neighbourhood meetings – for cycling projects approved through the master plan but not yet tendered. 3. Focus group sessions – an outcome of a neighbourhood meeting where revisions to the design concept are made to move forward with approvals 4. Broad Consultation for EA – where a project triggers an EA study and consultations are completed to meet EA requirements.
Policies / Plans Affected by London ON Bikes	<p>N/A</p>

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Recommendations:

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The policy considerations and recommendations should be reviewed and, where appropriate, should be integrated into Municipal policies. The policies and plans affected by London ON Bikes noted for each of the policy considerations should be reviewed by staff coordinating the implementation of the cycling master plan when it comes time for future updates or revisions to be made.

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.



City of London
Meadowlilly Entrance to the TVP



3.0 GROWING THE CULTURE

Actions affect change. In addition to infrastructure improvements and policy updates, London ON Bikes aims to improve cycling and increase the number of cyclists through engineering, education, encouragement, enforcement and evaluation - the Five "E's".

As noted in **section 1.2.3**, great progress has already been made related to cycling promotion and outreach. The development and implementation of innovative cycling supportive initiatives has been a collaborative effort between the City and its partners. The actions and recommendations identified in London ON Bikes build on these past initiatives and best practices from other municipalities. The following sections include an overview of the "five E's" and recommended strategic actions which are meant to be used as a guide for consideration by the City as London ON Bikes is implemented.

3.1 Following the Five "E's"

A bicycle friendly community is one that is able to demonstrate that they have achieved "success" in five key areas – known as the five E's. **Figure 11** is an overview of each of the categories.

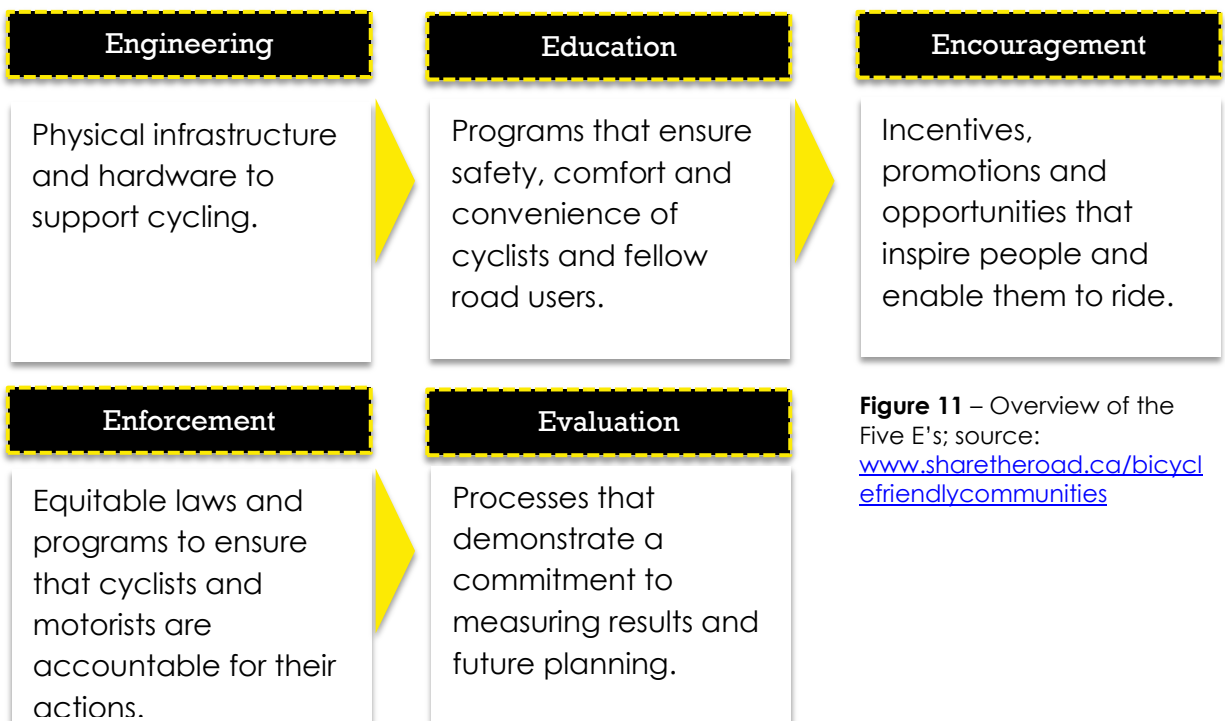


Figure 11 – Overview of the Five E's; source: www.sharetheroad.ca/bicyclerfriendlycommunities



As a Bronze Bicycle Friendly Community (a program of the Share the Road Coalition), London has already been recognized for its efforts. That said more is needed to maintain its status and with this plan, take the next step towards further accreditation.

3.2 Strategic Actions

In addition to infrastructure improvements, London needs programs and initiatives to further educate and encourage people to cycle. A total of fourteen cycling specific actions and strategies are either underway or proposed to be undertaken by staff in collaboration with community partners.

The list of proposed actions have been developed through community engagement and a review of other jurisdictions. This section provides overview details to serve as a reference and guide to help achieve further success and increase cycling in London. Detailed workplans (e.g., where additional feasibility studies are required such as a Bike Share Program) and/or changes to implementation plans (e.g., identifying & enhancing local cycling destinations) will occur as part of the annual cycling program. Municipal Council approved a 10 year funding program using Federal Gas Tax (see **section 4.4.2**) that will assist with these strategic actions.

Specifics such as implementation plans, budgets, timetable, partnerships, collaborations, promotional activities, etc. are undertaken at the project or program level which are not explored as part of a master planning project.



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Action #1 Developing a Wayfinding & Signage Strategy

Objective: Creating a cohesive and continuous system of on and off-road cycling facilities can be achieved by implementing a consistent visual identity in the form of a wayfinding and signage strategy.

Background: Signage and wayfinding has been considered a priority. A draft signage and wayfinding strategy has been developed for the Thames Valley Parkway (TVP) which identifies a family of branded signs which are to be implemented along the TVP. A second signage and wayfinding strategy should be developed which is geared at promoting on-road, touring routes which link major destinations and historical monuments.

Best Practices	Potential Application in London
<ul style="list-style-type: none"> • City of Burlington Wayfinding & Signage – Strategy • Hamilton Wayfinding Study – Overview • Sault Ste. Marie Signage – Concept 	<ul style="list-style-type: none"> • A proposed on-road cycling sign concept has been developed which builds upon the signage and wayfinding strategies previously developed - see Technical Appendix I • The proposed signage is intended to complement mandatory regulatory signage such as the green bike route and bike lane signs • There are three types of signs: <ul style="list-style-type: none"> ◦ Destination Signage: implemented where a decision needs to be made about which route to use to get to primary destinations ◦ Confirmation Signage: to confirm to cyclists that they are on the right route ◦ Directional Signage: to identify a change in direction for riders along the route
Five E's Support Status	Engineering & Encouragement Discussions and research in progress.





Action #2 Establishing a Winter Cycling Network

Objective: To provide cyclists with year-round commuter and recreational cycling opportunities and to guide maintenance efforts and practices and level of service.

Background: Described in further detail in section 4.3, the current winter maintenance practices are driven by the Province's Minimum Maintenance Standards. The maintenance of facilities within the road right-of-way is currently being undertaken consistent with these standards.



Best Practices	Potential Application in London
<ul style="list-style-type: none"> • City of Hamilton • City of Ottawa • City of Toronto – Cycling Facility Level of Service 	<ul style="list-style-type: none"> • Using the proposed cycling network a system of proposed cycling routes were identified to form part of a winter maintained network to accommodate cyclists throughout the City. The network is illustrated on Maps 7 and 8. • The intent is to identify existing linkages which provide direct access to major destinations such as the downtown and prioritize these as initial routes for potential winter maintenance. • Maintenance practices of cycling facilities should be defined by the Minimum Maintenance Standards. Once the MMS is updated, the City should consider defining their level of service standards to address cycling facilities. • As facilities are implemented, the City should consider the available budget and capacity to determine the level of service that is possible for winter maintenance of cycling facilities. • Maintenance should be considered not only for on-road routes but also for the off-road pathway system. Additional considerations for the maintenance of off-road cycling routes should be addressed prior to embarking on winter maintenance practices.
Five E's Support	Engineering & Encouragement
Status	In progress. To be discussed and further researched once the MMS has been updated and adopted.



