THE CORPORATION OF THE CITY OF ST. THOMAS

ElginCounty

ELGIN ST. THOMAS PUBLIC HEALTH

Elgin-St. Thomas

Cycling Master Plan

#ActiveElginBikes

DRAFT MASTER PLAN REPORT | JUNE 2014

MMM GROUP

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ELGIN-ST. THOMAS CYCLING MASTER PLAN

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1.0 CYCLING MASTER PLAN BACKGROUND

1.1 INTRODUCTION & STUDY PROCESS OVERVIEW

The Elgin-St. Thomas Cycling Master Plan was initiated in October 2013 and builds upon information gathered and prepared for the Elgin-St. Thomas Active Transportation Initiative (ATI) (completed in February 2012) – please see Appendix A for a copy of the ATI final report. The ATI presented background information, a high-level active transportation network, recommended next steps and a summary of the in-depth consultation process (see section 1.2) that laid the ground work and established the need and support for future community investment in active transportation.

Following the adoption of the ATI strategy, input was received from County, City and municipal staff regarding active transportation facilities and routes suggested a need to establish a cycling network development and phasing strategy. Elgin-St. Thomas Public Health in partnership with the County, City and local municipalities determined that a cycling specific master plan should be developed to serve as a blueprint for future bikeway planning, design and implementation. To complete this assignment the County, City and municipalities retained MMM Group to undertake the development of the Cycling Master Plan. The process used to develop the master plan is presented in Figure 1-1.

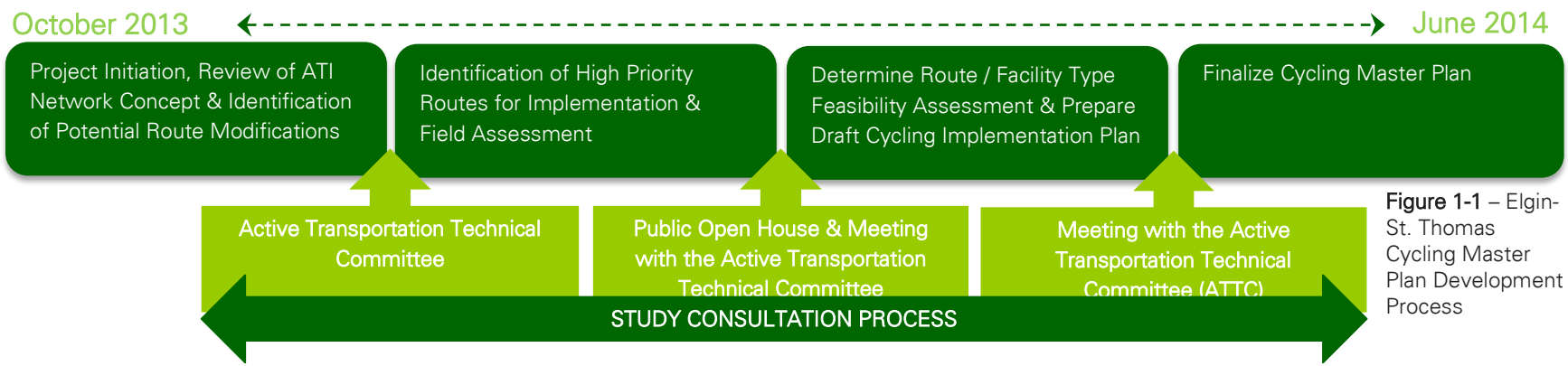

Figure 1-1 – Elgin-St. Thomas Cycling Master Plan Development Process

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Five key objectives were identified which have helped to shape the development of the master plan as well as key components / outcomes of the network. Figure 1-2 illustrates the Cycling Master Plan objectives that were established by the study team to guide the development of the cycling network, priorities, policies and initiatives. They were also used to establish key components of the master plan report which are referenced in the figure.

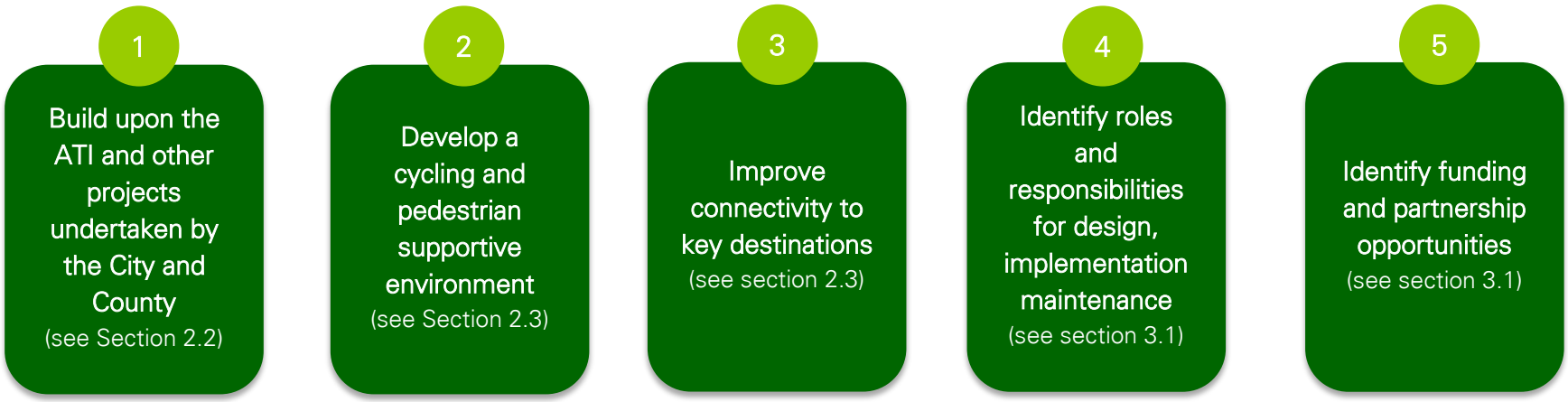


Figure 1-2 – Summary of Master Plan Objectives

The master plan study was led by a Technical Advisory Committee (TAC) comprised of Public Health, County, City and area Municipal staff who brought to light the key technical issues and realities of the municipal jurisdictions to inform the confirmation, deletion or refinement of proposed routes and facilities as identified in the ATI.

Their input as well as comments and suggestions gathered from members of the public led to the development and confirmation of a proposed cycling network comprised of routes, facilities, solutions and priorities that will be used as a guide for Elgin-St. Thomas in the future.

1.3 BUILDING ON WHAT HAS BEEN DONE: THE ACTIVE TRANSPORTATION INITIATIVE (ATI)

The Elgin-St. Thomas ATI was initially undertaken by Elgin-St. Thomas Public Health in partnership with the Active and Healthy Communities Partnership to understand the existing level of public interest in active transportation, as well as opportunities and concerns with developing and implementing an active transportation network County-wide. Through the process it became clear that residents and visitors were supportive of the initiative and future investment in active transportation facilities and opportunities. The outcome of the ATI was a long-term strategy to develop a pedestrian and cycling supportive environment that encourages active forms of recreation and transportation while promoting the importance of active lifestyles for residents and visitors of the County, City and local municipalities. It was the involvement of Councillors, stakeholders, interest groups, local developers and members of the public that guided the development of the strategy and helped to establish community driven promotion, implementation and momentum.

The following sections provide some additional details / highlights from the Active Transportation Initiative that the Cycling Master Plan is intended to build on:

- The ATI network was used as the basis in the refinement, removal and addition of proposed cycling routes and facilities based on a more detailed assessment supplemented by field investigations to confirm feasibility;
- The information / input gathered as part of the robust consultation strategy informed refinements to the cycling network and helped to identify trends and opportunities that guided the development of recommended initiatives and processes; and
- The proposed implementation techniques and approaches are revised and reinforced where appropriate to establish more realistic solutions / approaches to facilitate the implementation of the cycling network.

1.2.1 Understanding the Trends & Opportunities

As a means of gathering input from the public on current transportation trends and future wants / needs, an online questionnaire was developed and hosted between April 2012 and September 2012. Close to 800 responses were received across the County. The high response rate was due in large part to the active role Elgin-St. Thomas Public Health played in promoting the questionnaire. Figure 1-3 illustrates the geographical distribution of respondents.

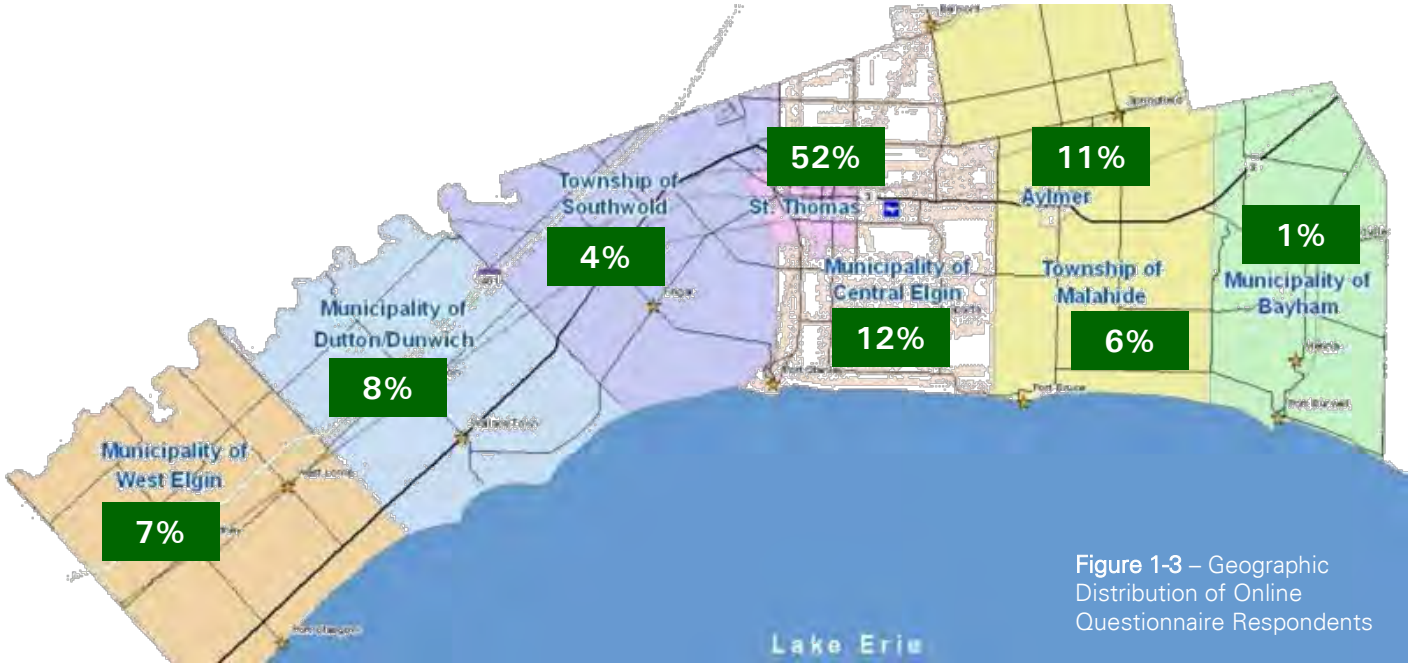


Figure 1-3 – Geographic Distribution of Online Questionnaire Respondents

The questionnaire, though not statistically valid, provided the study team with useful information and input regarding options on active transportation (including walking and cycling) throughout the County. The results suggested that respondents most frequently use a motor vehicle to get to and from work or school (approximately 4 days a week) followed by a walking (approximately 2.5 days a week) and cycling, transit or carpooling 1 day per week. 1 in 5 households do not own a car. Of those who do not own a car, 50% cannot afford or choose not to own a vehicle and 50 % cannot drive due to disability. Cyclists include people of all ages and abilities.

Respondents indicated that nearly **65% of residents have a daily trip/commute of 10 km or less**. Research indicates that trips of less than 10 km are ideal candidates for active transportation. Therefore, in Elgin-St. Thomas there is high potential to increase walking and cycling to and from work or school.

Respondents were asked to indicate their reasons for cycling trips. **69% said they cycle for active recreation**, 37% for active destination oriented trips, 18% for active commuting and 7% for active workplace travel.

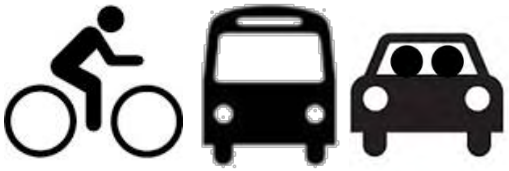
Personal level of comfort varied depending on the facility type. Respondents indicated that they were **most comfortable walking, running or jogging on multi-use trails (53.4%) followed by cycling on roads with bike lanes or paved shoulders** (49.7%). Respondents indicated that they are very uncomfortable cycling on roads without bike lanes or paved shoulders, demonstrating a growing demand for dedicated cycling facilities.

Reasons for Cycling Trips

This conclusion was further supported as respondents indicated that the **greatest influence in increasing AT is the provision of more infrastructure** such as multi-use hiking and cycling trails as well as on-road bike lanes or paved shoulders.

4 days / week

2.5 days / week



1 day / week

1.2.2 Developing a High-Level Active Transportation System

The Elgin-St. Thomas Active Transportation Initiative (ATI) built upon previous active transportation work completed by the City of St. Thomas, County and the Local Municipalities and included recommendations for an Active Transportation Network consisting of connected on and off-road routes across the rural areas and urban centres of the County. An eight step process (see **Figure 1-4**) was used to develop a high-level active transportation system which included a comprehensive consultation strategy. One of the key inputs into the development of the recommended Active Transportation Network was a set of route selection principles. These included:

- Responsive to User Needs
- Context Sensitive
- Sustainable
- Cost-Effective
- Connected and Linked
- Visible
- Integrated
- Attractive & Interesting
- Diverse

Table 1.1 summarizes the proposed ATI Network by Facility Type as documented in the 2012 ATI report. For maps of the suggested facilities types for each of the network routes refer to the 2012 ATI Final Report **Maps 3.5** to **3.9** (see **Appendix A**).

Table 1.1 – Summary of Existing and Proposed Active Transportation Facilities presented in the ATI

Facility Type	Existing (km)	Proposed (km)	Total (km)
Bicycle Lane	8.2	25.2	33.4
Signed-only Cycling Route	109.5 (3)	230.3	339.8
Paved Shoulder	10.3	175.2	185.5
Multi-use Trail (1)	8.4 (2)	64.9	73.3
TOTAL (km)	**51.7**	**513.7**	**565.4**

(1) Total length of Multi-use Trail does not include Elgin Hiking Trail and Catfish Creek Conservation Authority Trail
(2) Includes those sections of existing multi-use trail considered to be critical to the Active Transportation Network
(3) Includes portions of routes currently recognized as on-road cycling routes though no signage has been implemented

Figure 1-4- Eight-Step Network Development Process used for the ATI

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1.2.3 Guiding Implementation

The ATI outlined four tools which made up components of a high-level implementation plan:

1. A Coordinated Approach;
2. A Five-Step Network Implementation Plan;
3. Outreach and Promotion; and
4. Performance Measures.