City of London Cycling Master Plan Update

Final September 2016

Map

7

City-wide Map Proposed Winter Cycling Network

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

Winter Cycling Route

- Winter Cycling Route

Desired Connection

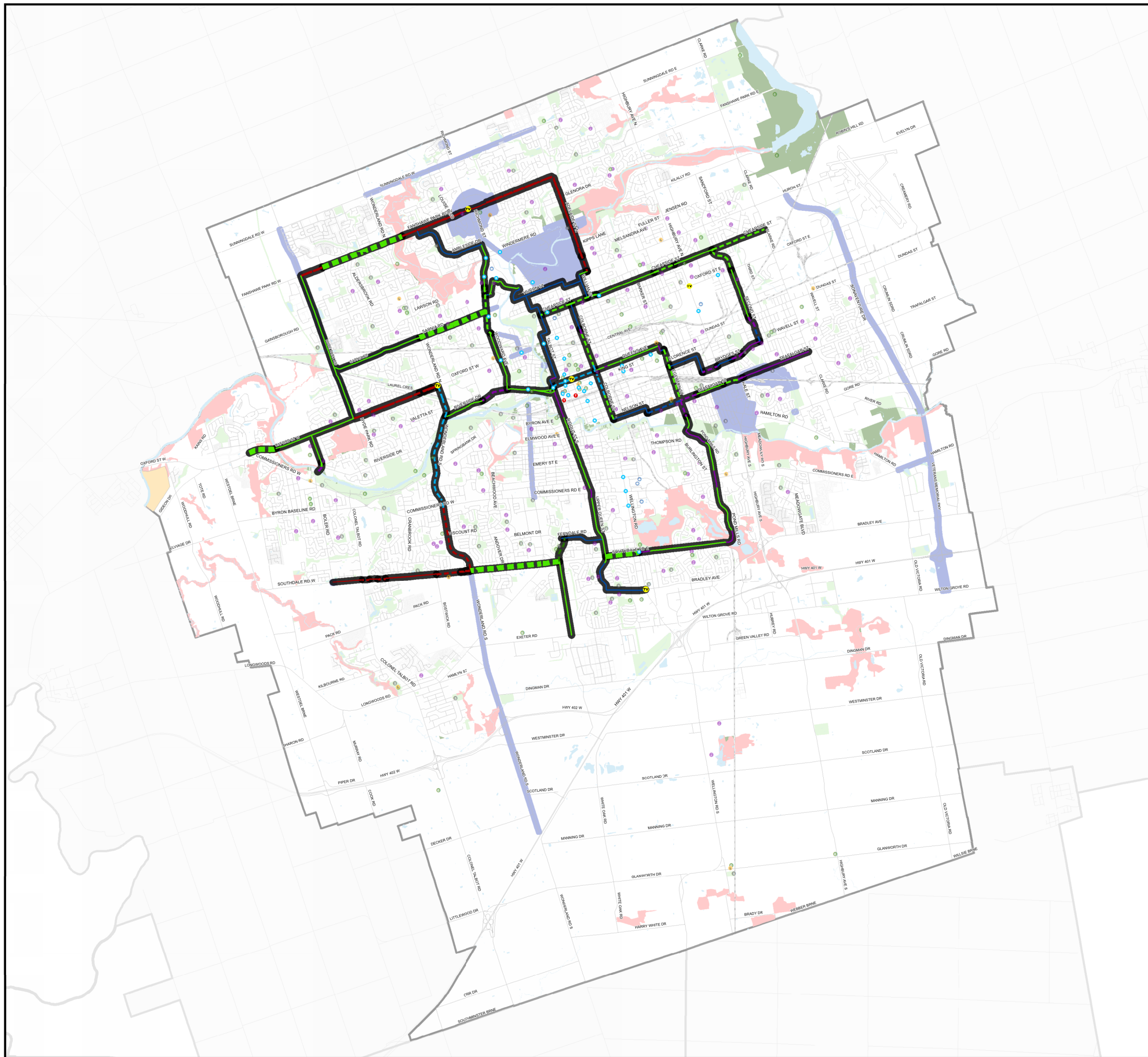
- Desired Connection

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
- Future / On-going / Completed Environmental Assessments (Study Area)
- Park
- Conservation Authority Land
- Provincial Park
- Watercourse



City of London Cycling Master Plan Update

Final September 2016

Map

8

Central Area Map Proposed Winter Cycling Network

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
- Winter Cycling Route
- Desired Connection

Key Destinations

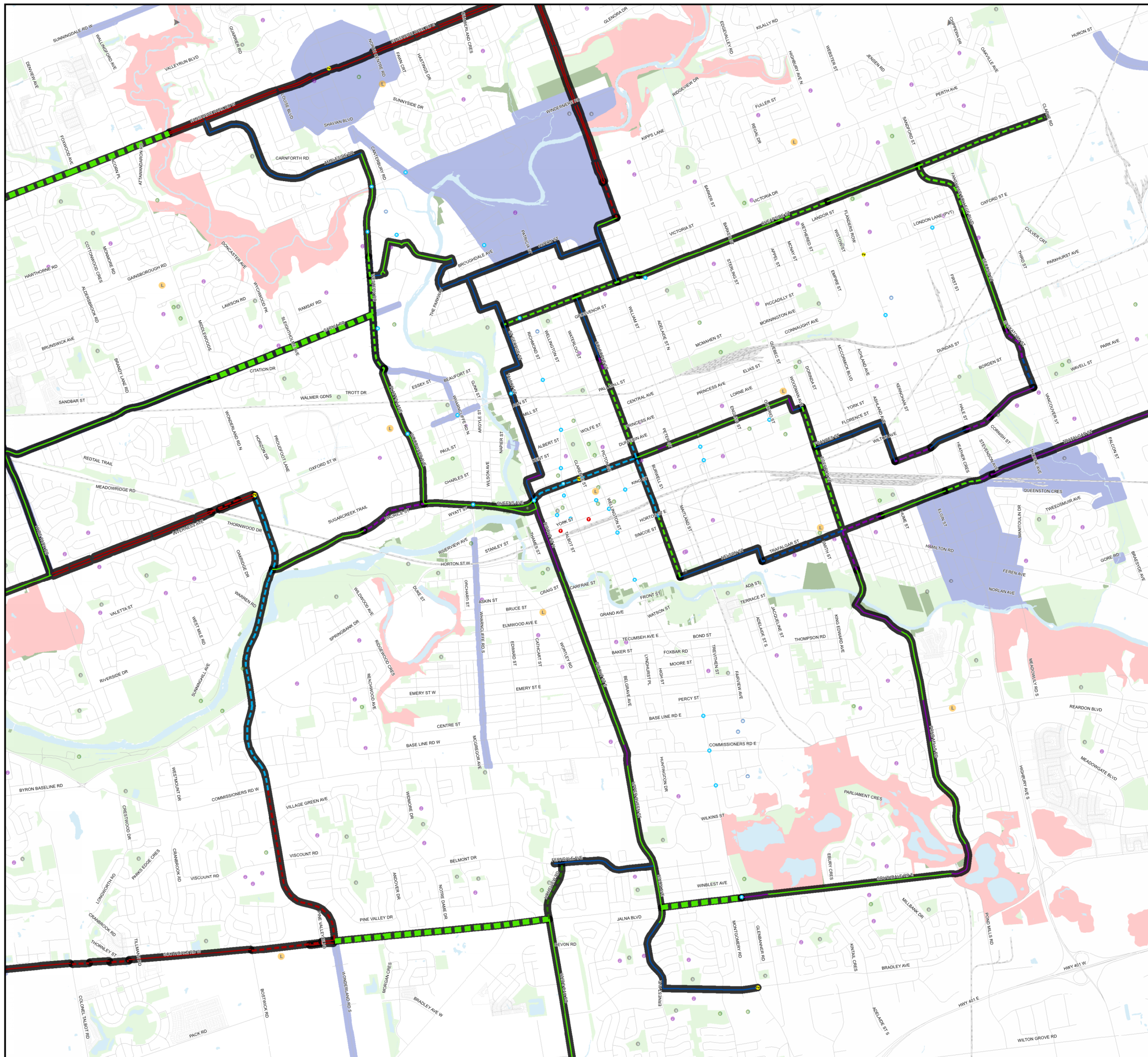
- Community Destination
- Potential Rapid Transit Station
- Hospital
- Public Library
- School
- Sport Facility
- Transit Hub
- Potential Transit Village

Other

- Road Network
- Railway
- Future Development Lands
- Environmentally Significant Area
- Future / On-going / Completed Environmental Assessments (Study Area)
- Park
- Conservation Authority Land
- Parcel Property
- Watercourse



0 0.5 1 2 Kilometres



Action #3 Identifying Touring Loop Routes

Objective: To provide cyclists – both residents and visitors of the City with a focus on novice / recreational cyclists – to explore various areas of natural and cultural significance by bicycle.

Background: Ten (10) recreational cycle touring routes have been identified throughout various neighbourhoods within the City. The routes were identified based on overall cycling experience and tie in to historical information about key areas and destinations.

Best Practices	Potential Application in London
<ul style="list-style-type: none"> • Greenbelt Cycling Route • Waterfront Trail • Greater Niagara Circle Route 	<ul style="list-style-type: none"> • Through the development of London ON Bikes the proposed recreational routes were mapped in GIS and reviewed based on the updated cycling network. • The revised draft Recreational Routes are presented in Technical Appendix J. No changes have been made to the naming, colours or the destinations identified along the route. • Also included in Technical Appendix J is a potential design concept for an informational sign which could be used along the route for all recreational loops and used to develop a promotional brochure or guide. • There should be consideration for the future promotion of the touring loops are they are implemented. Once completed, the possibility of a coordinated ride i.e. a tour de TVP should be considered. The event would be made possible through partnerships with local riding groups and made available to external tourists. Other external partnerships could include working with Open Doors London.
Five E's Support Status	Encouragement & Education Discussions and research in progress.





Action #4 Exploring a Bike Share System

Objective: To identify a system of “for rent” / “on-call” bicycles located at key destinations to provide residents and visitors with an opportunity to ride a bike to work, for fun or for fitness.

Background: When investigated in 2010, there were more than 350 bike shares systems in various countries throughout the world. The cities in which they have been implemented range from very large scale municipalities to smaller urban areas in North America, Europe and Australia. Within Canada there are now four (4) municipalities with bike share systems – Montreal (2009 with 500 BIXI bikes), Toronto (2011 with 1000 BIXI Bikes), Ottawa (2011 with 100 BIXI Bikes) and Hamilton (2013 with 750 Bikes). Vancouver will be implementing a system in 2016/2017.

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Best Practices	Potential Application in London
<ul style="list-style-type: none"> Hamilton Bike Share: Social Bikes Bike Share Toronto 	<ul style="list-style-type: none"> A potential bike share provider should be identified and selected – such as the one used for Hamilton's system or Toronto's system – to identify and work with partners to develop a business case for Bike Share in London. The roll-out and implementation of SHIFT rapid transit as an opportunity to coordinate multi-modal transportation opportunities including a possible bike share program. A medium scale system (i.e. 40 stations and 300 bikes) should be considered as a minimum for the City. In advance of implementation, a potential brand / name for the system building on the London ON Bikes theme or other municipal branding should be identified. The system as well as the brand should be specific and tailored to the City of London. Within the City of London, the University of Western Ontario (UWO) has launched their own University-specific bike share program – Purple Bikes. There may be an opportunity to build on and / or expand this initiative throughout the City or incorporate it into a wider scale system.
Five E's Support	Encouragement
Status	Discussion and research in progress. Further research is needed to ensure that a bike share is implemented that is unique to the City of London and appropriate for its context.





Action #5 Identifying & Implementing CAN-Bike Program

1

Objective: To educate residents – both adults and youth – with a priority on youth – through a series of courses taught on cycling, safely, effectively, and enjoyably on the road throughout the City.

2

Background: CAN-BIKE was originally introduced and is owned by Cycling Canada. Cycling Canada is the governing body for cycling within Canada and the umbrella organization for provincial and territorial cycling federations or associations, who promote cycling for all bicycle users. Cycling Canada also sets the standards for CAN-BIKE curriculum programming and certification which is then delivered by nationally certified CAN-BIKE examiners who train new instructors. National curriculum changes are approved through a national committee of examiners.

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CAN-BIKE delivery agents, such as community associations, municipalities, and individual/ independent instructors are considered to be franchisees of CAN-BIKE and are given authority to facilitate programming through venues as best suits their constituency's demand. CAN-BIKE programs have been rolled out all over Canada, to people of all ages and abilities, and this continues to be a widely accepted education tool for safer cycling both on and off-road. CAN-BIKE London is made up of nationally trained instructors and is working toward delivery of CAN-BIKE curriculums in the 3 counties – Middlesex, Oxford and Elgin.





Best Practices	Potential Application in London
<ul style="list-style-type: none"> • City of Mississauga CAN-Bike Program • City of Toronto CAN-Bike Program • York Region Cycling Education • Thunder Bay Cycling Education Programs Toolkit 	<ul style="list-style-type: none"> • Local supporters of CAN-BIKE London are actively involved with identifying venues for potential course delivery sites. For instance, the Active & Safe Routes to School program has identified a number of schools with "lack of cycling skills" as a primary barrier to use of active school travel. CAN-BIKE offers cycling training to ASRTS schools where applicable through referrals as part of their School Travel Plan. • Discussions are underway with Middlesex-London Health Unit for opportunities to help develop and distribute promotional and educational materials which could be used to inform citizens of the opportunities to participate with CAN-BIKE courses. • Local cycling advocacy groups and advisory committees such as London Cycle Link, London Cycling Club and London's Cycling Advisory Committee members are viewed as key supporters of cycling initiatives such as CAN-BIKE and have given input to opportunities for training venues or identified interest to become instructors or supplied support letters for CAN-BIKE London. • Where possible, the CAN-Bike program should be made available to as many individuals as possible by incorporating the program at key locations throughout the City. Consideration for accessible locations should be made.
Five E's Support	Education
Status	CAN-Bike London already exists. Additional instructors and venues are presently under discussion.

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Action #6 Creating a Cycling Specific Web Presence

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Objective: To provide residents and visitors with an online hub of information and ongoing promotion and outreach through online sources related to cycling, to celebrate cycling successes and to continue the discussion / momentum generated by the good work of local supporters through the Cycling Master Plan process.

2

Background: London's website contains cycling information which builds on other transportation related information. Middlesex-London Health Unit also has resources and information available for public review. As part of the development of London ON Bike the project team developed a website. It has been shown that when a brand or identity is introduced that it tends to encourage involvement and interest. Developing a website dedicated to the promotion of cycling initiatives and opportunities for involvement may help encourage visitors to the site and users of the system. There is also a strong social media presence made possible by communication staff. The social media presence has grown with time and will continue to do so as people continue to follow and rely upon online sources for information.

3

4

Best Practices	Potential Application in London
<ul style="list-style-type: none"> • Walk and Roll Peel • York Cycles • Edmonton – www.edmontonbikes.ca • Example - Norfolk 	<ul style="list-style-type: none"> • Building on the concept and content of the London ON Bikes study website, a primary online hub for cycling related information should be a priority. • Following the adoption of London ON Bikes, an online Hub as well as a web-enabled version of the cycling master plan to clearly communicate key recommendations to the public. • Websites are not meant to be static. Those involved in the implementation of the master plan should identify ongoing updates and content to maintain a dynamic page of relevant information. • An online hub should be complemented and promoted using existing social media with key messaging developed on a frequent basis related to cycling, the progress of the implementation of the plan and opportunities for future engagement and involvement.
Five E's Support	Encouragement & Education
<p>Status</p>	<p>Discussion and research in progress. Content developed for the London ON Bikes website could be used as the basis for a future cycling specific website for London.</p>





Action #7 Identifying & Enhancing Local Cycling Hubs

Objective: To educate the public on specific locations throughout the City that are considered cyclist friendly. These locations would include cycling supportive signage and amenities (e.g. benches, washrooms and waste receptacles to increase comfort).

Background: Five (5) significant City parks have been identified that could be enhanced through the implementation of cycling amenities to establish formal cycling destinations. The destinations are located throughout the City to provide geographic range and variation. A signage concept for the destinations is in the process of being developed and will be embarking on promotion and monitoring programs once implemented. Additional educational and promotional tools would help to increase awareness and use of these locations by local cyclists.

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Best Practices	Potential Application in London
<ul style="list-style-type: none"> • Ontario by Bikes – Bike Friendly Businesses • Northumberland County & Kawarthas • Hamilton & Greenbelt Areas – greenbelt cycling route • Haldimand & Norfolk County 	<ul style="list-style-type: none"> • Continue to implement the five cycling destinations and explore a formal “launch” of the destinations once the signage has been confirmed. • Identify other locations / destinations throughout the City which could be considered as future cycling hubs. These could include key destinations such as Western University, Fanshawe College, local hospitals and community centres. • The signage concept identified in Technical Appendix I should be reviewed and considered as part of the signage concept prepared for the cycling destinations. • A local cycling identity which could be used to promote the destinations should be developed through partnership with local stakeholders and interest groups. • Using the mapping prepared for London ON Bikes, promotional tools should be developed to highlight the destinations and the routes to access them. • An educational strategy on the location and use of these destinations is needed to complement promotional materials.
Five E's Support	Encouragement & Evaluation
Status	Discussion and research in progress. Additional consideration for signage concepts and details related to implementation to be considered.



Action #8 Enhancing Bicycle Parking

1

Objective: To provide cyclists with locations throughout the City to safely and securely lock up their bicycle when they arrive at a destination.

2

Background: The City has identified a number of bicycle parking strategies that they have been exploring and implementing over the past several years. There are a total of five (5) types of bicycle parking that the City has identified as preferred options:

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- **General Bike Parking:** Bicycle parking located on public property, which is intended to serve personal and business trips/use.
- **Downtown Parking Lockers:** Enclosed bike parking to be located at key downtown locations to serve downtown employers and employees.
- **Stylized Bike Racks:** 50 stylized bike posts were designed and produced to promote local neighbourhoods.
- **Bike Corrals:** On-street parking spots in place of on-street parking along major commercial corridors.
- **Bike Posts:** Bike posts have been installed at the entrances of to all of London's ESAs to ensure secure bike parking is available while Londoners hike.

4

Best Practices	Potential Application in London
<ul style="list-style-type: none"> • City of Toronto • City of Hamilton • City of Winnipeg • City of Edmonton 	<ul style="list-style-type: none"> • Input was reviewed and best practices and guidelines were reviewed and consolidated into a memo presented in Technical Appendix K. • In addition to the work already being completed related to bike parking in London, partnerships with local high-schools e.g. Specialist High Skills Majors program or post-secondary education facilities should be explored to produce more stylized bike racks which could be developed in conjunction with the development and promotion of the recreational cycling loops. • Continue to work through the Business Travel Wise Program to identify potential partnerships with employers but should also explore opportunities with other local employers.
Five E's Support	Encouragement
Status	Discussion and research in progress.





Action #9 Establishing Performance Measures

Objective: To establish a process to document and track successes realized through the implementation of the master plan following its adoption and to guide future decision making.

Background: Investments have been made in cyclist and pedestrian counters which are providing staff with a better understanding of how various facility types and routes are being used throughout the City. Though this information is very effective, it is also important to track other elements of the master plan as they are implemented and document the changes that occur as the further investment in cycling improvements and promotion are made.

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Best Practices	Potential Application in London
<p>*There are few municipalities that are tracking the performance of cyclists. In addition to bicycle counts the following models could be explored for London</p> <ul style="list-style-type: none"> • Bicycle Level of Service • Bicycle Compatibility Index • Bicycle Level of Stress 	<ul style="list-style-type: none"> • The proposed performance measures identified in Technical Appendix L should be reviewed and confirmed. • Specific performance measures may be needed for on-road routes and off-road routes but the frequency which they are used and tracked should be consistent. • The performance measures and documentation tool should be used annually following the adoption of the master plan. Reports should be generated and provided to Council. • An individual should be identified to be responsible for completing the annual application of performance measures and documentation of results. • To promote the findings from annual reviews, a "yearbook" or a "factbook" should be developed including key graphics and data which reflect the changes / improvements that have been made and the successes achieved.
Five E's Support	Evaluation
Status	Discussions started. Research to begin in 2016 and 2017 to explore the development and implementation of performance and monitoring measures.



Action #10 Designing & Implementing Crossings & Transitions

1

Objective: To provide direction on the design and implementation of cycling infrastructure at locations where crossing enhancement are needed or where there are clear points of transition between different types of cycling facilities i.e. off-road pathways to on-road cycling routes.

2

Background: One of the primary objectives of the master plan is developing a network of on and off-road cycling facilities that are continuous and connected. The extensive off-road pathway system means that there are a number of off-road routes that require crossings of major arterial roadways. There are also many different types of route alignments and facilities that are recommended. To create a seamless system of facilities requires consideration for and the design of intersections where the facility is different when entering the intersection than when exiting.

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Best Practices	Potential Application in London
<ul style="list-style-type: none"> • City of Toronto • City of Mississauga • City of Ottawa • City of Kitchener • City of Waterloo 	<ul style="list-style-type: none"> • Crossings should be implemented at the same time as the proposed route with the exception of those that already existing. Select locations were identified where crossings of major roadways are needed to make the connection between off-road pathways. In addition, information was gathered on high volume intersections with long wait times. These locations were mapped, assessed and a proposed design treatment (consistent with current design guidelines) was recommended. The proposed improvements are illustrated on maps found in Technical Appendix M. • The crossings / intersection treatments should be implemented at the time of route construction but for those where the routes are existing, the crossings should be reviewed and immediate priorities selected based on available budget. • Points of transition should be considered when implementing a facility. At the beginning and end point of a new route, there should be consideration for the connection that is being made and whether additional design treatments i.e. pavement markings, signage, etc. is needed to facilitate the transition.
Five E's Support	Evaluation & Engineering
Status	Consideration and coordination with the City's capital program is planned. Further discussions are needed.





Action #11 Enhancing Enforcement

Objective: Work with local partners such as the London Police Service to improve local enforcement of safe cycling practices.