The implementation plan and the tools identified were used as building blocks for the Cycling Master Plan recommendations related to implementation (see section 3.0). An explanation of each of the four tools follows:

A Coordinated Approach

A successfully implemented master plan requires champions, partnerships and leadership at the County, City and Local Municipal levels. Maximizing participation and removing obstacles to the flow of information between participants are two of the main objectives in managing implementation. A suggested reporting structure for staff at all of the levels of government as well as key stakeholders, agencies and interest groups was identified for consideration, adaptation and adoption. The Cycling Master Plan further reinforces and provides some suggested revisions to this structure to facilitate the implementation of the network and route priorities (please see section 3.1.3).

A Five-Step Network Implementation Process

The ATI outlined a step-by-step approach for confirming the feasibility of specific routes at the time of implementation (see section 4.3.2 of the ATI). It was intended to assist County, City and Local Municipal staff from affected departments to work together, to share information and move a project forward from planning to design and development.

Outreach and Promotion

The ATI identified the need for promotion and outreach initiatives to complement the active transportation infrastructure. The strategy identified initiatives in four categories which can be organized into the "Four Es": Education, Encouragement, Enforcement and Evaluation.

Education

Education can have a positive influence on the behaviour and attitudes of pedestrians, cyclists, motorist and the general public to produce safer conditions for all and provide incentives to encourage more AT use. Suggested education and encouragement opportunities were identified and initiated following the completion of the ATI. These are documented in section 1.2.4.

Encouragement

Encouragement can be accomplished through Community-Based Social Marketing (CBSM). CBSM is a practical approach that stresses direct contact among community members and focuses on removing barriers that prevent people from changing their behaviour. CBSM can involve five steps:

1. Identification of desired behaviour change;
2. Identification of barriers;
3. Design of a program;
4. Piloting of the program with a small segment of the community; and
5. Evaluation and improvement of the program on an ongoing basis during implementation.

Enforcement

Enforcement can encourage users of the network to be aware of their rights and responsibilities which in turn can be an important factor in reducing incidents that cause property damage, injury or death. To strengthen the effectiveness of enforcement the Elgin-St. Thomas Public Health, County, City and municipalities were encouraged to work with the Elgin County OPP, Aylmer Police Services and the St. Thomas Police Service.

Evaluation

Evaluation of the network and facility and program implementation is essential to refining the delivery of active transportation. Regular monitoring through performance measures enables planners, designers, and engineers to remain informed and assist staff in making appropriate decisions about priorities, use, and facility type, etc. A set of performance measures were recommended as part of the ATI which were reviewed and revised to form a suggested approach to performance and route evaluation (please see section 2.4.5 for additional details).

1.2.4 What has been done since the ATI was Completed?

Since the completion of the ATI, several building blocks have been put in place which lay the ground-work for the creation and promotion of a more pedestrian and cycling supportive environment across Elgin-St. Thomas. The following provides an overview of the infrastructure and promotion / outreach initiatives which have been implemented between the completion of the ATI and the initiation of the Cycling Master Plan.

Infrastructure

Elgin-St. Thomas has moved forward with the implementation of several segments of the ATI network including some paved shoulders, Share the Road signage, bicycle lanes in some urban locations, the design and development of municipal bike racks as well as the promotion and realignment of the Waterfront Trail.

In 2013, Parkside Collegiate and the Healthy Communities Partnership joined forces in the development, production and sale of custom bike racks as a means of providing local students with the opportunity to hone their skills while contributing towards making their community more cycle-friendly. The school committed to making 50 racks with customized business name plates that can accommodate 2-4 bikes at a time.

Promotion & Outreach

- Active Elgin: A County and City-wide community based coalition supported by the Province of Ontario and Elgin-St. Thomas Community Foundation. The coalition is made up of members from the City of St. Thomas, Elgin-St. Thomas Public Health, Elgin County Economic Development & Tourism, East Elgin Community Complex, Ontario Early Years Elgin-Middlesex-London, West Elgin Community Health Centre and YWCA St. Thomas-Elgin.

- Citizens 4 Active Transportation: Residents passionate about active transportation have formed the Citizens 4 Active Transportation. This local citizen based organization brings together people with a common interest in raising awareness regarding healthy lifestyles as well as active transportation alternatives. A Facebook page has been generated and monthly meetings are held the first Thursday of every month.

- Active Elgin Webpage: In 2013 the Active Elgin Website was launched and is now a key resource for residents and visitors interested in active transportation. The website is a hub of information for cycling and active transportation initiatives such as the Share the Road Public Safety Campaign and provides numerous resources such as the Active Elgin Sports, Recreation & Leisure Guide, a calendar of upcoming events, physical activity and sedentary behaviour guidelines, links and local contact information for subsidies such as the Canadian Tire Jumpstart Program and KidSport Ontario Grant, biking, walking and running safety videos, links to the Map My Ride online mapping tool and the Elgin-St. Thomas Hiking and Cycling Trail Map.

- Active Transportation Technical Committee (ATTC): In 2013, the ATTC Committee established a terms of reference and developed a mandate to assist municipalities to implement active transportation projects and to track the implementation of the Active Transportation Initiative. The membership consists of local municipal staff that are responsible for roads, sidewalks, trails, and cycling facilities. Members provide local insight and expertise on active transportation related matters and work collectively to support the implementation of the Active Transportation Initiative. An Elgin St. Thomas Public Health staff member acts as the Chair person and as the liaison between the ATTC Committee and the Healthy Communities Partnership.

- Elgin-St. Thomas Healthy Communities Partnership: A fundamental piece of the promotion and education of active transportation throughout Elgin-St. Thomas. In Spring of 2014 the Partnership launched a Share the Road Campaign with the goal of raising awareness and support for safe cycling, healthy lifestyles and to encourage active transportation. The Active Elgin Website reminds cyclists and motorists to safely share the road and provides information on the rules of the road for both user groups. In addition to the community campaign, the Healthy Communities Partnership is hosting community events such as the 2014 Elgin-St. Thomas Bike Summit and Family Bike Festival.

1.3 A VISION FOR CYCLING IN ELGIN-ST. THOMAS

The ATI was developed to help guide decision making and to identify tools and policies necessary to support the implementation of a County-wide active transportation strategy. It is important to note that while the Active Transportation Initiative Strategy established the foundation for future active transportation planning and design, the cycling master plan provides Elgin-St. Thomas with clearer directives, confirming the feasibility of proposed routes and identifies priorities and initiatives to guide implementation. The reasons for this distinction clearly highlight the differences in the development of a strategy versus a master plan.

The purpose of the Elgin-St. Thomas Cycling Master Plan is to address the growing demand and interest in cycling specifically and build on the work that was completed for the ATI in 2012 through the…

- Refinement of the Cycling Network Concept in the ATI and confirmation of a County-wide cycling network;
- Recommended Cycling Facility Types for proposed network routes, based on the most current provincial design guidelines;
- Identification of high priority projects and implementation costs; and
- Consideration for maintenance requirements and costs.

The master plan is guided by a high-level vision that is intended to be achieved through the initiatives, priorities and recommendations identified in the Cycling Master Plan. The vision builds on the AT vision established for the ATI and provides a cycling specific focus for future design and development.

High-Level Active Transportation Initiative Vision	Cycling Specific Vision
To create and improve active transportation and active recreation opportunities throughout Elgin-St. Thomas for residents and visitors of all ages and abilities.	*To connect key community destinations found in the Elgin-St. Thomas rural areas and urban centres through a system of improved cycling opportunities for residents and visitors of all ages and abilities.*

2.0 THE CYCLING PLAN

2.1 DEVELOPING THE NETWORK

The Elgin-St. Thomas Cycling Network was developed using a seven-step development process. The process was established based on the premise of building on the findings of the Active Transportation Initiative as well as emerging trends, input and context sensitive considerations identified by the Active Transportation Technical Committee, members of the public as well as representatives from Active Elgin and staff from the Elgin-St. Thomas Public Health. Figure 2-1 illustrates the seven steps that were used to refine previous work completed, establish the cycling network and prioritize the linkages.

Figure 2-1 – Seven-Step Cycling Network Development Process

A more detailed description of steps 1 through 5 follows. Additional details about steps 6 and 7 are found in section 3.0.

Step 1:

Objective:

To undertake an assessment of the network concept prepared for the Active Transportation Initiative and assess the proposed linkages to determine their applicability as part of the cycling master plan. Through additional field investigation, route analysis and ongoing discussions with staff from Elgin-St. Thomas Public Health, the County, City and local municipalities a number of cycling route modifications were proposed for consideration. Some examples of the potential revisions and additions to the network are illustrated on Figure 2-2.

1

Review ATI Network Concept & Identify Modifications

1. Remove Flemming & Battery Line
2. Add Lake View Line (Currie Road to Dunborough Road)
3. Remove Dunborough Road, Furnival Road and Shaleton Line
4. Remove Mill Road
5. Remove Ron McNeil and focus on George Street and Ford Road
6. Add Imperial Road between Aylmer and Nova Scotia Line
7. Remove Richmond Road (Vienna Line to Heritage Line)
8. Improve connection between Aylmer and Tillsonburg
9. Add abandoned railway (Staffordville to Port Burwell)
10. Realign Waterfront Trail Route to Glen Erie Line

Figure 2-2 – Sample Potential ATI Network Revisions for the Cycling Master Plan

Step 2:

2

Review Revisions & Additions with Committee

Objective:

To gather additional input from the Active Transportation Technical Committee regarding potential revisions, additions and deletions to the original Active Transportation network.

On November 12th, 2013, the study team facilitated a study kick-off meeting / workshop. The meeting / workshop was used to undertake a more detailed review of the route network concept from the Active Transportation Initiative using a set of route selection criteria and to identify potential priorities to be reviewed and addressed over the course of the study.

The route selection criteria used by the committee to review the ATI network are presented in Table 2.1.

Table 2.1 – Route Selection Criteria used to Assess the ATI Network

Criteria	Description
Connected & Linked	• The Active Transportation Network should link communities and important destinations throughout Elgin-St. Thomas such as commercial, employment and residential areas, community centres, leisure, recreation and tourist destinations, parks, schools, etc. • The broader Active Transportation Network should link directly with neighbouring municipalities' existing or proposed network routes at the county boundary. • At the local municipal level, the broader Active Transportation Network should have the ability to link to local routes. • Active Transportation routes should cross major barriers such as railways, highways, major arterial roads, valleys and rivers, etc., at appropriate locations.
Visible	• Active Transportation routes should be a visible component of the transportation system. • Spacing between routes / route densities should relate to the geography and settlement patterns in Elgin-St. Thomas.
Integrated	• The Active Transportation Network should be integrated with other modes of transportation, particularly public transit. Routes should provide access to existing and planned transit hubs.

Criteria	Description
Attractive & Interesting	• AT routes should take advantage of attractive and scenic areas, views and vistas. They should provide users with the opportunity to experience and appreciate the natural and cultural heritage assets throughout Elgin-St. Thomas.
Diverse	• The Active Transportation Network should provide a diverse on and off-road walking and cycling experience throughout Elgin-St. Thomas. • The Active Transportation Network should appeal to a range of user abilities and interests, which requires different facility types in different locations.
Responsive to User Needs	• Reducing risks to users and providing comfortable facilities should be key considerations when selecting routes for the Active Transportation network. The confidence and acceptance of the network can be instilled in users by reducing real and perceived risk. • To reduce user risk and promote user safety, routes should be selected and designed in accordance with established/accepted guidelines and Best Management Practices. • User safety should not be compromised in the interest of minimizing initial construction or ongoing operational costs. Where this is not feasible, alternate routes should be sought. • Routes should be appropriately signed to communicate the level of accessibility so that users can make their own decision about use based on their personal ability.
Context-Sensitive	• Facility design for individual Active Transportation routes should follow widely accepted guidelines but may also be modified to respond to the immediate surroundings. • Innovative and emerging designs should be considered in appropriate locations.
Sustainable	• Sustainability should be a key consideration in the alignment, design and selection of materials for on and off-road Active Transportation routes.
Cost-Effective	• The cost to implement and maintain the AT network and supporting facilities and amenities should be phased over time and designed to be affordable and appropriate in scale for Elgin-St. Thomas. • Opportunities for partnerships with other levels of government and outside organizations should be pursued wherever possible for the purposes of implementing, operating and maintaining the AT network.

The criteria used to refine the ATI network were used by the study team to identify priorities for the cycling network and are intended to be used as Elgin-St. Thomas Public Health, the County, City and local municipalities proceed with the implementation of the plan, the selection of future priorities as opportunities arise and updates/ revisions to the network. The following provides an overview of some of the comments received during the workshop and used to refine the network identify potential route priorities.

Removals:

- Furnival Road from Talbot Line to Rodney
- Dunborough Road from Talbot Line to the north county boundary
- Shackleton Line and Thomson Line from Currie Road to Iona Road
- Walnut Line, Willey Road and Erin Line from Iona Road to Fingal Line
- Roberts Line from Quaker Road to Yarmouth Centre Road
- Vienna Line and Brown Road from Richmond Road to Nova Scotia Line
- College Line from Springfield Road to Springer Hill Road
- The combination of Clachan Road, Fleming Line and Blacks Road from Queens Line to the north county boundary
- Mill Road north of the abandoned railway line (CaSo Line) to the north county boundary
- Proposed trail in west Alymer from Talbot Line to Brook Line (use Caverly Road)
- Remove Lake Shore Line east of Stafford Road – the road has been closed due to shoreline erosion and it is necessary to route up to Glen Erie Line

Additions / Opportunities to Consider:

- Add the abandoned railway line from Port Burwell towards Tillsonburg (to the county boundary in northeast Bayham Township)
- Consider Lakeview Line and Dunborough Road west of Currie Road to Talbot Line
- Yarmouth Centre Road, Willsie Bourne and Glanworth Drive from Edgeware Line to Belmont Road
- Edgeware Line from Highbury Avenue to connect with Glencolin Line northeast of Aylmer
- Treadwell Street, Caverly Road, Brook Line and Rogers Road; route to link Aylmer to Springwater Conservation Area

- The combination of Fath Avenue, John Street, Melanie Drive, Elk Street and Victoria Street in Alymer
- Springfield Road from Glencolin Line to Ron McNeil Line
- Glen Erie Line from Stafford Line to Plank Road
- The combination of Plank Road, Light Line, Tollgate Road, Jackson Line and County Road 55 / Bayham North Boundary Road from Port Burwell to Coyle Road

Network Priorities:

- Waterfront Trail route along the entire north shore of Lake Erie from the east county boundary to the west county boundary
- Sunset Drive from Elm Street to Port Stanley
- Brouwers Line from Quaker Road to Springwater Road (has been scheduled for rehabilitation / reconstruction in the short term)
- Lakeview Line west of Fingal Line (has been scheduled for rehabilitation / reconstruction in the short term)
- Park Avenue from Elm Street to Warehouse Street (St. Thomas)
- Forest Avenue from Ross Street to Highview Avenue (St. Thomas)
- McIntyre Street and Moore Street from Ross Street to Centre Street (St. Thomas)
- Burwell Road from Ron McNeil Line to South Edgeware Road (St. Thomas)
- "Rail with Trail" from Elm Street to Kains Street in west St. Thomas
- Axford Parkway from Lake Margaret Trail to Fairview Avenue (St. Thomas)
- Raven Avenue and Peach Tree Boulevard from Fairview Avenue to Elm Street (St. Thomas)

In addition to the input received, County, City and local municipal staff also provided with study team with available roadway data which was used to inform the analysis undertaken for Step #3. Details regarding the data received are identified in the description of Step 3 below.