Background: In 2014, London Middlesex Health Unit embarked on a Share the Road campaign. The campaign was a collaborative effort between the Middlesex-London Health Unit, the London Middlesex Road Safety Committee, City of London, Middlesex County, Middlesex Centre, Healthy Communities Partnership Middlesex-London Health Unit and other key partners to develop and launch the campaign. The awareness included advertising and signage in the form of large roadside signs, hand-outs, web postings, etc.

It should be noted that the police are responsible for enforcing contradictions to the Highway Traffic Act and do so where possible.



Best Practices	Potential Application in London
<ul style="list-style-type: none"> • City of Toronto 	<ul style="list-style-type: none"> • The Middlesex-London Health Unit should continue to promote safe cycling through further Share the Road campaigns as the network expands and should identify locations where additional signage or promotion may be needed. • London Police Service should consider investing in additional bicycles for the police detachment. Increasing the number of police on bicycles will likely help other cyclists and motorists to be more aware and cognizant of the legal requirements. • The Cycling Advisory Committee should endeavour to work with the police service to increase awareness regarding bicycle theft. Developing a program to address bike theft through enforcement as well as promotion from other partners may help to dissuade individuals from future thefts and create a greater sense of security. • A coordinated effort of enforcement reporting including working with local by-law officers should be identified.

Five E's Support	Enforcement & Education
Status	Discussion and research in progress.



Action #12 Establishing High-Profile Events

1

Objective: Work with local partners including but not limited to technical agencies, interest groups, businesses and public representatives to celebrate the cycling related successes achieved within the City of London.

2

Background: With the implementation of new infrastructure and supportive amenities / programs, the City has started to acknowledge and celebrate the good work completed. Recently, with the implementation of bicycle parking and fix-it stations, a "launch" event was hosted to educate people on how to use the new amenities and to promote their use. The celebration drew attendance from both residents, stakeholders and the local media and helped to encourage the use of these new facilities. In addition, it also helped to highlight some of the successes that resulted from the good work of the City.

3

4

Best Practices	Potential Application in London
<ul style="list-style-type: none"> Open Streets – Toronto, Hamilton, Peterborough 	<ul style="list-style-type: none"> The City of London should continue to use promotional events to educate and encourage residents of the way in which to use new cycling facilities and / or amenities and to celebrate the implementation of key elements of London ON Bikes. Environmental Programs division should work with staff from Transportation and Parks and Recreation to track the implementation of infrastructure and should consider developing events to educate people on how to use them and encourage their use. Could consider closing down the street or coordinating a ride to do so. City staff should engage local stakeholders and interest groups to promote celebratory events as they are coordinated and held City staff should work with complementary businesses to provide incentives for attendance and should coordinate media coverage to increase the profile of the event.
Five E's Support	Encouragement & Education
Status	Past events completed by the City. Future events to be planned and coordinated.





Action #13 Encouraging Integration with other Modes

Objective: To encourage residents and visitors of London to integrated cycling into day to day activities including transit and walking to achieve multi-modal trips.

Background: Planning for the first and last mile is becoming a more common phenomenon to encourage people to use more sustainable modes of transportation. Finding ways to encourage people to cycle to a bus stop or transit hub will help to encourage and achieve the mode split target set by the City. With the planning and future implementation of the BRT system within London, there is significant opportunity to coordinate the planning, design and implementation of cycling facilities with transit routes, stops and hubs. As part of the development of London ON Bikes, the proposed BRT routes and hubs identified through the SHIFT planning process were mapped and considered along with existing bus routes, stops and rail hubs during the cycling network planning process.



Best Practices	Potential Application in London
<ul style="list-style-type: none"> • City of Ottawa • City of Toronto • City of Mississauga • City of Brampton 	<ul style="list-style-type: none"> • The City should continue to coordinate the implementation of rapid transit routes with cycling routes. When moving forward to preliminary and detailed design, where possible, cycling facilities should be integrated along rapid transit routes. • If cycling facilities cannot be implemented within the right of way with the rapid transit facilities, linkages which provide direct access to those rapid transit routes should be prioritized. • At transit hubs and stops there should be consideration for the implementation of cycling amenities including but not limited to bicycle parking, mapping, fix-it stations, etc. • The City should continue to implement bicycle racks on buses and on future rapid transit vehicles. • The City should work with local stakeholders and transit providers to coordinate messaging to encourage and educate people on opportunities for last a first mile trips by bike.
Five E's Support	Encouragement & Engineering
Status	All City departments coordinating through the planning, design and implementation of the Shift network and London ON Bikes network.



Action #14 Update Municipal Policies

1

Objective: To ensure that Municipal policies are aligned with consistent messaging related to the planning, development and promotion of cycling as a viable mode of transportation and recreation.

2

Background: Municipal policies are typically updated every 5 – 10 years. Within that horizon, there are likely other planning documents that have been generated at the provincial and municipal level that now have an impact on the applicability and relevance of the existing policies. For example, since the development of the 2005 Cycling Master Plan and 2007 Implementation Strategy the Province of Ontario released #CycleON, Ontario Traffic Manual Book 18 and Ministry of Transportation Bikeways Design Guidelines. At the local level, the City has since adopted their Official Plan, the London Plan, which changes the policy landscape and sets out a new vision and strategic objectives which help to shape other more implementation focused master plans and policies. In addition, planning trends change and emerge with time it is important to ensure that policies reflect these principles and create actionable policies and strategies to establish change.

3

4

Best Practices	Potential Application in London
*All municipalities throughout the Province of Ontario update their OPs and strategic master plans every 5 – 10 years. Many of those updated in the past 5 years reflect new guiding principles i.e sustainability	<ul style="list-style-type: none"> The City of London tracks and updates their municipal plans based on an internal schedule. As the policies are reviewed and updated they should review and identify the applicability of the policy considerations noted within section 2.0 of London ON Bikes. Where necessary, City staff should ensure that they are aware of other applicable policies at the provincial level. Updates to municipal policies should reflect these provincial policies. Other emerging trends in strategic planning and policy development should be monitored by City staff with policies updated to reflect these trends.
Five E's Support	Encouragement
Status	Policies should continue to be updated consistent with current schedules and should reflect the policy suggestions and other cycling and sustainable transportation considerations outlined within London ON Bikes as well as emerging trends identified through Provincial policies.



Recommendations:

7	Review the 13 proposed strategic actions recommended within section 3.2 and consider them as new programs or initiatives are to be implemented by the City in coordination with various community partners.
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 cycling touring loops. The updated loop routes – now consistent with the London ON Bikes network – should be reviewed and confirmed.
11	Should the touring loops be 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 suitable for London based on best practices from municipalities of similar scopes and scales.
13	Work with Middlesex-London Health Unit, school boards and other supporters of CAN-BIKE London to explore the possibility of implementing a permanent CAN-BIKE 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.
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 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.



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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.

2

19

London Police Service should consider enhancing their cycling program including investments in additional bicycles for patrol. – clearly define allocations of monies and specifics of the total # recommended

3

20

The City of London should establish a budget and program to celebrate local cycling successes including but not limited to “opening” events for new infrastructure or amenities.

4

21

The City of London should work with local stakeholders and media to increase the profile of cycling at local events.

22

The City should continue to coordinate the implementation of rapid transit routes with cycling routes. When designing rapid transit routes cycling facilities should be integrated where possible or direct connections to the transit routes should be prioritized.

23

Transit hubs and stops should be designed with cycling in mind. Where possible, cycling amenities such as bicycle parking and fix-it stations along with encouragement materials should be provided.

24

The City of London should continue to review and update municipal policies to reflect the policy considerations noted in section 2.0 as well as emerging trends at the provincial and municipal level.





LEAVE NO TRACE

We would like your input

Informational display with text and graphics, including a map of the area.



CYCLING

Do you have cycling routes in Albany?

Informational display with a bicycle icon and text.

CHALLENGE

31° ALBANY

ADVENTURE

4.0

IMPLEMENTATION

London ON Bikes is a long-term strategy to improve cycling. The information contained within **Section 4.0** is meant to be used to guide the planning, design and construction of the City-wide cycling network and to support decision making and collaboration.

The contents of this section are meant to be used as an implementation strategy. It is supported by tools and recommendations that have been developed based on the original 2005 Bicycle Master Plan and 2007 Implementation Strategy, current practices and protocols, input from the public and stakeholders and best practices from comparable municipalities.

4.1 A Phased Approach

The implementation of the London ON Bikes cycling network will go beyond the lifespan of the master plan. Full build-out will be a long-term achievement which will need to be revisited to confirm the appropriateness of recommendations and strategies. The following sections provide an overview of the proposed phasing plan and additional context on how it was developed.

4.1.1 Selecting the Appropriate Phase

Identifying the proposed phase for a route is a multi-step process. The process integrates input and information from a number of different sources to identify the appropriate timing for it to be implemented. There are five (5) steps in the process (see **Figure 12**).



Figure 12 – Network Phasing Plan Identification Process



Preliminary phasing was developed using three pieces of input / information:

- **Public and Stakeholders Comments:** Priority routes identified at the second public information centre – held in September 2015 as well as ongoing discussions with the City's Cycling Advisory Committee and other interest groups / stakeholders. Those who attended were asked to identify their top three routes. The same question was asked to key stakeholders. The priorities were reviewed and considered and incorporated, where appropriate.
- **Capital Plans & Priorities:** Cycling route priorities were identified in Smart Moves, the City's 2030 Transportation Master Plan. As the routes are supported by other municipal policy, where possible, the routes were identified for implementation in the short-term. Large-scale infrastructure projects – including but not limited to cycling projects – are identified in the new 4 year capital budget and in the planned infrastructure renewal list. The timelines identified within these documents were used to identify the preferred phase.
- **Network Objectives:** The overarching network objectives established in the early stages of the project were considered when the phasing plan was being developed. Routes were identified within each phase which aim to meet objectives such as the development of:
 - A connected and continuous system of on and off-road facilities;
 - Routes or links that navigate key barriers to connectivity;
 - More separated cycling infrastructure (e.g. buffered bicycle lanes, boulevard paths and cycle tracks);
 - Premier north-south and east-west infrastructure to link the downtown and surrounding neighbourhoods;
 - Major loop routes providing access to key community destinations (e.g. parks, schools, transit nodes);
 - Linkages to surrounding municipalities; and
 - Routes which highlight areas of cultural significance and access to Fanshawe Conservation Area.



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Once completed, the phasing was reviewed, revised and finalized. The plan is considered to be unique to London and consistent with existing processes and decision making.

2

4.1.2 The Phasing Plan

London ON Bikes is a three phase, fifteen (15) plus year master plan. Though full build-out is the ultimate objective, it is acknowledged that this may not be possible for years to come. This means that the focus for implementation will be the first two phases – short-term (0 – 5 years) and medium-term (6 – 15 years) following the adoption of the Cycling Master Plan.

3

Though a proposed phase has been identified for each cycling route the master plan is meant to be flexible and is intended to be used as a tool that can be modified should additional routes be identified or if implementation is deferred or expedited.

4

The routes that have been identified for implementation within the short and medium-term are illustrated on **Maps 9** and **10**. An overview of the proposed facility types by phase is provided in **Table 5**.

Table 5 includes a summary of existing facility types. Though long-term is not the focus on the master plan routes proposed for implementation beyond year 15 are illustrated on maps found within **Technical Appendix N**.

Table 5 – Proposed Facility Types in Short and Medium-term

Phase	Facility Types (Roadway / Linear Pathway km)										
	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	94	15	1	3	11	17	12	4	2	3	26
Medium	212	99	2	15	30	14	12	3	3	16	22
Total	637	165	3	28	41	91	24	7	5	61	214

Recommendations:

25

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.



26

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.

4.2 Supporting Implementation

The implementation of London ON Bikes will require coordination and collaboration. It will also require the ongoing support and contributions from key advisory committees, agencies, stakeholder groups and local residents to ensure that the momentum generated from the development of the plan continues.

The following sections include proposed strategies and tools to help guide future decision making as the London ON Bikes is implemented.

4.2.1 Guiding the Implementation: Supportive Tools

The London ON Bikes network development, facility selection and phasing plan processes generated a vast amount of technical information. Digesting and understanding this volume of information can be difficult if it is not presented in a way that is considered effective and efficient for those who are responsible for the plan's implementation.

An implementation guide was developed which organizes and presents the information gathered. The guide is meant to be used as a tool by City staff and is meant to be updated as needed in conjunction with the London ON Bikes GIS database. These tools, along with the GoogleEarth™ enabled "database" of existing conditions are meant to be used to facilitate and track the implementation of London ON Bikes.

Recommendations:

27

The implementation tools identified in the cycling master plan should be used as an internal guide for City staff to facilitate the implementation of the London ON Bikes network as well as supportive programs and initiatives.

28

The KMZ (GoogleEarth™) database should be considered as a potential communication tool and to better understand some of the current conditions of proposed routes.



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City of London Cycling Master Plan Update

Final September 2016

Map

9

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 (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
- Connection to Surrounding Municipality¹
- Environmentally Significant Area
- Park
- Conservation Authority Land
- Provincial Park
- Watercourse



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 to construct these portions are not included any calculations or summaries contained in the report.

City of London Cycling Master Plan Update

Final September 2016

Map 10

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

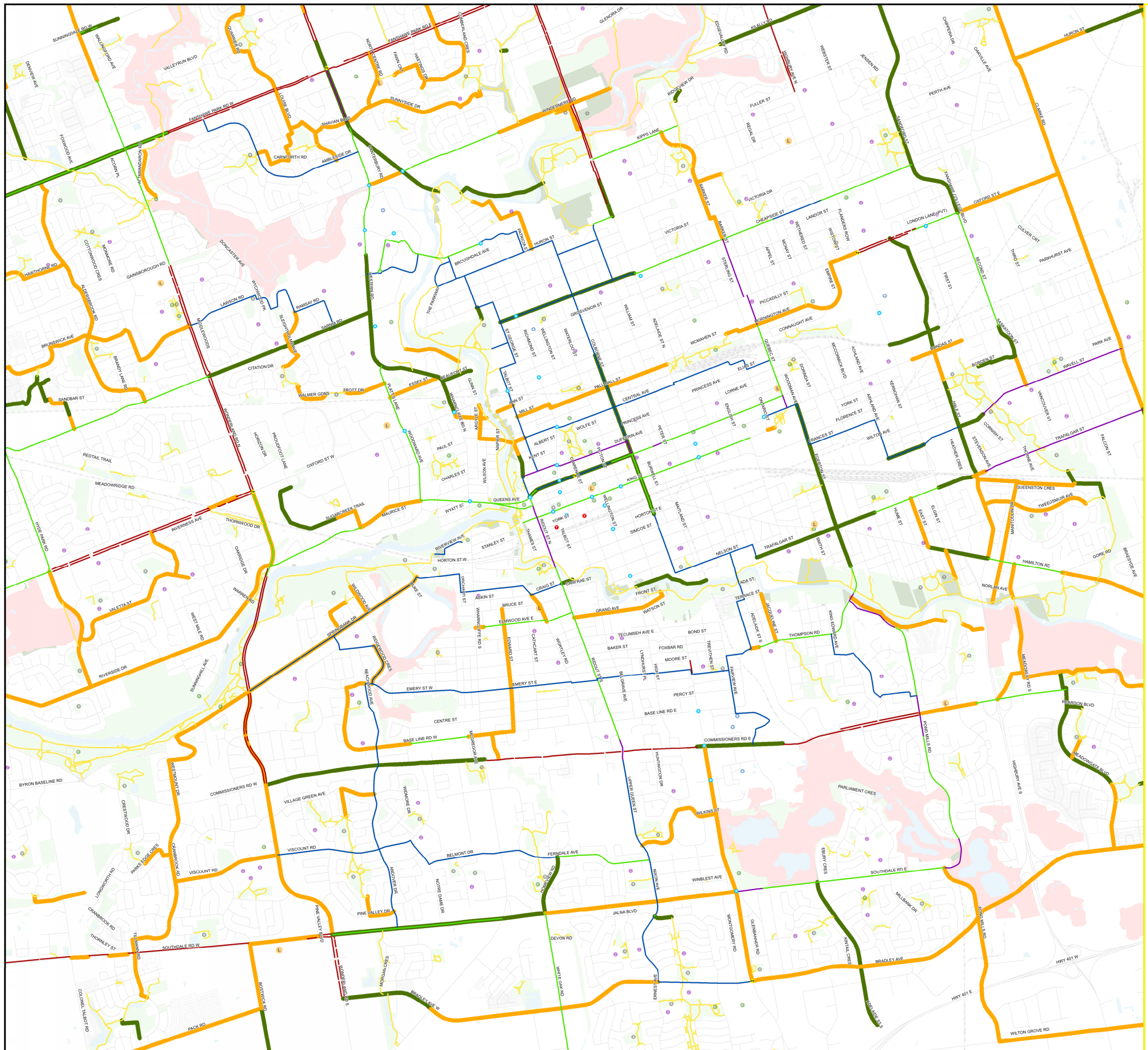
- Short Term (0-5 Years)
- Medium Term (6-15 Years)

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





4.2.2 Roles & Responsibilities

1

Who will do what? This is an important question to ask when developing a master plan. With numerous recommendations, strategies and infrastructure improvements identified it is important to define who will be responsible for the different aspects of implementation. Implementation should be a collaborative effort between City staff, technical agencies. Without these partnerships and ongoing communication and coordination, implementation of the master plan may see road blocks.

2

City Staff

3

Internally, implementation of London ON Bikes will be coordinated by staff in various City departments, the Cycling Advisory Committee, partner groups and key stakeholders. However, in order to ensure that the plan is implemented efficiently and effectively it is important to establish a clear understanding of the roles and responsibilities of different services areas at the City.

4

In order to identify potential new roles and responsibilities it is important to understand “who does what” now. Since the development of the 2005 Bicycling Master Plan and 2007 Implementation Strategy, roles and responsibilities have been clearly established between the various city service areas. **Table 6** is an overview of each city service area and the roles / responsibilities related to cycling that they each hold.

Table 6 – Existing Roles & Responsibilities

City Division	Responsibility									
	Planning	Design	Policies	Construction	Operation	Maintenance	Life Cycle Renewal	Enforcement	Education	Encouragement
Roads & Transportation	•	•	•	•	•	•	•		•	•
Environmental Programs	•		•		•				•	•
Parks and Community Sports			•		•		•		•	•
Planning	•	•	•	•		•	•			
Development & Compliance								•		



Though there is significant involvement from the majority of city departments, there are some areas where further involvement may help to facilitate implementation.

External Partners & Stakeholders

There is a long history of partnerships with local stakeholders and interest groups to move forward with the implementation of cycling infrastructure and initiatives. Together, they work collaboratively and should continue to do so once London ON Bikes has been adopted. **Table 7** identifies some of the potential partners in no particular order and how they could contribute to the implementation of the master plan.

Table 7 – Overview of Potential Partners & Potential Roles

Partner	Potential Role
Middlesex County & Elgin County	Implement linkages along major County roads (within both Middlesex County and Elgin County) which provide connections into and out of the City
Provincial Ministries (MTO & MNR)	The implementation of proposed cycling linkages which impact provincial highways as well as those that require approvals by the Ministry of Natural Resources
Middlesex-London Health Unit	Develop programs and education campaigns to promote the connection between health and cycling as well as safe cycling practices
Tourism London	Identify opportunities to enhance and promote cycling tourism destinations and to identify opportunities to highlight cycling supportive businesses
London Police Service	Monitor and enforce safe and proper cycling activities and provide the City with up to date information on collisions and other cycling related requests
London Cycle Link	Market London's cycling opportunities and identify opportunities for local events and promotional activities and to educate residents on the benefits and opportunities for cycling in London



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**London Cycling
Advisory Committee**

The Advisory Committee should continue to exist beyond the completion of the plan. They will provide recommendations to Council on the desired priorities and areas of focus for the implementation of London ON Bikes

2

School Boards

Provide input on opportunities to partner with local schools who may be interested in participating in local events such as Bike to School Day or the Active and Safe Routes to School Program.

3

**Upper Thames River
Conservation
Authority**

Provide input on the potential connections which can be made into local conservation areas and opportunities to highlight local natural areas. The conservation authority also has other activities which they are required to undertake based on the Conservation Authorities Act Regulation (Section 28). External property owners must obtain permission from the UTR Conservation Authority before beginning any development, site alteration, construction or placement of fill.