Step 3:

3

Confirm Facility Types

Objective:

To review, confirm and revise as necessary the appropriate facility type for each of the proposed cycling routes.

Using the input received during and following the stakeholder workshop, proposed as well as revised facility types were identified. The study team used the facility selection process identified in **Ontario Traffic Manual Book 18** to undertake the assessment. **Table 2.2** identifies the steps taken to review the ATI proposed facility types.

Table 2.2 – Overview of OTM Book 18 Facility Selection Tool

Step 1: Pre-Select Facility Type Using Nomograph	Step 2: Examine Other Factors & Select Appropriate Facility Type	Step 3: Justify Final Decision & Identify Potential Revisions or Enhancements
• Collect and review existing and future AADT volumes and 85th percentile motor vehicle operating speeds; • Plot on Nomograph; and • Identify bicycle facility options.	• Other factors could include: • Function of street or highway • Collision history • Sightlines • Level of Cycling Use • Function of Route within Network • On-Street Parking • Cost / Available Funding	• Justify decision based on results from Steps 1 and 2 plus application of sound engineering judgment; • Identify design enhancements; and • Document rationale.

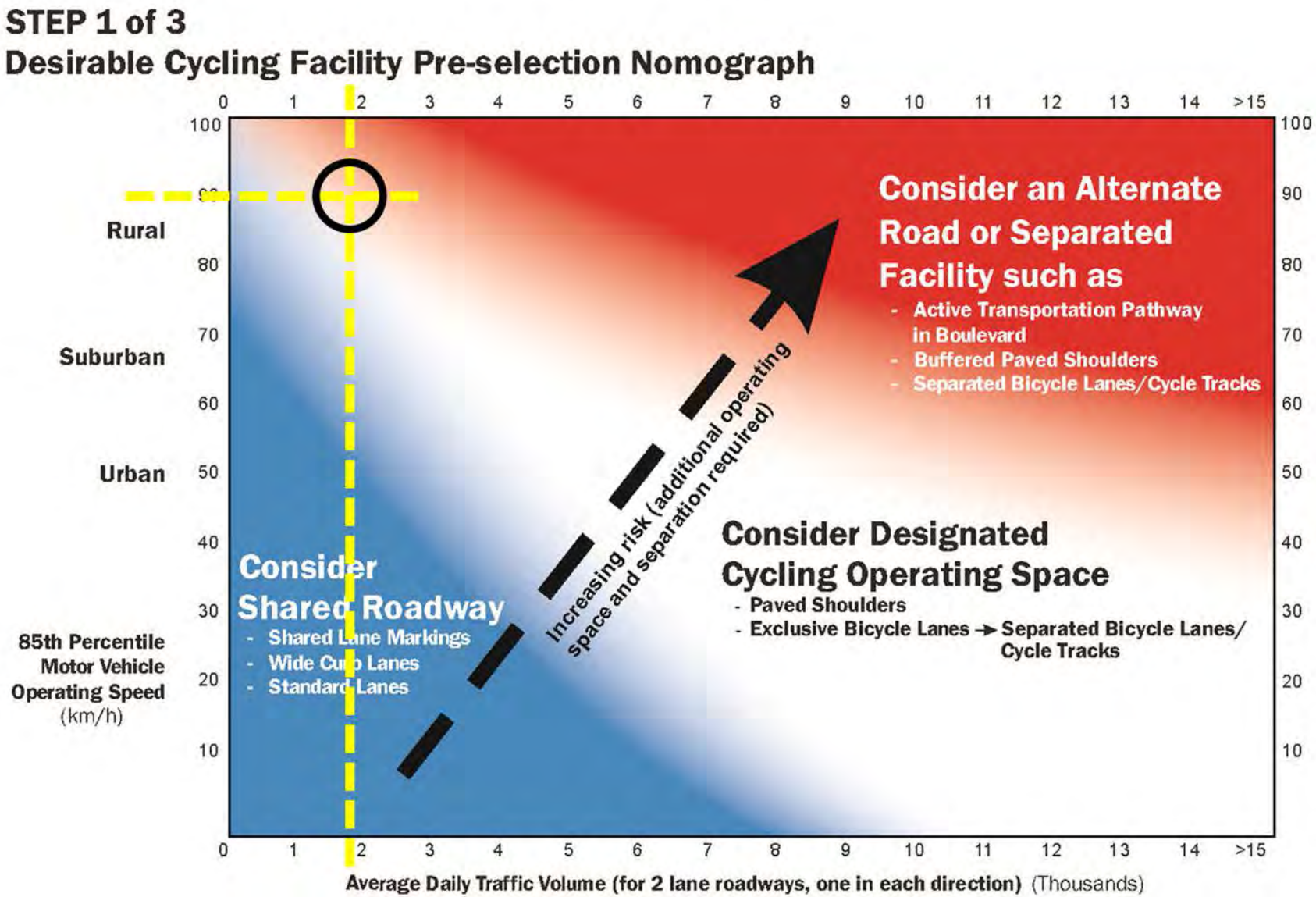
Additional information / data received from the County, City and municipalities including volume, surface width, shoulder width, posted speed, parking restrictions and network priorities, was used to inform Step 2 of the Facility Selection Process. In some cases, the proposed linkage and facility type were revised based on the information which was provided. In other cases, due to context specific considerations the linkage was suggested for removal from the network. The following are examples of the possible outcomes of this exercise.

Revised Facility Type: County Road 3 (Talbot) From Dunborough to County Road 76

Assumptions:

- 85th percentile operating speeds are 10-15km/hr. faster than posted speeds on rural roads, 5-10km/hr. faster than posted speeds on urban roads
- Assume AADT volumes on local roads are lower than County roads in rural areas (where no data has been provided)

Revised Facility Type: County Road 3 (Talbot) From Dunborough to County Road 76



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Revised Facility Type: County Road 3 (Talbot) From Dunborough to County Road 76

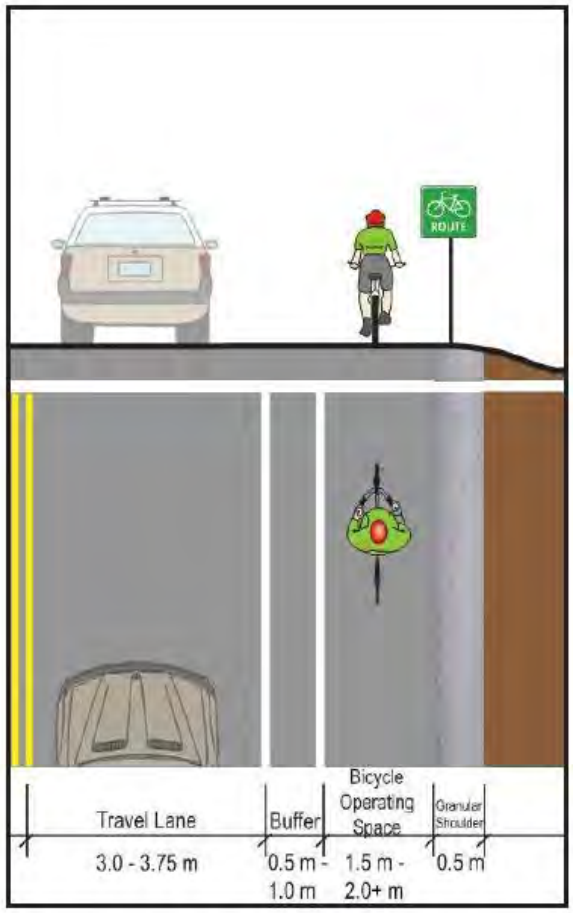
Step 2 of 3 - Other Factors for Consideration:

- Existing paved shoulders (approximately 0.6 to 0.75m wide)
- Generally long / good sight lines
- High volume road with low posted speed
- Rural land-uses and surrounding areas
- Key cyclist connection for touring purposes
- Direct connection to urban areas within the County

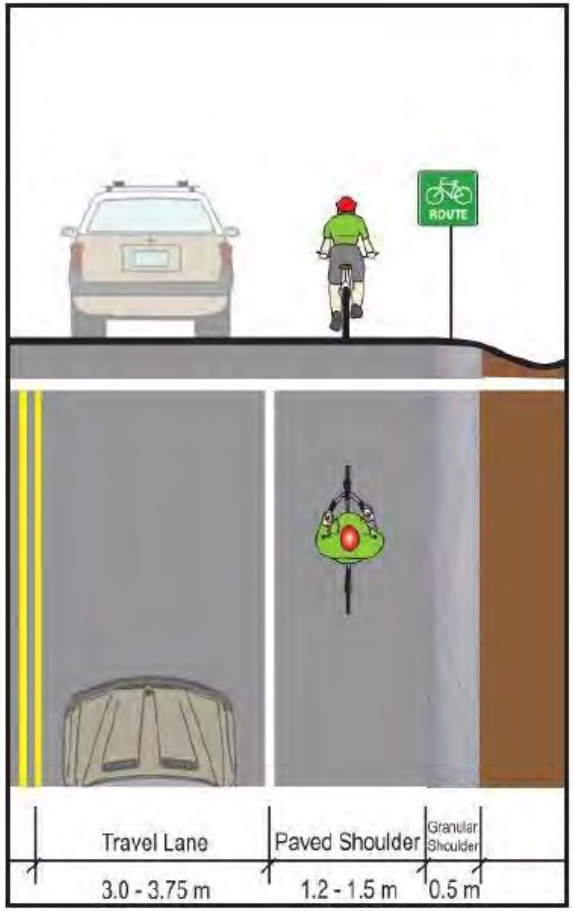
Revised Facility Type: County Road 3 (Talbot) From Dunborough to County Road 76

Step 3 of 3 – Justify Final Decision and Identify Revisions or Enhancements:

- Recommendation: Application of wider Paved Shoulder with supplementary green bike route signage and share the road signage due to known high operating speed on the roadway



Signed Bicycle Route with Buffered Paved Shoulder



Signed Bicycle Route with Paved Shoulder

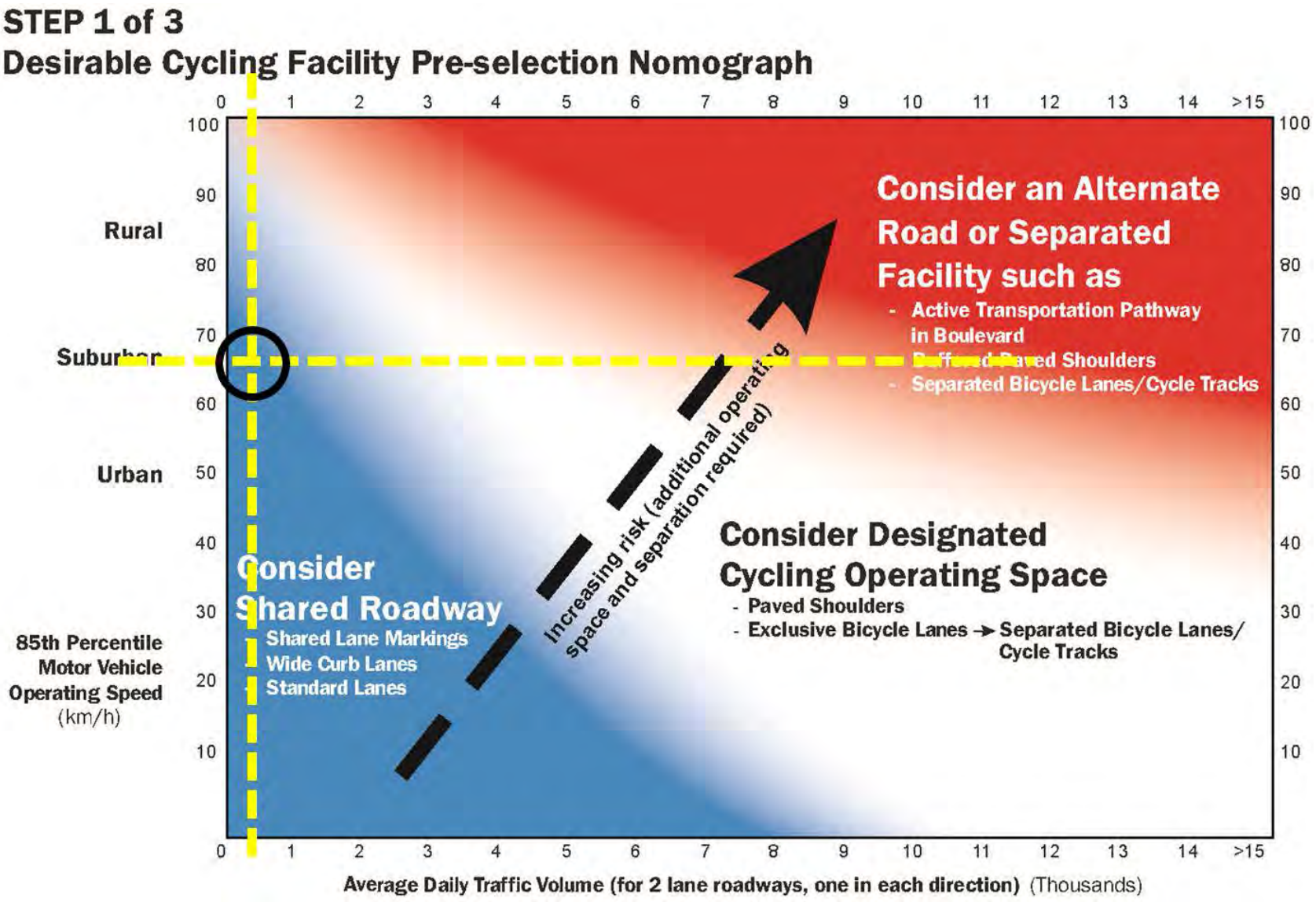
#ActiveElginBikes

Removal of Facility Type: Richmond (County Road 43) from John Wise Line to Heritage Line

Assumptions:

- 85th percentile operating speeds are 10-15km/hr. faster than posted speeds on rural roads, 5-10km/hr. faster than posted speeds on urban roads
- Assume AADT volumes on local roads are lower than County roads in rural areas (where no data has been provided)

Removal of Facility Type: Richmond (County Road 43) from John Wise Line to Heritage Line

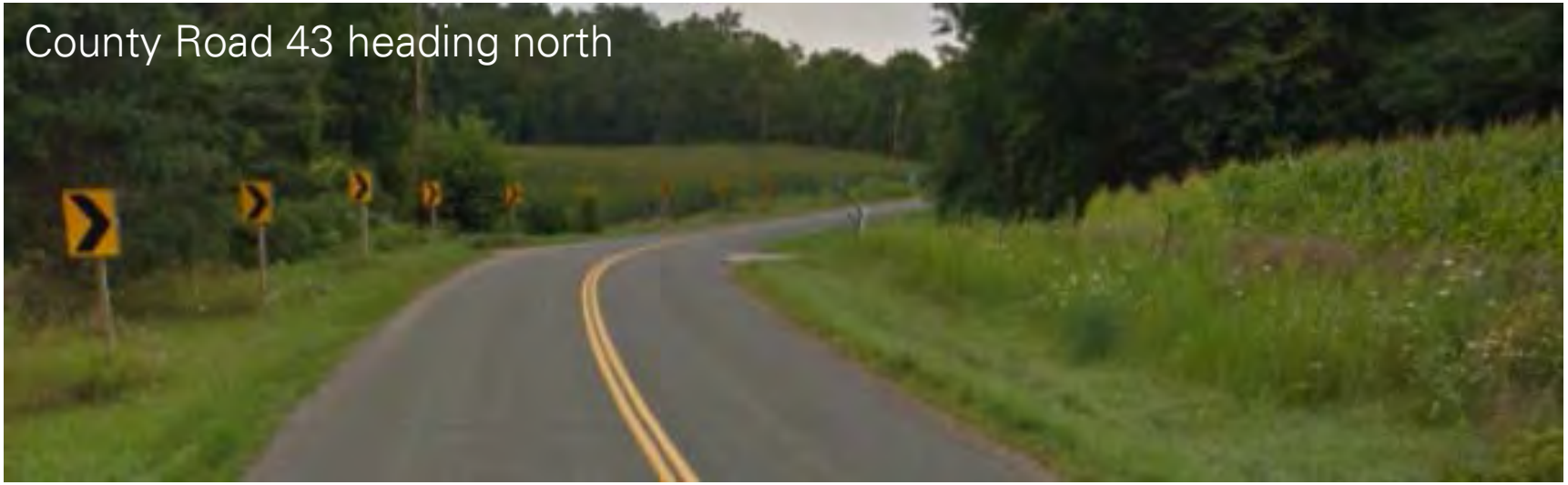


#ActiveElginBikes

Removal of Facility Type: Richmond (County Road 43) from John Wise Line to Heritage Line

Step 2 of 3 - Other Factors for Consideration:

- Existing pavement width of 7.2m with an existing paved shoulder of 0.5m
- Considered a scenic route with topographic variation
- Key north-south connection
- Linkages to local municipal destinations in the east



Step 3 of 3 – Justify Final Decision and Identify Revisions or Enhancements:

- Operating speed of vehicles is higher than posted speed
- Topographical variations cause sightline issues
- History of collisions between motor vehicles
- Recommendation: to be removed from the network and will not be identified as a cycling linkage as part of the Elgin-St. Thomas Cycling Master Plan network. Cyclists may choose to use this connection but it is not recommended as a route within the network.