4

**Universities &
Colleges**

Western University and Fanshawe College are key trip generators within London. They are considered partners and should be engaged to ensure that connectivity and continuity in the network is achieved. As roadways are improved that link to both Fanshawe and Western campuses, representatives from both institutions should be engaged. In addition, other opportunities to partner with the organizations for local events and educational opportunities should be explored.





Partner	Potential Role
Regional Stakeholders	<p>Regional stakeholders such as the Ministry of Transportation, Ontario by Bike, Trans Canada Trail Association and Share the Road Cycling Coalition should be engaged as the plan is implemented. Opportunities to partner with these organizations exist to promote to encourage and support recreational and commuter cycling and active and healthy lifestyles, help municipalities advance safe cycling networks, enhance infrastructure to make Ontario's roads safer for all road users and to build on cycling tourism.</p>
London Middlesex Road Safety Committee	<p>The Road Safety Committee should continue to promote key messages on road users responsibilities whether driving a car, riding a bike or walking in helping reduce injuries and deaths related to motor vehicle collisions and that support recommendations found within London ON Bikes.</p>
Thames Region Ecological Association	<p>The Thames Region Ecological Society supports active transportation – specifically cycling – within London by coordinating and hosting an annual bicycle festival. This event is a way to promote and encourage citizens to explore the city by bike and increase their awareness of what the cycling community has to offer all while realizing the benefits of cycling locally. An annual theme creates a focal point.</p>
CAN-Bike London	<p>Develop further opportunities to promote and teach a series of CAN-BIKE courses to residents on safe cycling practices ranging from anticipating traffic dynamics, recognizing road hazards and collision-avoidance techniques to increasing confidence and enjoyably on the road.</p>

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Partner	Potential Role
Urban League London	The urban league represents a number of neighbourhood and rate payer associations throughout the City. As such, they have firsthand knowledge of how to coordinate local organizations in urban or civic matters. Depending on the core issue or location where a project or program is being considered members of the Urban League could help to coordinate involvement of various community organizations.

2

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Though not identified, other partners may emerge as resources when implementing the master plan. Partnerships should be a priority. Internal partners should continue to be identified both within the City of London as well as external partners.

4

Recommendations:

29	Periodically review the potential partners and the opportunities for partnership identified in Table 7.
30	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.
31	Identify opportunities for the involvement of other municipal service area staff – based on further investigation of potential roles and responsibilities.



4.2.3 The Decision Making Process

It is important to integrate cycling improvements into day to day decision making. As part of the 2005 Bicycle Master Plan, amendments to two key policies were prepared, the City's Official Plan and the Site Plan Control By-law. These amendments include specific design considerations related to cycling route and facility design which influence decision making including route maintenance, bicycle parking, development applications and site plan development.

The 2007 Implementation Strategy included an implementation process tool which outlines a four (4) phase structure to manage the implementation of the City's master plan. Since the adoption of the 2007 strategy this process has been reinforced and adapted through provincially accepted guidelines, standards, strategies and best practices from southern Ontario municipalities.

Figure 13 illustrates the revised implementation process. The steps that have been updated are identified using a black box with a yellow border. Where additional considerations have been included, they are shown in yellow text.

Key differences between the updated tool and the original are:

- The integration of the facility selection process identified in **section 2.3** of London ON Bikes ensures that the process used to identify proposed routes in the master plan (both on and off-road) is consistent with future route identification and selection.
- The final phase / step recommends updating the Official Plan in the future should additional or alternate routes be identified and implemented.

Recommendations:

32

Utilize the updated decision making process to inform how the master plan is implemented and how additional routes are planned, designed and constructed.



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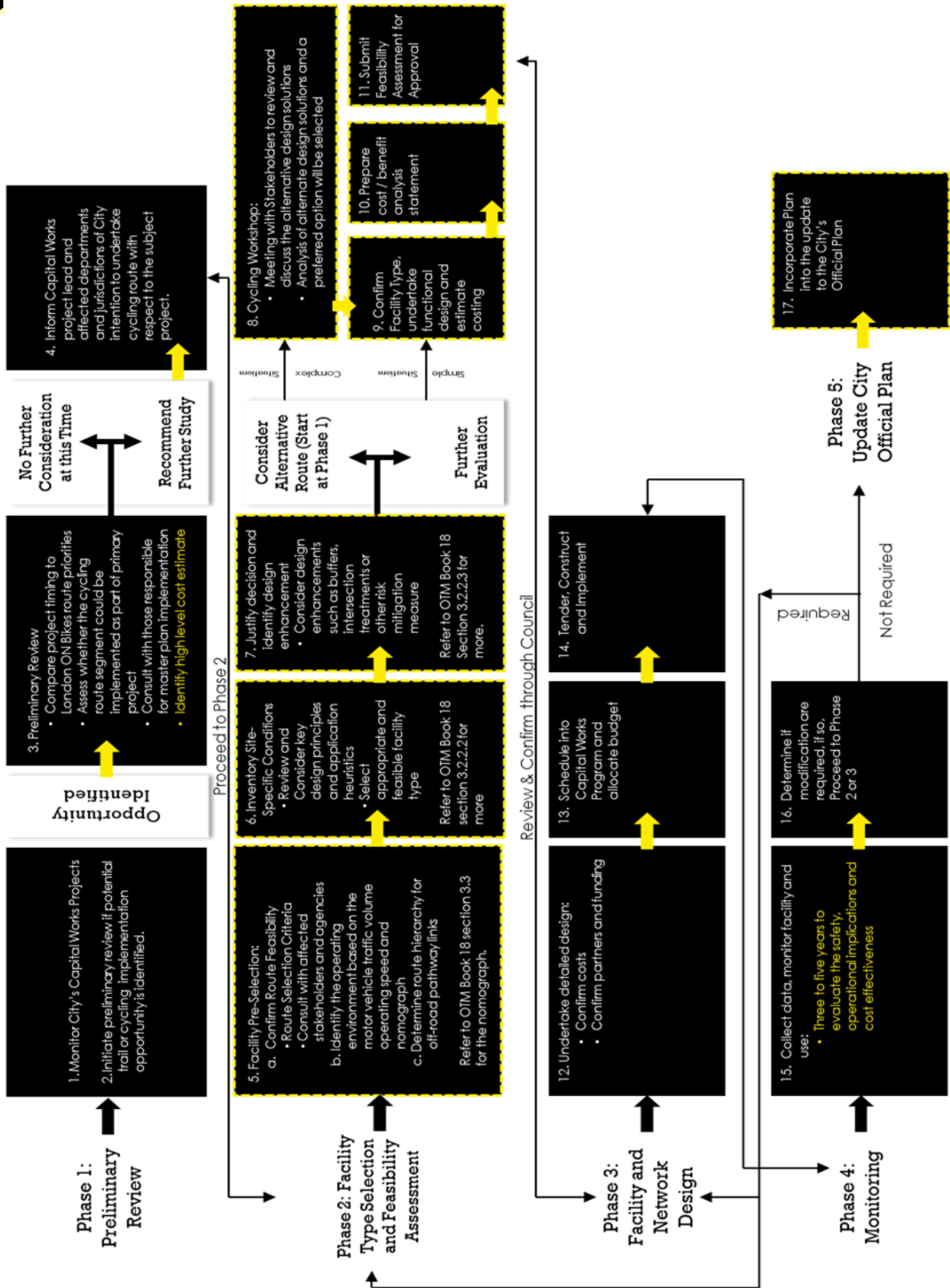


Figure 13 – Cycling Network Implementation Process for the City of London



4.2.4 Cycling Route Implementation & the Municipal Class EA Process

London ON Bikes was completed consistent with Approach #1 of the master planning process. As such, the work completed to select and assess alternative options, consult with the public and select the preferred option for cycling routes fulfill Phases 1 and 2 of the Municipal Class EA process.

In recent years, a number of updates have been made to the Municipal Class Environmental Assessment Act which pre-approves the construction or operation of bicycle paths or bike lanes within the existing road right-of-way should no major changes to the width or the alignment of the roadway be required. These projects typically fall within the category of an A or A+ project. Previous editions of the Municipal Class Environmental Assessment did not provide direction regarding multi-purpose pathways. This has now been clarified in "Appendix 1-Cycling Changes to Project Schedules in the March 2015 Proposed [Amendments](#)".

The following are relevant clarifications:

- Normal or emergency operation and maintenance of linear facilities now includes multi-use pathways, and are pre-approved;
- Construction or removal of multi-purpose pathways within existing or protected rights-of-way are pre-approved; and
- Construction or removal of multi-purpose pathways including water crossings outside existing rights-of-way identify cost thresholds. Projects valued between \$3.5 and \$9.5M should adhere to Schedule B, and over \$9.5M should adhere to Schedule C. The exemption is maintained for smaller projects and larger projects are to follow a well-accepted and proven process.

Schedule A and A+ projects are considered pre-approved and do not require a full Class EA to be completed but require formal public notification at the commencement of the project. Some projects that do not require significant changes to the roadway and where traffic impacts have been studied and mitigation solutions identified (if required) are also considered pre-approved (see note below re: road diets).



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For each proposed cycling route the anticipated Municipal Class EA schedule was identified. Using the information made available during the route and facility selection process, very few projects identified within the road right-of-way, will require an additional environmental assessment to be completed. For those that require a more detailed environmental assessment, next steps and additional consultation with the public and stakeholders will be determined once the appropriate Class EA process / Schedule has been identified. When making a determination regarding an appropriate process/Schedule to follow, other site specific factors including potential impacts to natural areas must be considered. A higher order process/Schedule for projects that are otherwise listed as pre-approved may select to be undertaken. Typically, a Class EA project would require notification at commencement and completion and two points of consultation with the public. Depending on the nature of the project, the appropriate form of consultation (i.e. public information centres, workshops, meeting, etc.) with both the public (those directly affected by the project) as well as interested community members and stakeholders, will also need to be investigated and confirmed.

The routes identified as part of the London ON Bikes cycling network were reviewed and a preliminary environmental assessment schedule was identified. The results of this preliminary assessment show that there are no schedule B or C Projects. The results are documented in **Technical Appendix O**. The projects are either A or A+ schedule or are considered part of a large scale reconstruction project that has already been identified by the City. More detailed investigation of the environmental impacts would be needed to determine the EA schedule of each project as the project moves forward through from planning to design and implementation.