Step 4:

4

Field Assess Routes & Highlight Priority Locations

Objective:

To examine and assess the revised routes in the field and to identify potential priority locations along the network. Between October 2013 and May 2014 the study team undertook a number of days of field investigation at key locations along the proposed Cycling Network. During the field investigation the study team gathered information including photographs, GPS waypoints, inventoried existing signage and route characteristics.

Figure 2-3 provides a snapshot of the database of route and GPS waypoint information that was gathered. The information gathered in the field was supplemented by a desk-top exercise using Google Earth streetview as well as high-resolution mapping and measurements from elginmapping.ca. Using the information gathered, the study team undertook a review of potential priority locations as part of the Cycling network. Two questions were asked as party of this exercise – **what are the highest priorities** and **what is reasonable to accomplish in the short-term?**

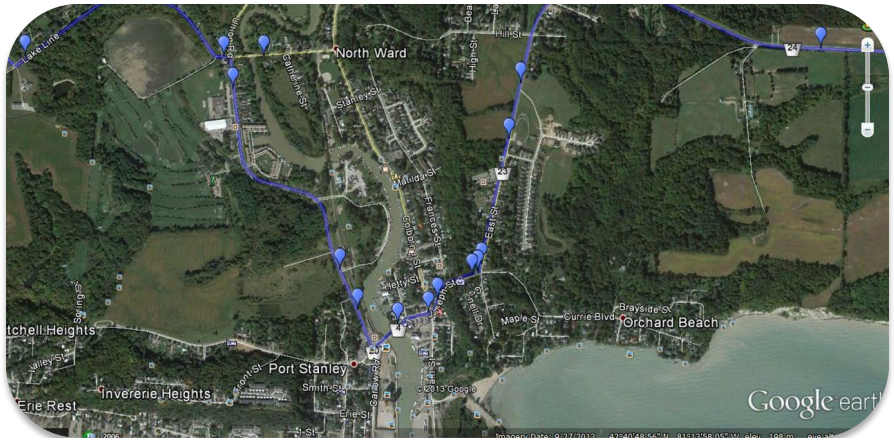
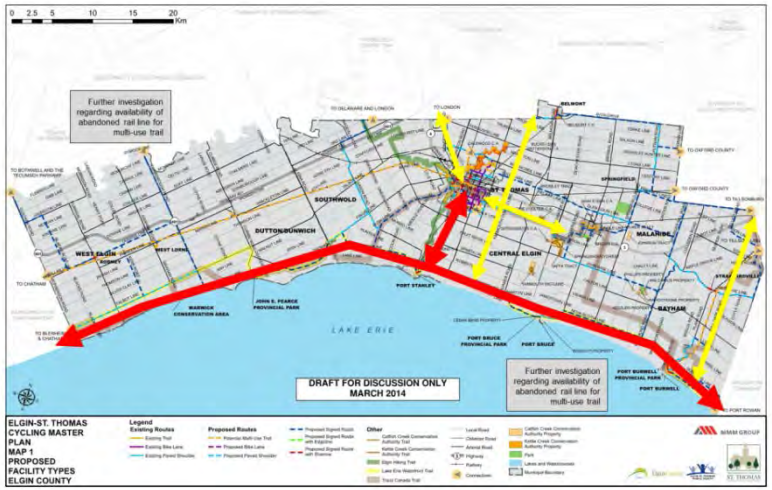


Figure 2-3 – KML Overlay of Field Work Route and GPS Waypoints

Some key considerations included areas with current high cycling demand, noted routes (e.g. Waterfront Trail route), establishing key corridors / spines, connecting important destinations (especially in urban areas), current capital forecast (add cycling facilities as part of scheduled projects) and cost. Findings provided the study team with suggested priority projects which informed the development of cycling specific priorities. These priorities build on initial priorities identified by the Active Transportation Technical Committee. Figure 2-4 illustrates some of the initial priorities and Table 2.3 provides a summary of the linkages.



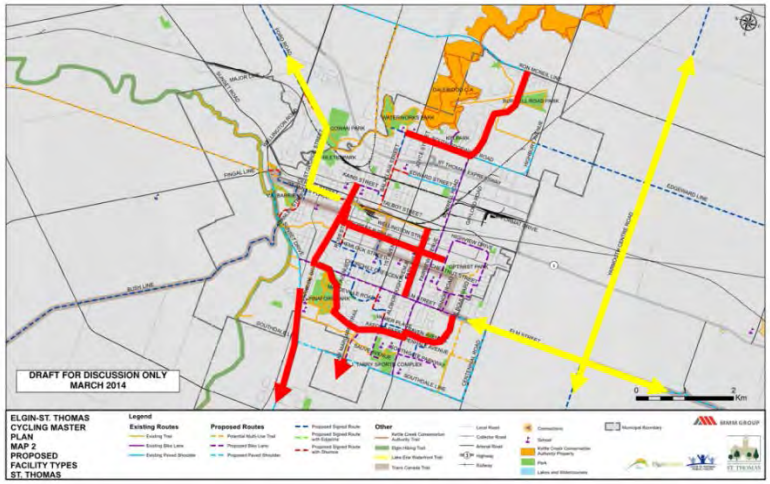


Figure 2-4 – County and City Initial and Additional Priorities

Table 2.3 – Summary of Potential County and City Initial and Additional Priorities

Potential County Priorities		Potential City Priorities	
Initial	Additional	Initial	Additional
• Waterfront Trail Route from the eastern county boundary to the west county boundary • Sunset Drive from Port Burwell to St. Thomas	• Establish connection from west St. Thomas to London • Establish a connection between St. Thomas and Aylmer • A north-south connection from the lake Erie shoreline to London, using rural roads between St. Thomas and Aylmer (e.g. consider Yarmouth Centre Road)	• Sunset Drive heading south from the St. Thomas • Establish a connection to the north part of the city (e.g. using Burwell Road) • Forest Avenue, Park Avenue, new "rail with trail" in the west end, and connect this with a southern route using Axford Parkway, Raven Avenue and Peach Tree Boulevard	• Same as those identified at the county-wide level

Step 5:

5

Review with Active Transportation Technical Committee & Public

Objective:

To undertake a review of the revised cycling network and potential cycling priorities with the Active Transportation Technical Committee and members of the public.

Between March and May 2014 study findings were reviewed with the Active Transportation Technical Committee and members of the public. Their input was gathered and was used to refine the study findings and further confirm the proposed cycling network. The following table is a summary of the consultation activities undertaken and some of the input received.

Table 2.4 – Summary of Consultation Activities & Input Received

Public Information Centre	ATTC Workshop	Additional Engagement Activities
Date: March 28th – 30th, 2014 Time: Staffed Display Booth at the St. Thomas Home Show Location: Timken Centre, St. Thomas, ON	Date: May 28th, 2014 Time: 9:00 a.m. – 11:00 a.m. Location: St. Thomas Public Health Boardroom	• Earth Day Celebrations in Aylmer (April 22, 2014) • West Elgin Community Health Fair (May 28, 2014)
• Move route in Dutton/Dunwich back to Talbot Line east of Dunborough Road; • Converting the old CaSo rail line to a trail is a great idea; • Need more access to the beach in Port Stanley; • Good cycling routes; Fruit Ridge Line east of Sunset Drive, Ferguson Line and Crossley Hunter Line, Fairview Avenue (St. Thomas); • Abandoned railway line between Port Burwell and Tillsonburg	• Do not use Thomas Line from Iona Road to Talbot Road. Dutton/Dunwich is in the process of closing this short section of redundant road • Add Pleasant Valley Road from Quaker Road Springwater Road, and Springwater Road from Pleasant Valley Line to Conservation Line • Change the implementation phase for Ferguson Line from medium term to long term	• At the Aylmer Earth Day celebration the turn-out was small but excellent discussion was undertaken with some residents about the benefits of the plan • At the community health fair turn-out was small but more support was gained by the addition of some new Citizens4ActiveTransportation members

Public Information Centre	ATTC Workshop	Additional Engagement Activities
• South Edgeware east of Burwell Road - better signs and better maintenance • There were several requests for single track, varied terrain trails for mountain cycling • Hydro corridor from South Edgeware Road and Highbury Avenue to Ron McNeil Line is a good spot for a trail route, residents are awaiting the pathway planned for the Burwell Road Park area • Add Dalewood Road north of South Edgeware Road • Ron McNeil Line used by cyclists and runners between St. Thomas and Aylmer • Old railway line west of St. George Street. (parallel to Centre Street) used to be a great cycling connection, and has recently been converted to a municipal parking lot.	• Change the facility type on Colborne Street from Warren Street to Charlotte Street from proposed bike lane to proposed signed cycling route with the urban shoulder / edgeline treatment.	• At both events attendees were asked to provide their input on where they like to cycle. The responses provided reinforced the proposed routes captured on the mapping.

2.2 WHAT HAS CHANGED SINCE THE ATI?

Using the network development process identified in **section 2.1**, a number of revisions and refinements have been made to the original ATI network to form the proposed cycling network. Key updates have been made in the form of **additions, deletions** and **revisions**. **Table 2.5** provides an overview of the intent of each of these proposed changes.

Table 2.5 – ATI Network Update Definitions

Additions	Deletions	Revisions
Routes that have been included in the cycling network that were previously not identified as part of the ATI network based on opportunities which have become available since the finalization of the ATI as well as capital works initiatives which have been identified in the County, City or local municipal budget.	Routes which have been removed from the original ATI network and have not been included in the cycling network. Routes may have been removed due to context sensitive characteristics highlighted through field work or technical input received from the steering committee.	Alternate routes or facilities types that have been identified for routes that were originally identified in the ATI based on additional information gathered from the steering committee or through field work undertaken.

The proposed network is illustrated on **Maps 1** through **9.** The routes identified as the confirmed network can be compared to the ATI network mapping to highlight some of the additions and deletions. Some examples of the additions and deletions are presented below:

Additions:

- Abandoned railway line from Port Burwell towards Tillsonburg
- Plank Road from Port Burwell to Straffordville
- Imperial Road from Nova Scotia Line to Aylmer
- Quaker Road from Dexter Line to Elm Line
- Fruit Ridge Line and Pleasant Valley Road from Sunset Drive to Springwater Road
- Edgeware Line and Glencolin Road from Highbury Avenue to Springer Hill Road

ELGIN-ST. THOMAS CYCLING MASTER PLAN MAP 1 PROPOSED FACILITY TYPES ELGIN COUNTY

Legend

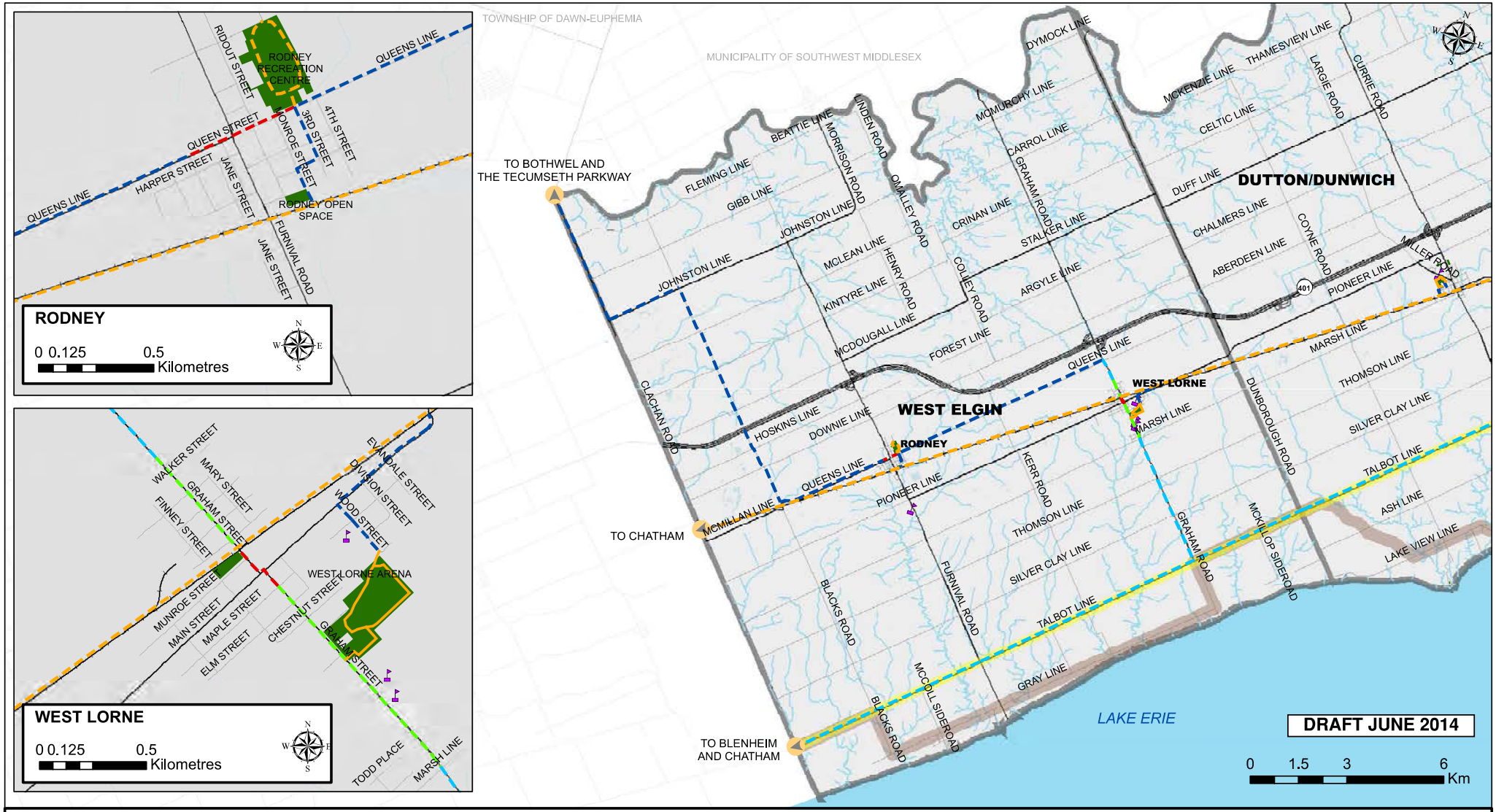
Existing Routes
- Existing Multi-Use Trail
- Existing Bike Lane
- Existing Paved Shoulder

Proposed Routes
- Proposed Multi-Use Trail
- Proposed Bike Lane
- Proposed Paved Shoulder
- Proposed Signed Route
- Proposed Signed Route with Edgeline (Urban Shoulder)
- Proposed Signed Route with Sharrow

Other
- Catfish Creek Conservation Authority Trail[1]
- Kettle Creek Conservation Authority Trail[1]
- Lake Erie Waterfront Trail Route
- Trans Canada Trail Route
- Local Road
- Collector Road
- Arterial Road
- Highway
- Railway
- Connection
- Catfish Creek Conservation Authority Property
- Kettle Creek Conservation Authority Property
- Park
- Lakes and Watercourses
- Municipal Boundary

MMM GROUP

Note:
1. Cycling may not be permitted on some destination trails.



ELGIN-ST. THOMAS CYCLING MASTER PLAN
MAP 2
PROPOSED FACILITY TYPES
WEST ELGIN

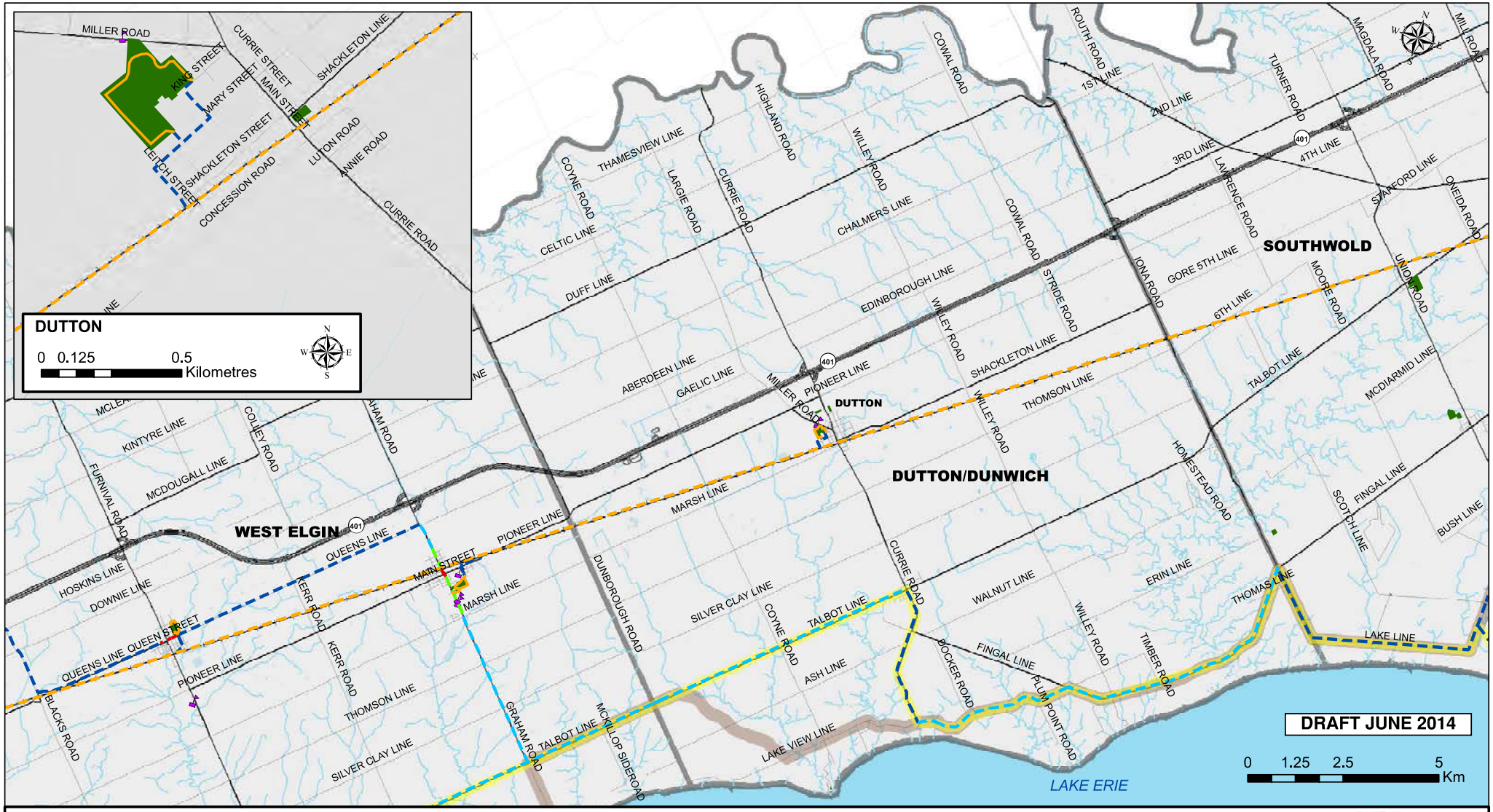
Legend

Existing Routes
- Existing Multi-Use Trail
- Existing Bike Lane
- Existing Paved Shoulder

Proposed Routes
- Proposed Multi-Use Trail
- Proposed Bike Lane
- Proposed Paved Shoulder
- Proposed Signed Route
- Proposed Signed Route with Edgeline (Urban Shoulder)
- Proposed Signed Route with Sharrow

Other
- Local Road
- Collector Road
- Arterial Road
- Highway
- Lake Erie Waterfront Trail
- Trans Canada Trail Route
- Railway
- Connection
- School
- Park
- Lakes and Watercourses
- Municipal Boundary

MMM GROUP



ELGIN-ST. THOMAS CYCLING MASTER PLAN
MAP 3
PROPOSED FACILITY TYPES
DUTTON/DUNWICH

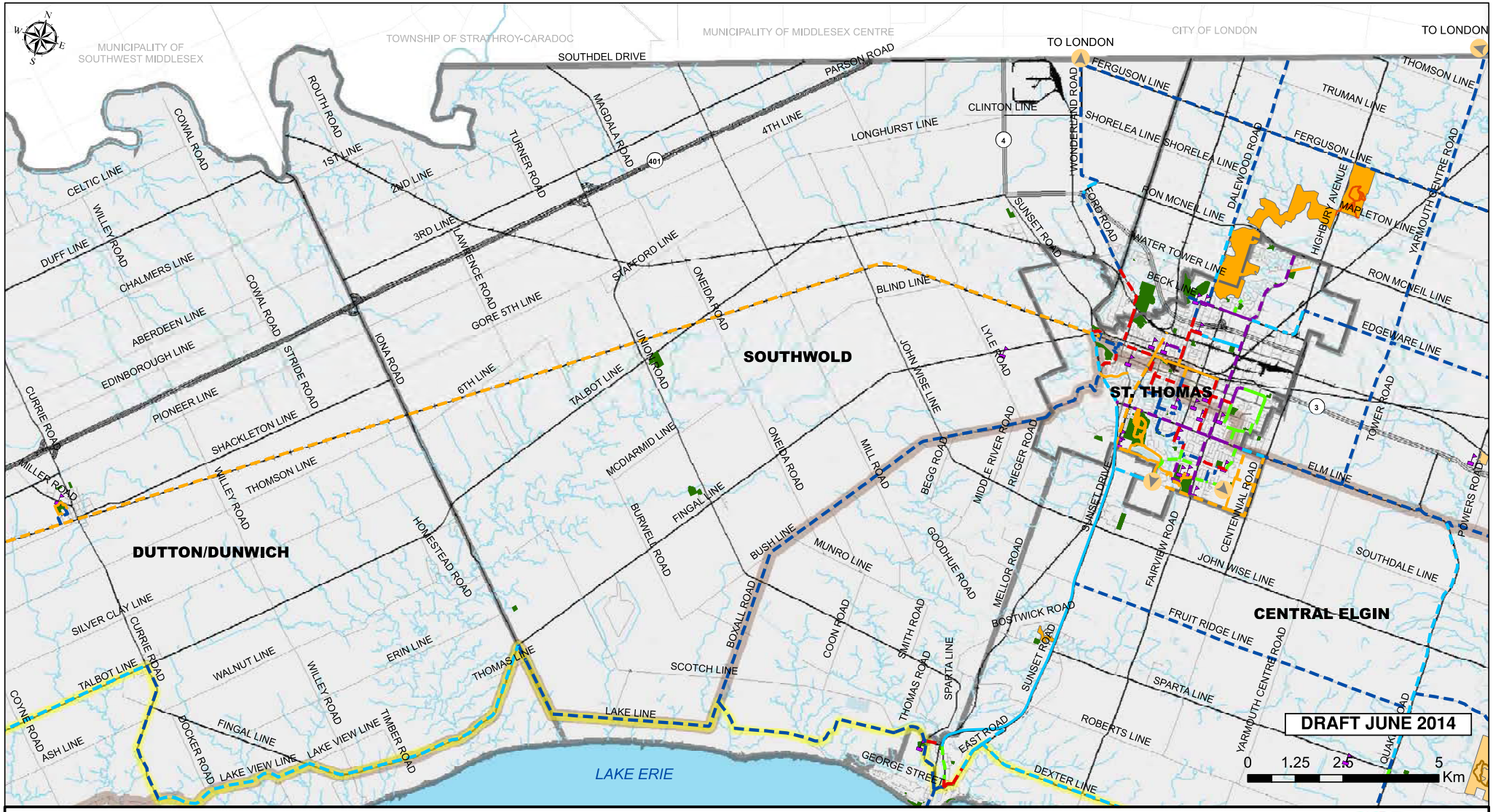
Legend

Existing Routes
- Existing Multi-Use Trail
- Existing Bike Lane
- Existing Paved Shoulder

Proposed Routes
- Proposed Multi-Use Trail
- Proposed Bike Lane
- Proposed Paved Shoulder
- Proposed Signed Route
- Proposed Signed Route with Edgeline (Urban Shoulder)
- Proposed Signed Route with Sharrow

Other
- Local Road
- Collector Road
- Arterial Road
- Highway
- Lake Erie Waterfront Trail
- Trans Canada Trail Route
- Railway
- Connection
- School
- Park
- Lakes and Watercourses
- Municipal Boundary

MMM GROUP



ELGIN-ST. THOMAS CYCLING MASTER PLAN
MAP 4
PROPOSED FACILITY TYPES
SOUTHWOLD

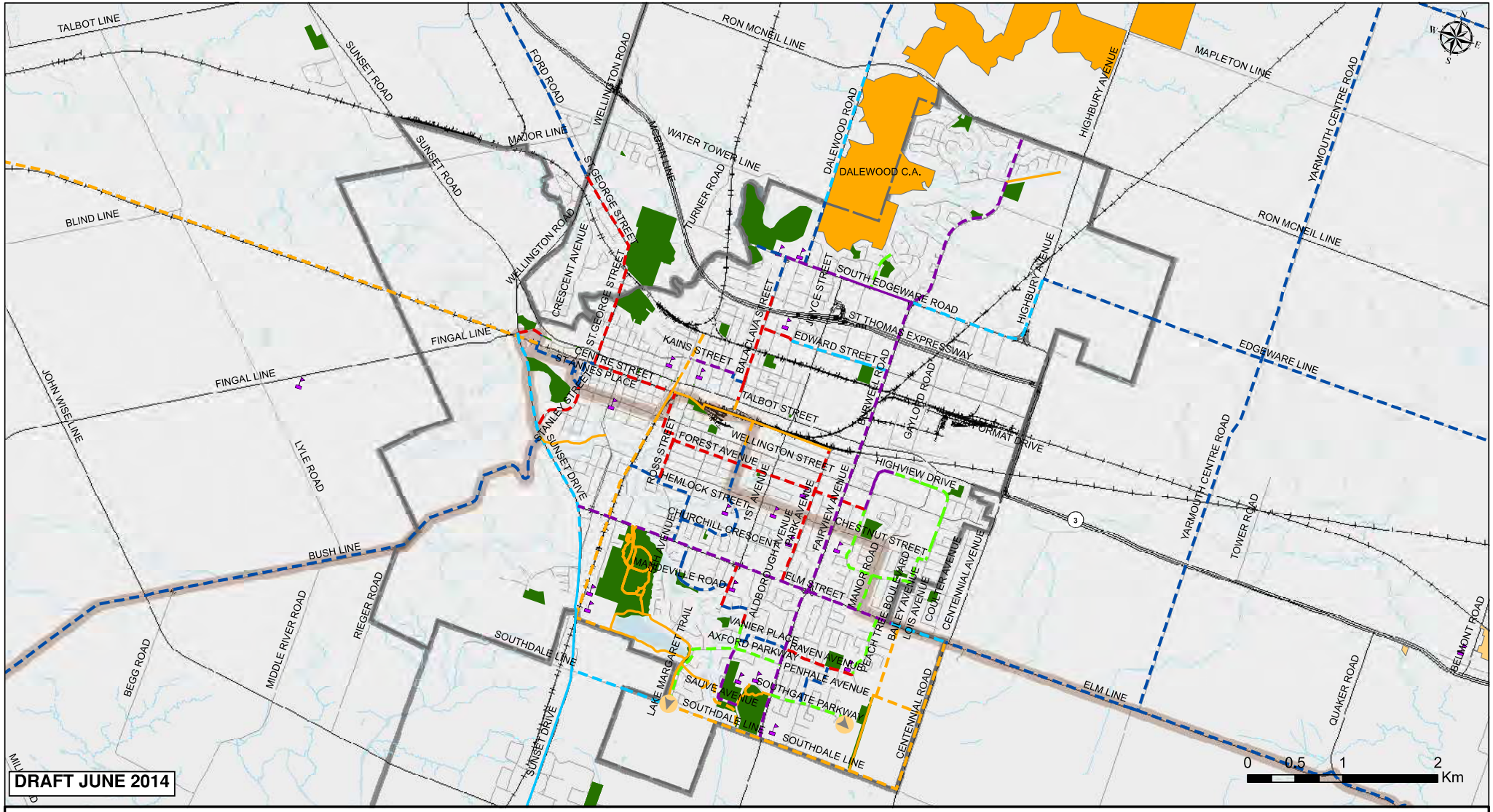
Legend

Existing Routes
- Existing Multi-Use Trail
- Existing Bike Lane
- Existing Paved Shoulder