Implementing a Road Diet to add bike lanes where no constructed median is proposed is now pre-approved (with a traffic study completed) and does NOT require a Schedule B Class EA process.

Recommendations:

33 As a project moves forward to implementation City staff should investigate the environmental impacts and determine the appropriate schedule to determine next steps.



4.3 Operations & Maintenance

Maintenance, both on and off-road, is part of the commitment made to the public to provide high quality cycling routes and facilities. Maintenance practices vary by municipality and the requirements are different for routes found within the road right of way and those found outside of the road right-of-way.

The appropriate maintenance of cycling facilities leverages capital investments, supports user safety and comfort while also increasing the lifespan of the infrastructure. There are maintenance practices for all seasons including:

- Sweeping;
- Surface repairs;
- Pavement markings & signage;
- Vegetation management;
- Snow clearance / ice control; and
- Drainage improvements & drainage grates.

As the cycling network expands, the maintenance practices and level of service will need to be adapted to address new facilities, expectations of the public and minimum standards. In principle, priority should be given to those routes and roads where there is a high volume of automobile and cyclist traffic. Identifying these core connections within London and making the necessary bylaw and policy revisions to allow for them to receive immediate maintenance should be considered.

The following sections are intended to be used as a reference for consideration as the cycling network is implemented. The information contained within these sections has been developed based on the available resources throughout Ontario (in comparable municipalities) including best practices and lessons learned.

It is important to note that municipalities currently use the Provincial Minimum Maintenance Standards ([here](#)) to inform maintenance practices, including those for cycling facilities (found within the road right-of-way). These standards are in the process of being updated by the Province.



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As such, it is recommended that once these new Minimum Maintenance Standards are updated and adopted, that London proceed to update its on and off-road cycling route maintenance level of service practices and assess the impact to operating budgets, equipment needs and resources. This master plan does provide information on suggested maintenance approaches and level of service that should be used to inform a future update to the city's on and off road cycling and pathway maintenance strategy.

4.3.1 What is Expected?

Roads and bridges should be in a state of good repair (*Ontario Municipal Act*). The City of London, as a single tier municipality is responsible for the maintenance of all sidewalks, roadways and bridges under their jurisdiction. This will always be the case unless the City enters into an agreement which indicates another approach.

The *Ministry of Transportation Regulations 239/02*¹ outlines the minimum maintenance requirements for municipalities. The standards are based on the potential for hazardous road conditions for motorists. Though not currently considered as part of these standards, bicycles are also considered vehicles under the Highway Traffic Act and users of the roadway. With their lower threshold for conditions and deficiencies (i.e. vulnerability to potholes and cracks), additional consideration for standards that accommodate all users, including cyclists is needed. The minimum standards (currently being updated) outlined in the regulations include:

- Monitoring of conditions including frequency of patrolling to check for conditions, weather monitoring and snow accumulation;
- Addressing winter road conditions including snow accumulation and ice formation on roadways;
- Potholes, shoulder drop-offs, cracks and debris;
- Lighting, signs and traffic control signals;
- Bridge deck spalls; and
- Roadway and sidewalk surface discontinuities.

¹ Minimum Maintenance Standards for Municipal Highways, O Reg. 239-02





4.3.2 What is being done in London?

As noted above, London's current maintenance standards are consistent with the Minimum Maintenance Standards. Year-round maintenance of cycling routes is being considered to establish a continuous and connected system of maintained cycling routes.

3,555km of roadways, 1,475 km of sidewalks and 166km of recreational pathways are currently being maintained throughout the winter. The roadways are being maintained for all potential users including cyclists, however, the off-road pathway system is maintained to accommodate foot traffic only.

London's response vehicles fleet includes:

- 68 pieces of road plowing equipment;
- 35 road salt / sanders;
- 41 sidewalk plows; and
- Two anti-icing tankers.

Level of service of municipal roads is defined using five classes, none of which require bare pavement curb to curb in the winter:

- **Classes 1, 2 & 3:** are considered priority roads including arterials and some secondary collector roads.
- **Class 4 & 5:** which include local streets and cul-de-sacs which are considered a lower priority.

Classes 1, 2 and 3 are considered priority roads. The priority roads are cleared first as they typically carry a higher volume of traffic and are considered the spine roadway system used to get to business areas, hospitals and direct connections in and out of the City. The following sections provide an overview of current maintenance practices within and outside of the road right-of-way. The following sections provide an overview of current maintenance practices within and outside of the road right-of-way.

4.3.2.1 *Maintenance within the Road Right-of-Way*

The Transportation and Roadside Operations Division is responsible for maintaining facilities within the road right-of-way. In the summer, the service area is responsible for maintaining bike lanes, sharrows and signed bicycle routes (e.g. Fanshawe Park Road West, Dufferin Avenue and Queens Avenue) for a total of 130km of cycling facilities.





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Cycling facilities found within the road right-of-way should be maintained at the same standard as the rest of the roadway which means that no additional cost is accrued for the maintenance of these facilities. The maintenance of new on-road cycling facilities should be identified for assessment growth allocations and the service level provided be the same as that of the roadway.

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In the winter, many of the cycling facilities such as bike lanes are used for snow storage where other snow storage options do not exist. It is suggested that new design standards be established considering snow storage going forward to ensure that bike lanes are “brought back into service” soon after a snow fall event occurs. Once the Minimum Maintenance Standards are updated, new standards and guidelines related to the winter maintenance of on-road facilities should be reviewed, revised and adopted.

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4.3.2.2 Maintenance outside the Road Right-of-Way

Off-road pathways have not traditionally received winter maintenance. However, two sections of the TVP and pathways found within White Oaks, Springbank, Greenway, Ivey and Harris Parks have recently been maintained in winter for pedestrians. Staff use a combination of hand shoveling, snow clearing, sanding and a pick-up truck with plow to maintain these routes. The final is a downtown connector which is being maintained at a recreational trail standard including hand shoveling and snow clearing. City Council recently approved funding to provide winter maintenance to the entire TVP, consistent with the current sidewalk standards. This may not create pavement conditions suitable for cycling at all times, but it will increase the windows of accessibility of the TVP throughout the winter months.

For the majority of the park pathways, the maintenance standard is consistent with the sidewalk standards adopted by City Council because they connect to surrounding neighbourhoods. In 2015, Council also approved a budget for winter maintenance of 50% of pathways identified as key pedestrian connections. As London ON Bikes is implemented the maintenance expectations for various off-road pathways should be further defined and documented.



4.3.3 Future Considerations

Though progress has been made to improve seasonal maintenance of facilities more work needs to be done. In order to make cycling a more viable transportation option for residents there needs to be additional consideration for both winter and summer maintenance.

Within the winter months, routes require additional clearing to accommodate the snowfall that occurs and the build-up of ice. In the summer months maintenance can include the pavement condition including repairs to potholes, shoulder drop-offs and pavement cracks as well as the removal or sweeping of debris. Maintenance – both in the summer and the winter – within London is being undertaken consistent with the Minimum Maintenance Standards. Once the standards have been confirmed and adopted the City should consider developing a level of service standard for summer and winter maintenance specifically related to cycling.

In addition, as these are defined and as the network is implemented, consideration for an expanded maintenance and operations budget should be explored. Costs for maintenance and operation varies based on the type of facility that is being maintained. **Table 8** summarizes the annual maintenance costs for the cycling network (existing and proposed) during non-winter seasons.



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Table 8 – Annual Maintenance Costs for Existing and Proposed Facility Types during Non-Winter Seasons (pavement marking renewals, sweeping, etc.)

Facility Type	Existing (km)	Proposed (km)	Total (km)	Per km Cost (per year) ¹	Estimated Cost (per year) ²
Signed Bike Route	50.8	157.9	208.7	\$260	\$54,000
Signed Bike Route with Edgeline	0	2.6	2.6	\$6,260 - \$7,660	\$16,000 - \$20,000
Signed Bike Route with Sharrow	10	23	33	\$2,950 - \$6,410	\$97,350 - \$211,530
Paved Shoulder	0	81.6	81.6	\$6,260 - \$7,660	\$510,820 - \$625,050
Bike Lane	60	48.3	108.3	\$6,650 - \$8,050	\$721,000 - \$871,820
Buffered Bike Lane (Hatched)	0	31.9	31.9	\$8,050 - \$9,650	\$256,800 - \$307,840
Buffered Paved Shoulder (Hatched)	0	10.7	10.7	\$7,660 - \$9,260	\$82,000 - \$99,000
Cycle Track	0	7.5	7.5	\$6,650 - \$8,050	\$50,000 - \$60,380
In-Boulevard Multi-use Pathway	42	28.2	70.2	\$1,685 - \$2,310	\$118,000 - \$162,000
Multi-use Pathway	166	78.7	244.7	\$1,685 - \$2,310	\$412,320 - \$565,260
Total					\$2,318,300 - \$2,977,000

1. Excludes surface repairs, crack sealing, pot hole repairs and catch basin repairs.

2. Estimated costs have been rounded to the nearest thousand.

The estimated annual cost to maintain the cycling network during non-winter months ranges from \$2.3 million and \$2.98 million. The price may vary due to level of service and life-cycle materials used for cycling facilities e.g. paint markings vs cold plastic markings. To calculate the estimated annual maintenance cost of the cycling network during non-winter months, the cost assumptions outlined in **Table 9** were applied:



Table 9 – Non-winter Maintenance Cost Assumptions

Item	Unit Price	Assumptions
Painted Line Markings	\$2.5 / m	Unit price is for a single 100 mm wide painted line marking, therefore assume - \$5 / m for both sides of the road. Maintenance cost assumes that painted line markings are fully replaced / renewed on an annual basis.
Cold Plastic Line Markings	\$5 / m	Unit price is for a single 100 mm wide cold plastic line marking, therefore \$10 / m for both sides of the road. Maintenance cost assumes that plastic line markings are replaced every 5 years (or 20% annually). See calculations below: <ul style="list-style-type: none"> • \$5 / m x 20% = \$1 / m
Painted Stencils	\$50 / each	Assumes stencils are placed every 75m as per OTM Book 18, therefore 26 stencils / kilometre on both sides of the road (13 signs on each side of the road). Maintenance cost assumes 30% of painted stencils will need to be replaced / renewed on an annual basis. This equates to \$400 per year. See calculations below: <ul style="list-style-type: none"> • \$50 x 26 = \$1,300 • \$1,300 x 30% = \$400
Cold Plastic Stencils	\$275 / each	Assumes stencils are placed every 75m as per OTM Book 18. 26 signs in 1 kilometre on both sides of the road (13 signs on each side of the road). Maintenance cost assumes 30% of painted stencils will need to be placed / renewed on an annual basis. This equates to \$2,200 per year. See calculations below: <ul style="list-style-type: none"> • \$275 x 26 = \$7,150 • \$7,150 x 30% = \$2,200
Route Signs	\$200 / each	Assumes 26 signs per kilometre (13 on both sides of the road / route). Maintenance cost assumes 5% of all signs will need to be replaced annually. This equates to \$260 annually. See calculations below: <ul style="list-style-type: none"> • \$200 x 26 = \$5,200 • \$5,200 x 5% = \$260
Sweeping Costs	\$2,400 to \$4,000 / km	Assumes sweeping frequency of 6 times a year per roadway km (uni-directional, one side of the road).



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Table 10 summarizes an estimated annual maintenance cost for the existing and proposed winter cycling network by facility type.

Table 10 – Annual Maintenance Costs for the Winter Cycling Network

Facility Type	Existing (km)	Proposed (km)	Total (km) ¹	Per km Cost (per year)	Estimated Cost (per year) ¹
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	\$43,000
Buffered Bike Lane	-	8.3	8.3	\$1,000	\$8,000
Cycle Track	-	5.6	5.6	\$13,500 - \$25,000	\$76,000 - \$140,000
In-Boulevard Multi-use Pathway	19.3	3.9	23.3	\$6,750 - \$12,500	\$157,00 - \$291,000
Total					\$285,000 - \$483,000

1. Estimated costs have been rounded to the nearest thousand

The estimated cost to maintain the winter cycling network ranges from \$285,000 to \$483,000. The price may vary depending on the severity of winter, the City's level of service strategy, whether winter maintenance is contracted-out and / or the type of winter maintenance equipment the City is using. 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.

4.3.3.3 Reporting

Despite ongoing maintenance there are inevitable issues which can arise. Roads that make-up the cycling network should be reviewed and assessed on an annual basis to highlight any potential barriers or issues which may compromise safety and comfort of riders. Developing and implementing a reporting and response protocol to identify surface conditions, buildup of debris, potholes, etc. should be a priority to better understand and respond to questions, comments and concerns raised by the public. If developed and implemented, results should be reported on an annual basis to both Council and members of the public.



The "Report a Pothole" program is available online with the commitment that most pot holes will be filled within a 12 to 48 hour period. The same approach is taken for street lights and traffic signal outages - considered consistent with the Minimum Maintenance Standards. Building on the existing online reporting mechanism, the tool could be updated and / or expanded to provide residents with an opportunity to highlight concerns related to cycling infrastructure – both maintenance and operation. Alternately, should a webpage dedicated to cycling be developed as a result of the master plan, it would be possible to include a mechanism to submit, document, track and respond to maintenance requests and queries. Similar webpages have been developed by other municipalities throughout Ontario including the Town of Halton Hills, Region of Peel and the City of Kitchener.

Though not a formal method of complaint, London's strong social media is also monitored and maintained as a method of tracking issues that arise. Any issues flagged through social media are addressed – when possible.

Recommendations:

34	The City should develop level of service standards for the maintenance and operations of cycling facilities based on the updated Minimum Maintenance Standards.
35	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.
36	The City should review and consider developing a standardized method of reporting, documenting and addressing concerns related to cycling maintenance and operation. The City should explore both online and manual reporting mechanisms. The results should be reported to Council and the public on an annual basis.

4.4 How much will it Cost To Build?

Implementing London ON Bikes requires financial investment. Planning, designing, constructing, implementing, operating and maintaining infrastructure and programs / initiatives should be recognized as an annual budget commitment.





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4.4.1 Approach to Network Costing

Costing was prepared for the short and medium phases. Unit costs for proposed facility types are presented in **Technical Appendix O**. Select unit costs used to cost the London ON Bikes network are highlighted and should be used as a reference as projects move from the master planning stage through to detailed design and implementation.

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Unit costs have been identified based on best practices from various municipalities throughout southern Ontario and reflect 2016 dollars and are blended rates. It should be noted that the level of effort will vary on a project-by-project basis. Some project could require additional work / construction than other projects included in route cost estimates. The unit costs:

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- Are intended to be used for functional design purposes only as they only include the installation of facilities but do not include contingency, design and approvals costs;
- Do not include the cost of property acquisitions, signal modifications, utility relocations, major roadside draining works or costs associated with site-specific projects such as bridges, railway crossings, retaining walls, and stairways, unless otherwise noted;
- Assume typical environmental conditions and topography; and
- Do not include applicable taxes and permit fees – which are considered additional.

Recommendations:

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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.

4.4.2 Additional Costing Considerations

Implementation not only refers to the proposed routes and facility types (i.e., the network) but also must take into consideration the cost of cycling network supporting assets such as bike parking, bike lockups, cycling destination infrastructure, roadway wayfinding signage, potential partnership investment in a bikeshare program, etc.



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. This budget is meant to be used for such initiatives as:

- Centralized bike lock-ups (in three to four locations);
- Decentralized bike lock-ups within local neighbourhoods;
- A comprehensive wayfinding / signage program;
- Cycling destination upgrades including cycling supportive amenities;
- Bicycle signals; and
- Partnership investment towards studying and rolling out a bike share program.

In addition to programming / outreach, annual budgets should also be identified to maintain existing cycling infrastructure. As the network is implemented, the desired routing and the level of services / frequency of maintenance should be determined (based on facility types). Details about potential maintenance practices and costs are identified in **Section 4.3**.

Recommendations:

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When determining annual budgets, costs for facility maintenance and cycling programs / education should also be considered and budgeted.

4.4.3 How will the Capital Plan be Funded?

Capital budgets are determined every four years. The most recent capital budget was developed and approved in 2015 / 2016. The four year capital budget was one of the primary resources when determining how London ON Bikes will be funded.

Projects have been costed and organized based on two categories – funded and unfunded projects, each explained below.

- **Funded Projects:**
 - **Growth Program Major Road Projects:** These projects include those where the monies to pay for the proposed infrastructure have been covered by funds gathered based on the City's Development Charges By-law. The cost of the proposed cycling facilities has been assumed within the previously determined budget.



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- **Roads Cycling Facilities:** Funding made available specifically for cycling facilities identified within the road right-of-way.
- **Lifecycle Infrastructure Renewal Projects:** Include proposed routes where the project is funded by previously planned and budgeted road, parks, sewer and / or water life cycle projects. The projects have been confirmed through the four (4) year capital works budget process.
- **Unfunded projects:** Include routes that are considered above and beyond the projects that will be funded by the sources noted above. They will likely require additional funding to achieve. The linkages are strategic and support the high-level network development objectives.

For unfunded projects, additional opportunities to achieve implementation may be possible through the following sources.

- **Economies of Scale:** Similar to the approach already used, opportunities should be identified where economies of scale can be realized. As large-scale infrastructure projects are identified, consideration for opportunities to coordinate the implementation of on-road cycling routes or off-road pathways in conjunction with those larger infrastructure projects should be made.
- **External Funding Sources:** There are a number of funding opportunities available at the provincial and federal level. Where possible, external funding sources should be explored such as the federal / provincial gas tax, Federation of Canadian Municipalities Green Municipal Fund, Federal and Provincial Infrastructure Stimulus Program, Ontario Municipal Cycling Infrastructure Program as well as Corporate Environmental Funds to help fund infrastructure and cycling supportive programs.
- **Partnerships:** Partnerships have already been developed through past work and the master planning process. These partnerships and new partnerships should be explored and opportunities for partners to contribute to the funding of potential programs or infrastructure should be considered. The potential partners have been identified in **Table 7** and should be considered as the master plan is implemented.



Recommendations:

39	Continue to identify projects which can be funded by existing programs established by various service areas within the city (i.e. lifecycle renewal projects).
40	Explore external funding sources and partnerships to help fund the proposed "enhancements" as well as other programs and promotional initiatives.
41	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.

4.4.4 What will it Cost to Build?

An overview of the cost to implement the London ON Bikes network is presented in **Table 11**. Costs can be rationalized by relating the cost to the total number of residents who could potentially utilize the cycling / pathway enhancements on an annual basis.

Table 11 – 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	\$9,905,000	\$20,013,000	\$29,918,000
Outside of the Road Right-of-Way	\$13,406,000	\$9,873,500	\$23,279,500
Total	\$23,300,000	\$29,887,000	\$53,198,000
Cost Rationalization			
Funded Projects	\$19,839,000	\$14,688,000	\$34,527,000
Unfunded Projects	\$3,472,000	\$15,199,000	\$18,671,000
Cost Per Annum	\$694,000	\$1,519,900	N/A
Annual Cost per Resident 381,000 (2016) to address unfunded projects	\$1.82	\$3.99	N/A

The total estimated cost to implement components of the London ON Bikes cycling network is \$53,198,000 over the next 15 years. Approximately \$34.5 million of the total estimated cost has already been allocated for through approved major road projects, and monies made available for cycling specific infrastructure.





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Approximately \$18.6 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 \$3.99 per person per year over the course of 15 years (medium term).

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4.5 Conclusion

London ON Bikes is London's blueprint for change and growth. It was developed consistent with the MCEA requirements for a master plan using Approach #1 but goes well beyond the requirements of consultation and documentation. The final result is a reference / resource to help guide decision making, communication, design and development.

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The contents of the master plan are shaped by the input that was received from city staff, residents, stakeholders and interest groups. It was shaped by the needs and the overarching objectives which were determined in the early stages of the project.

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London ON Bikes is a tool which is meant to be used to better understand the policies, processes and programs that are needed to improve cycling City-wide. The content is unique to the city of London but is soundly based on best practices, lessons learned and engineering / planning / design judgement.

The initiatives build on past successes and identify a new and improved vision for growth to make the city of London a destination for cycling for visitors as well as a safe, comfortable and enjoyable place to live, work and play for all residents.