Proposed Routes
- Proposed Multi-Use Trail
- Proposed Bike Lane
- Proposed Paved Shoulder
- Proposed Signed Route
- Proposed Signed Route with Edgeline (Urban Shoulder)
- Proposed Signed Route with Sharrow

Other
- Local Road
- Collector Road
- Arterial Road
- Highway
- Lake Erie Waterfront Trail
- Trans Canada Trail Route
- Railway
- Connection
- School
- Park
- Lakes and Watercourses
- Municipal Boundary

MMM GROUP



DRAFT JUNE 2014

ELGIN-ST. THOMAS CYCLING MASTER PLAN
MAP 5
PROPOSED FACILITY TYPES
ST. THOMAS

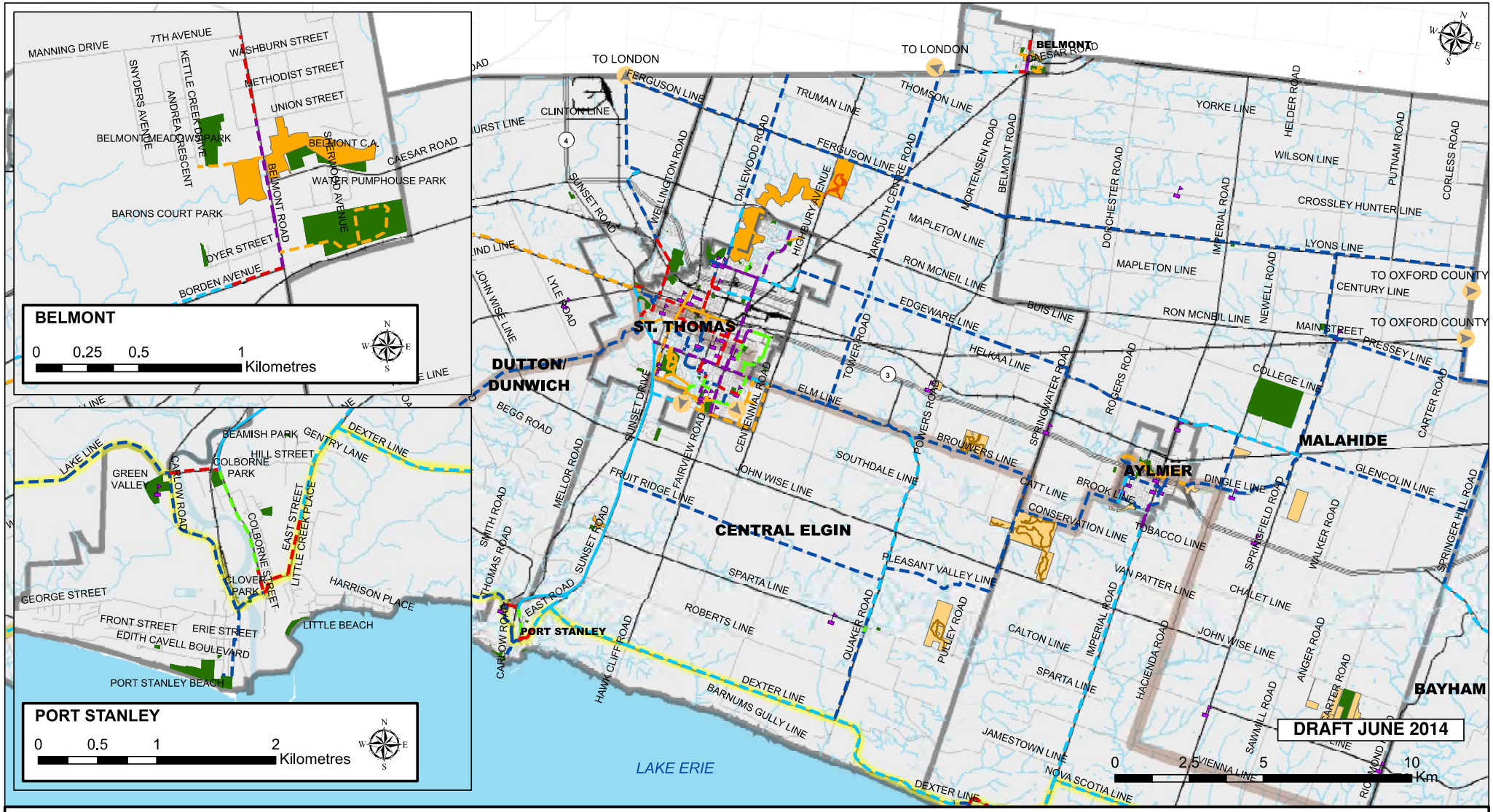
Legend

Existing Routes
- Existing Multi-Use Trail
- Existing Bike Lane
- Existing Paved Shoulder

Proposed Routes
- Proposed Multi-Use Trail
- Proposed Bike Lane
- Proposed Paved Shoulder
- Proposed Signed Route
- Proposed Signed Route with Edgeline (Urban Shoulder)
- Proposed Signed Route with Sharrow

Other
- Local Road
- Collector Road
- Arterial Road
- Highway
- Trans Canada Trail Route
- Railway
- Connection
- School
- Kettle Creek Conservation Authority Property
- Park
- Lakes and Watercourses
- Municipal Boundary

MMM GROUP
ElginCounty
ELGIN ST. THOMAS PUBLIC HEALTH
ST. THOMAS



ELGIN-ST. THOMAS CYCLING MASTER PLAN
MAP 6
PROPOSED FACILITY TYPES
CENTRAL ELGIN

Legend

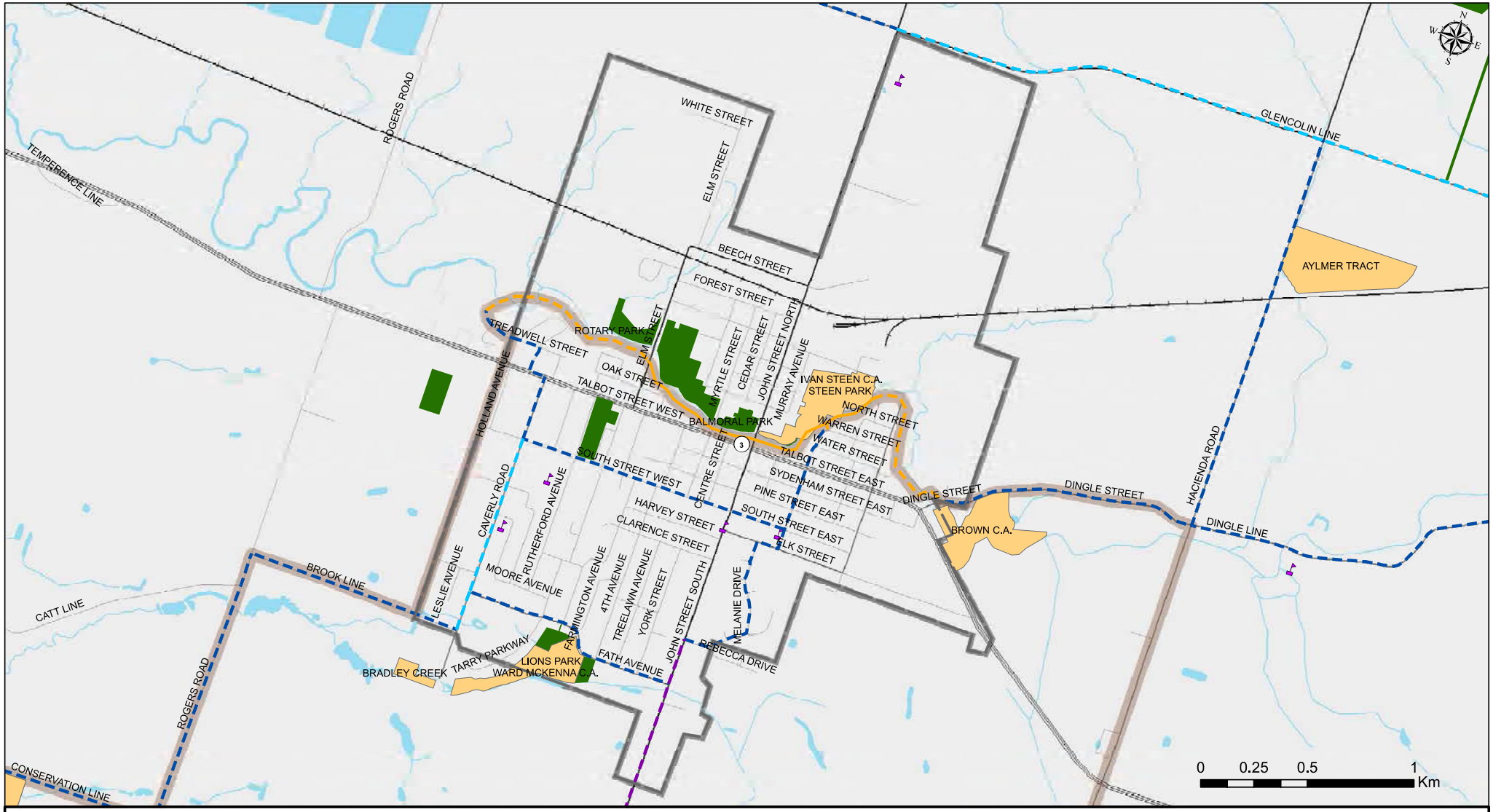
Existing Routes
- Existing Multi-Use Trail
- Existing Bike Lane
- Existing Paved Shoulder

Proposed Routes
- Proposed Multi-Use Trail
- Proposed Bike Lane
- Proposed Paved Shoulder
- Proposed Signed Route
- Proposed Signed Route with Edgeline (Urban Shoulder)
- Proposed Signed Route with Sharrow

Other
- Catfish Creek Conservation Authority Trail[1]
- Kettle Creek Conservation Authority Trail[1]
- Lake Erie Waterfront Trail
- Trans Canada Trail Route
- Local Road
- Collector Road
- Arterial Road
- Highway
- Railway
- Connection
- School
- Catfish Creek Conservation Authority Property
- Kettle Creek Conservation Authority Property
- Park
- Lakes and Watercourses
- Municipal Boundary

Note:
1. Cycling may not be permitted on some destination trails.

MMM GROUP



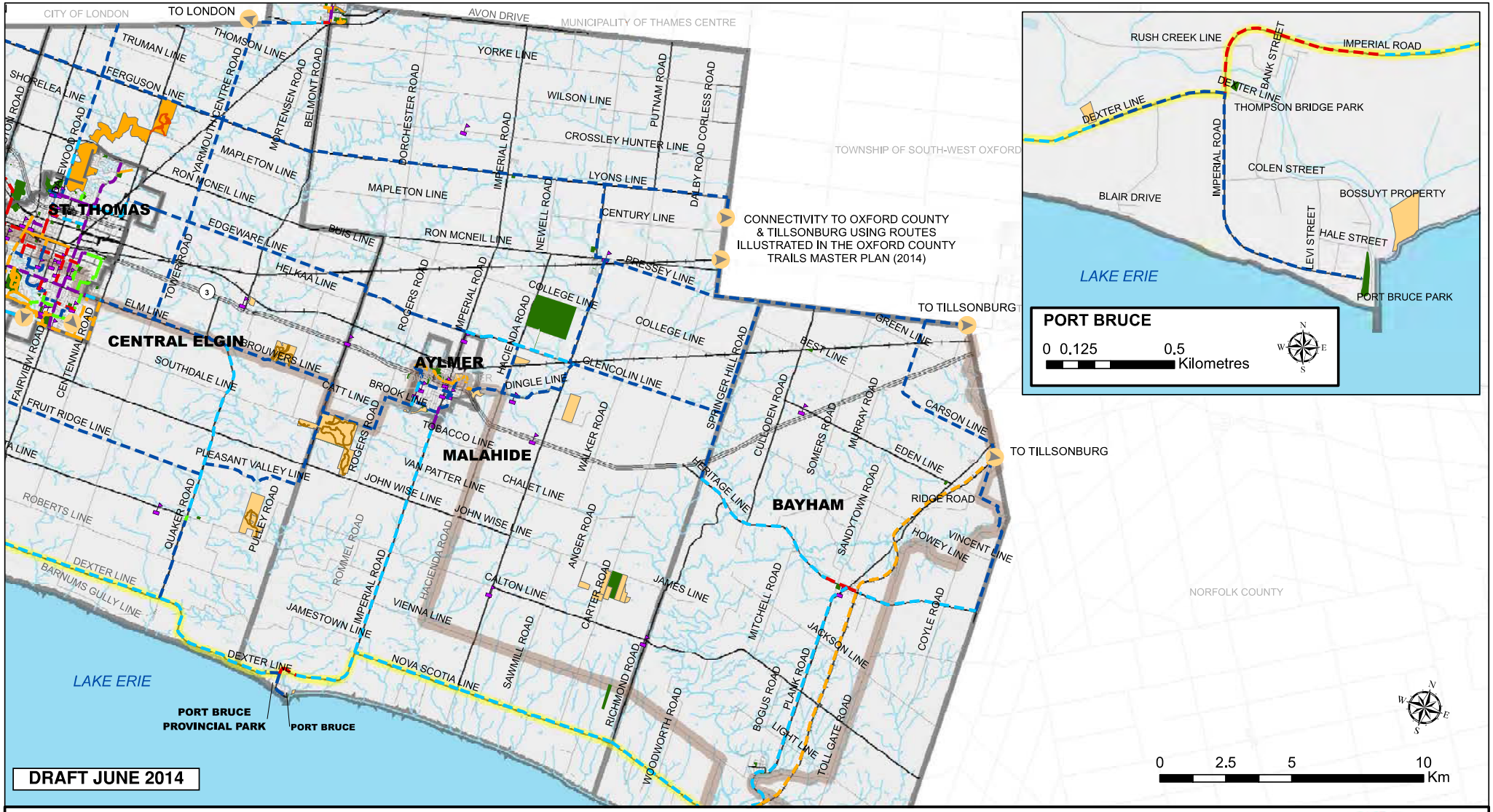
ELGIN-ST. THOMAS CYCLING MASTER PLAN
MAP 7
PROPOSED FACILITY TYPES
AYLMER

Legend

Existing Routes
- Existing Multi-Use Trail
- Existing Bike Lane
- Existing Paved Shoulder

Proposed Routes
- Proposed Multi-Use Trail
- Proposed Bike Lane
- Proposed Paved Shoulder
- Proposed Signed Route
- Proposed Signed Route with Edgeline (Urban Shoulder)
- Proposed Signed Route with Sharrow

Other
- Local Road
- Collector Road
- Arterial Road
- Highway
- Railway
- Trans Canada Trail Route
- School
- Catfish Creek Conservation Authority Property
- Park
- Lakes and Watercourses
- Municipal Boundary



ELGIN-ST. THOMAS CYCLING MASTER PLAN
MAP 8
PROPOSED FACILITY TYPES
MALAHIDE

Legend

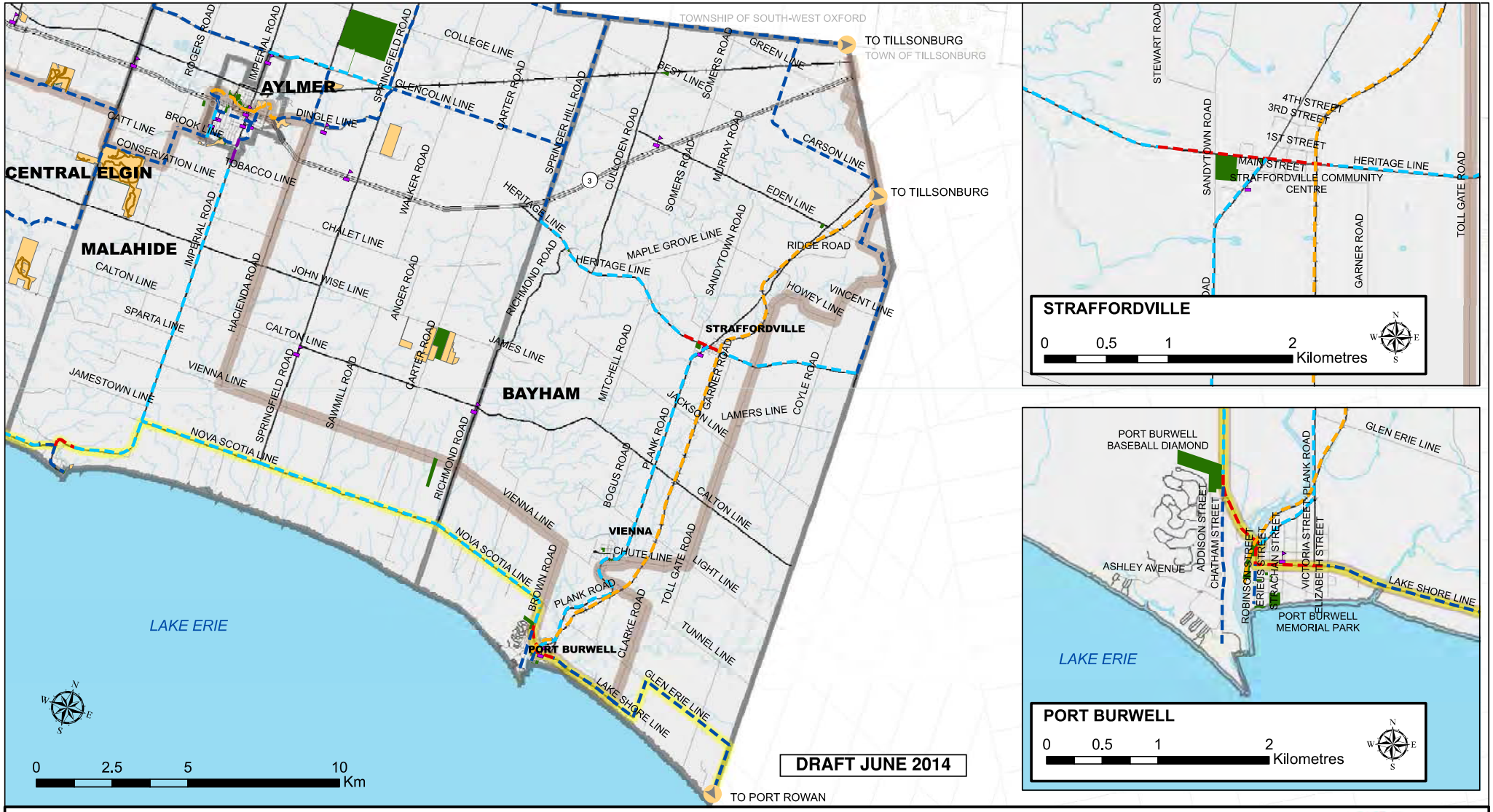
Existing Routes
- Existing Multi-Use Trail
- Existing Bike Lane
- Existing Paved Shoulder

Proposed Routes
- Proposed Multi-Use Trail
- Proposed Bike Lane
- Proposed Paved Shoulder
- Proposed Signed Route
- Proposed Signed Route with Edgeline (Urban Shoulder)
- Proposed Signed Route with Sharrow

Other
- Catfish Creek Conservation Authority Trail
- Lake Erie Waterfront Trail
- Trans Canada Trail Route
- Local Road
- Collector Road
- Arterial Road
- Highway
- Railway
- Connection
- School
- Catfish Creek Conservation Authority Property
- Park
- Lakes and Watercourses
- Municipal Boundary

MMM GROUP

Note:
1. Cycling may not be permitted on some destination trails.



ELGIN-ST. THOMAS CYCLING MASTER PLAN
MAP 9
PROPOSED FACILITY TYPES
BAYHAM

Legend

Existing Routes
- Existing Multi-Use Trail
- Existing Bike Lane
- Existing Paved Shoulder

Proposed Routes
- Proposed Multi-Use Trail
- Proposed Bike Lane
- Proposed Paved Shoulder
- Proposed Signed Route
- Proposed Signed Route with Edgeline (Urban Shoulder)
- Proposed Signed Route with Sharrow

Other
- Local Road
- Collector Road
- Arterial Road
- Highway
- Lake Erie Waterfront Trail
- Trans Canada Trail Route
- Railway
- Connection
- School
- Park
- Lakes and Watercourses
- Municipal Boundary

MMM GROUP

- Lyons Line and Ferguson Line
- Dalewood Road from South Edgeware Road to the north county boundary
- Graham Road from Talbot Line to Queens Line
- Yarmouth Centre Road, Willsie Bourne and Glanworth Drive from Edgeware Line to Belmont Road
- Treadwell Street, Caverly Road, Brook Line (Aylmer) to Springwater Conservation Area
- Fath Avenue, John Street, Melanie Drive, Elk Street and Victoria Street (Alymer)
- Chatham Street and Robinson Street (Port Burwell)
- Imperial Road to Colin Street (Port Bruce)
- Carlow Road, Maud Street and Lotus Street (Port Stanley)
- Forest Avenue, Park Avenue, St. George Street, Ford Road (St. Thomas)
- Glen Erie Line from County Road 55 to Stafford Road

Deletions:

- Furnival Road from Talbot Line to Rodney
- Dunborough Road from Talbot Line to the north county boundary
- Shackleton Line and Thomson Line from Currie Road to Iona Road
- Walnut Line, Willey Road and Erin Line from Iona Road to Fingal Line
- Roberts Line from Quaker Road to Yarmouth Centre Road
- Vienna Line and Brown Road from Richmond Road to Nova Scotia Line
- College Line from Springfield Road to Springer Hill Road
- Mill Road north of the abandoned railway line (CaSo Line) to the north county boundary
- Remove Lake Shore Line east of Stafford Road – the road has been closed due to shoreline erosion
- Wellington Street,
- First Avenue, Ron McNeil Line, Highbury Avenue north of Edgeware Line, Talbot Line east of First Avenue

2.3 THE CYCLING NETWORK & PRIORITY PROJECTS

The Cycling Master Plan is intended to be a guiding document / blueprint for the implementation of cycling specific facilities throughout Elgin-St. Thomas. The routes that have been identified as part of the Cycling Network are illustrated on Maps 1 to 9. The mapping is intended to be used as a guide for future decision making with regard to cycling facilities by those responsible for the plan's implementation – County, City and urban areas. Table 2.6 provides a summary by length, of the existing and proposed facility types which make up the Elgin-St. Thomas Cycling Network.

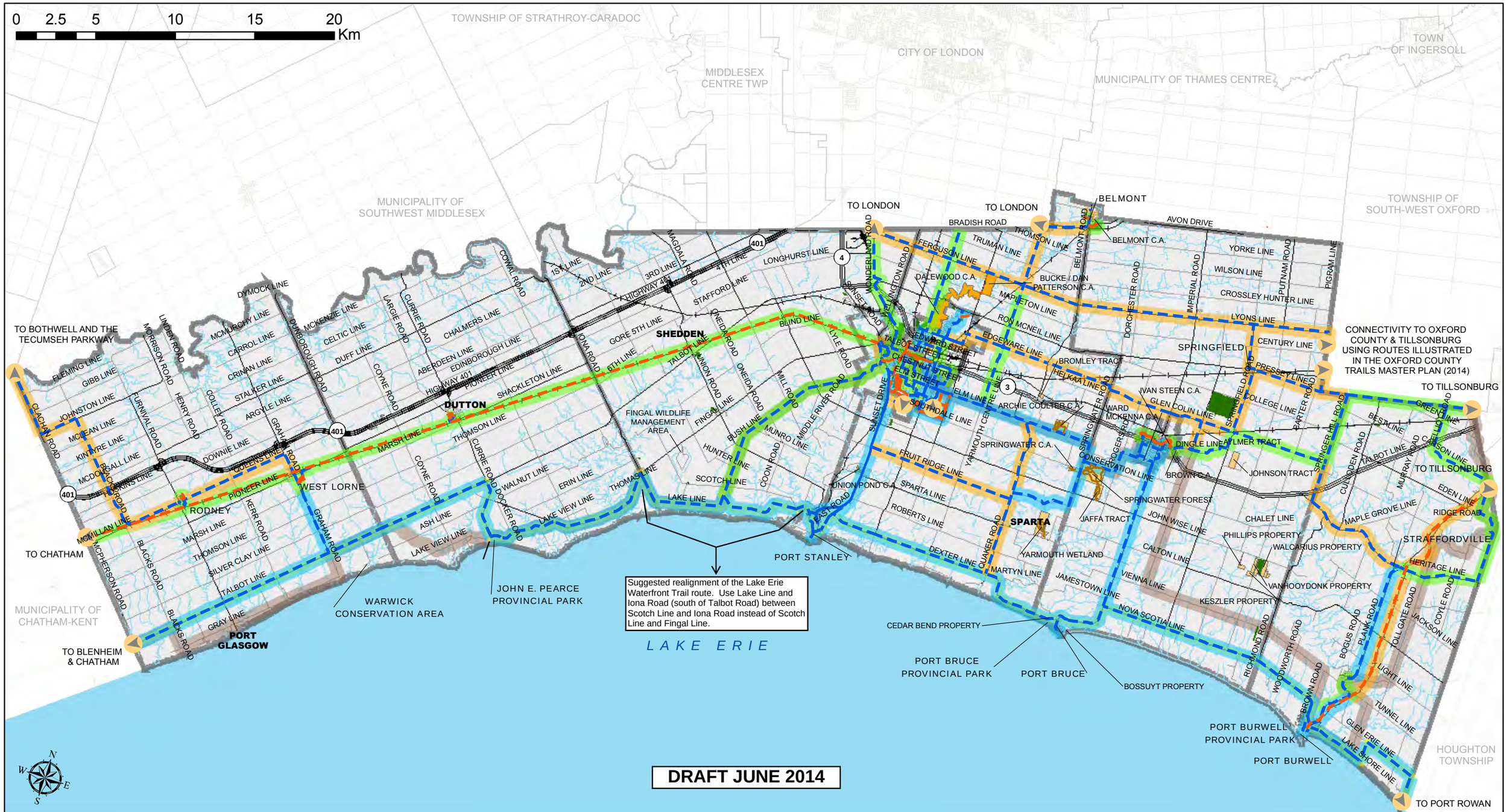
Table 2.6 – Summary of Existing and Proposed Cycling Facility Types

Facility Type	Existing (km)	Proposed (km)	Total (km)
Multi-Use Trail[1]	40.3	86.6	126.9
Bike Lane	0.8	14.6	15.4
Paved Shoulder	10.6	142.8	153.4
Signed Bike Route	0	248.8	248.8
Signed Bike Route with Edgeline	0	10	10
Signed Bike Route with Sharrow	0	18.2	18.2
TOTAL (km)	51.7	521.0	572.7

[1] Total distance of multi-use trails includes trails under the jurisdiction of Catfish Creek Conservation Authority (16.5 km) and Kettle Creek Conservation Authority (0.3km)

The cycling network builds upon the work completed for the Active Transportation Initiative and the successes realized following its finalization. The network is intended to guide the development of a cycling-specific network for Elgin-St. Thomas based on input from the committee, members of the public, detailed data and field investigation. Based on the information gathered and received, a phased approach including long-term build-out and short-term priority projects have been identified. Maps 10 through 18 illustrate the network at full build-out which is envisioned to occur 20+ years from the adoption of the plan. The proposed implementation / phasing plan – as identified in section 2.3 – consists of three phases:

- Short-term (1 – 10 years);
- Medium-term (11 – 20 years); and
- Long-term (20+ years).



ELGIN-ST. THOMAS CYCLING MASTER PLAN MAP 10 PROPOSED PHASING ELGIN COUNTY

Legend

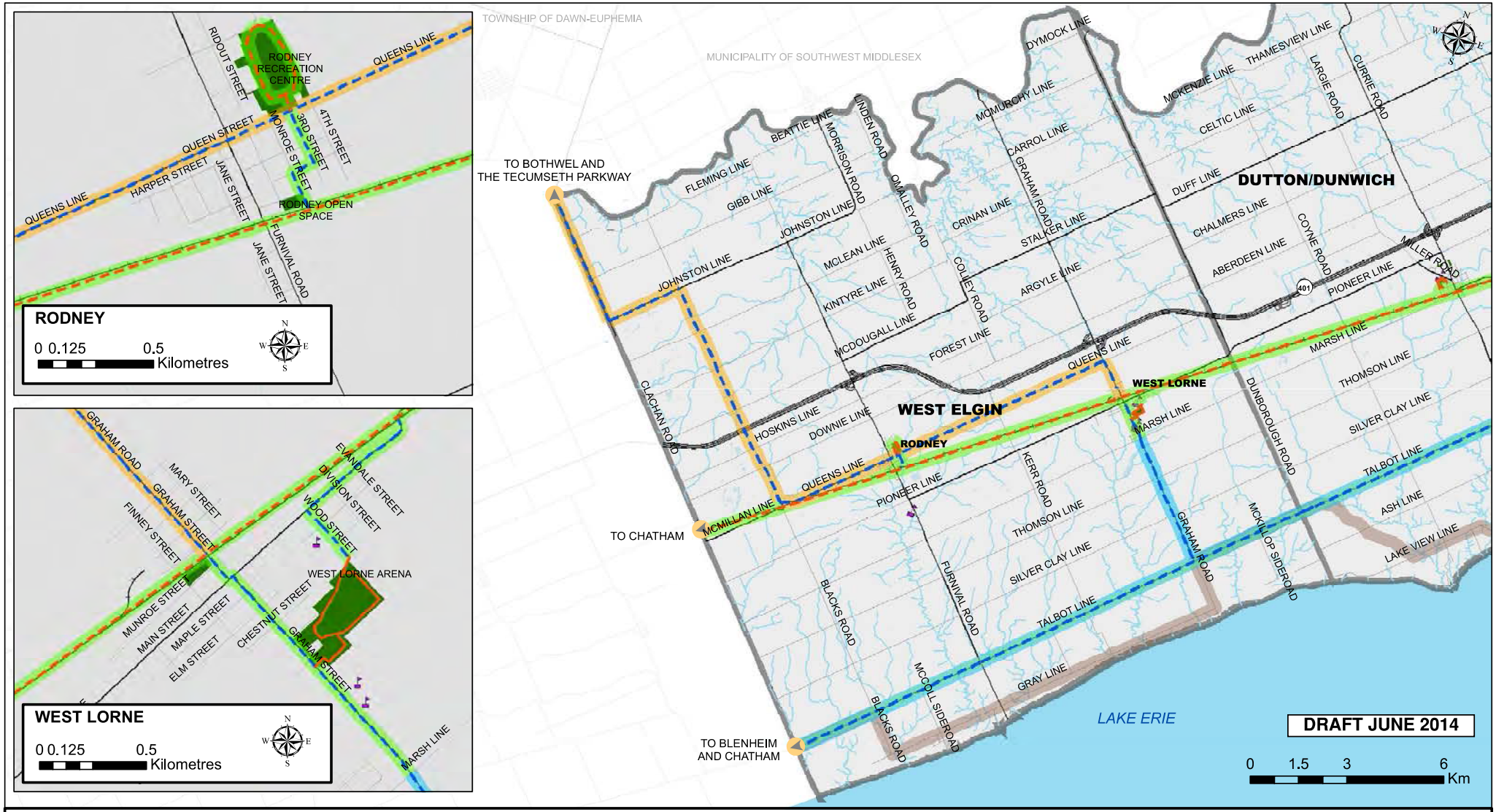
Existing Routes
- Existing Off-Road Route
- Existing On-Road Route

Proposed Routes
- Proposed Off-Road Route
- Proposed On-Road Route

Proposed Phasing
- Short Term (0-10 Years)
- Medium Term (11-20 Years)
- Long Term (20+ Years)

Other
- Catfish Creek Conservation Authority Trail
- Kettle Creek Conservation Authority Trail
- Lake Erie Waterfront Trail Route
- Trans Canada Trail Route
- Local Road
- Collector Road
- Arterial Road
- Highway
- Railway
- Connection
- Catfish Creek Conservation Authority Property
- Kettle Creek Conservation Authority Property
- Park
- Lakes and Watercourses
- Municipal Boundary

MMM GROUP



ELGIN-ST. THOMAS CYCLING MASTER PLAN
MAP 11
PROPOSED PHASING
WEST ELGIN

Legend

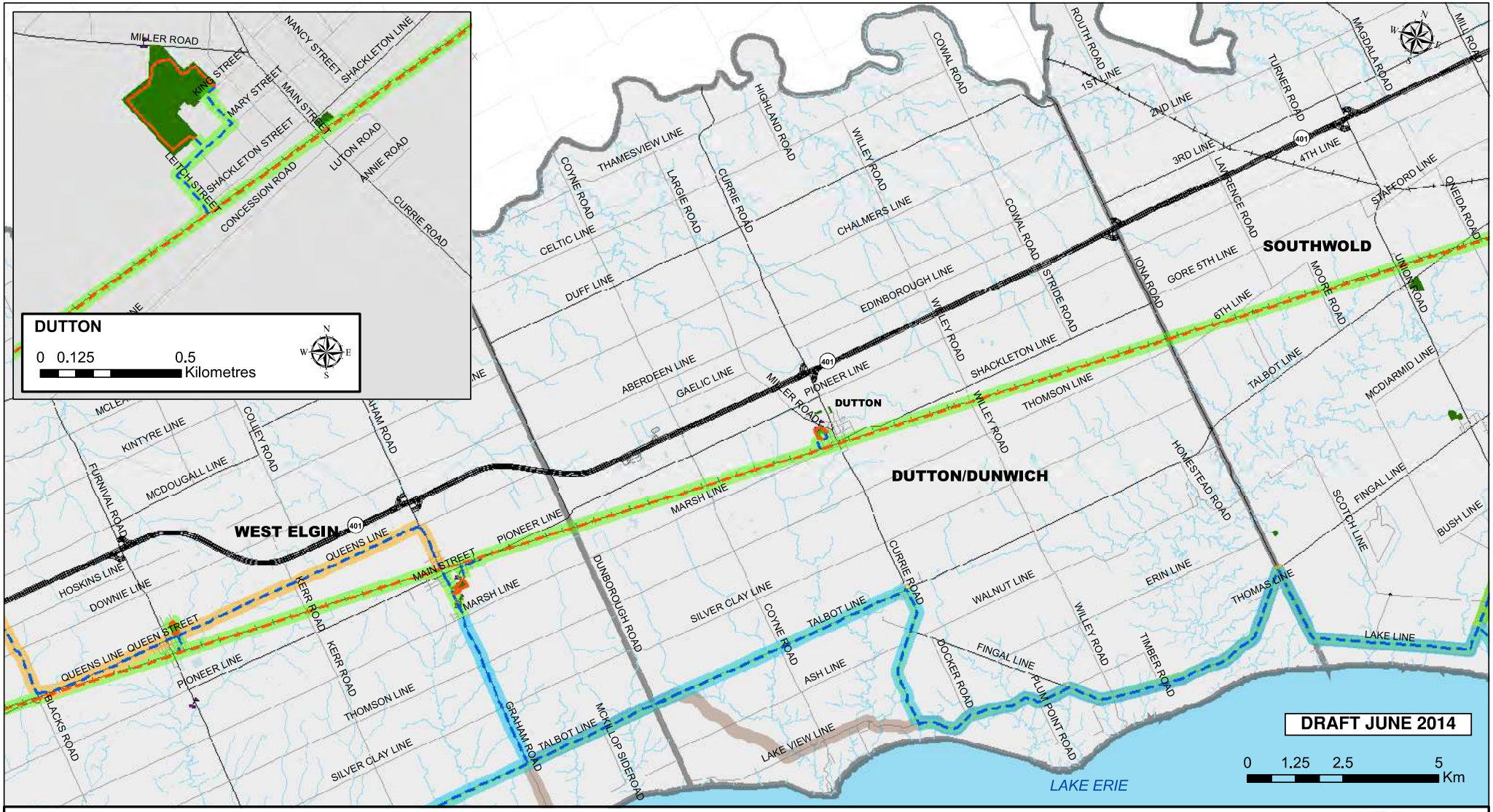
Existing Routes
- Existing Off-Road Route
- Existing On-Road Route

Proposed Routes
- Proposed Off-Road Route
- Proposed On-Road Route

Proposed Phasing
- Short Term (0-10 Years)
- Medium Term (11-20 Years)
- Long Term (20+ Years)

Other
- Local Road
- Collector Road
- Arterial Road
- Highway
- Lake Erie Waterfront Trail
- Trans Canada Trail Route
- Railway
- Connection
- School
- Park
- Lakes and Watercourses
- Municipal Boundary

MMM GROUP



ELGIN-ST. THOMAS CYCLING MASTER PLAN
MAP 12
PROPOSED PHASING
DUTTON/DUNWICH

Legend

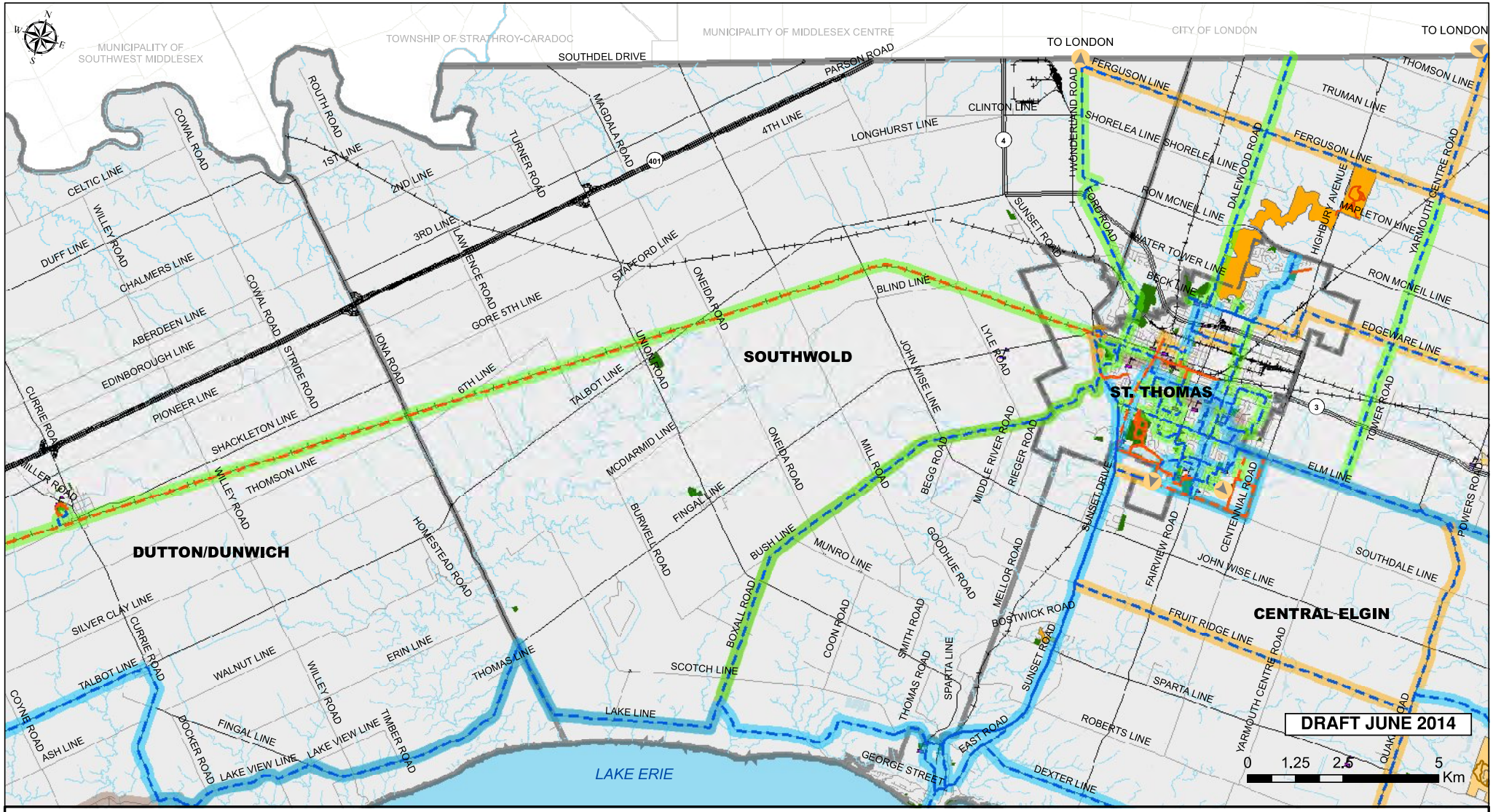
Existing Routes
- Existing Off-Road Route
- Existing On-Road Route

Proposed Routes
- Proposed Off-Road Route
- Proposed On-Road Route

Proposed Phasing
- Short Term (0-10 Years)
- Medium Term (11-20 Years)
- Long Term (20+ Years)

Other
- Local Road
- Collector Road
- Arterial Road
- Highway
- Lake Erie Waterfront Trail
- Trans Canada Trail Route
- Railway
- Connection
- School
- Park
- Lakes and Watercourses
- Municipal Boundary

MMM GROUP



ELGIN-ST. THOMAS CYCLING MASTER PLAN MAP 13 PROPOSED PHASING SOUTHWOLD

Legend

Existing Routes
- Existing Off-Road Route
- Existing On-Road Route

Proposed Routes
- Proposed Off-Road Route
- Proposed On-Road Route

Proposed Phasing
- Short Term (0-10 Years)
- Medium Term (11-20 Years)
- Long Term (20+ Years)

Other
- Local Road
- Collector Road
- Arterial Road
- Highway
- Lake Erie Waterfront Trail
- Trans Canada Trail Route
- Railway
- Connection
- School
- Park
- Lakes and Watercourses
- Municipal Boundary

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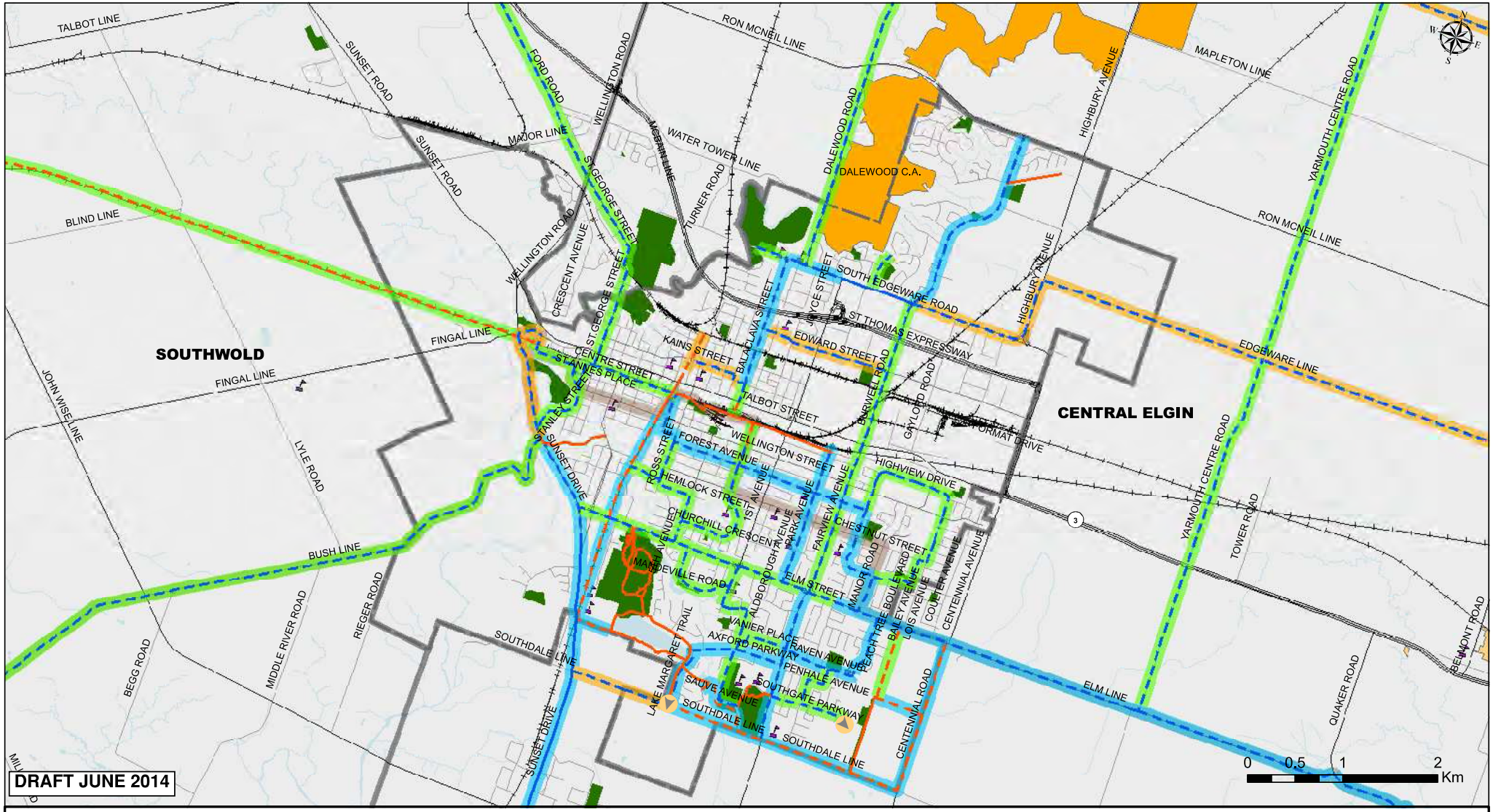

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ELGIN-ST. THOMAS CYCLING MASTER PLAN
MAP 14
PROPOSED PHASING
ST. THOMAS

Legend

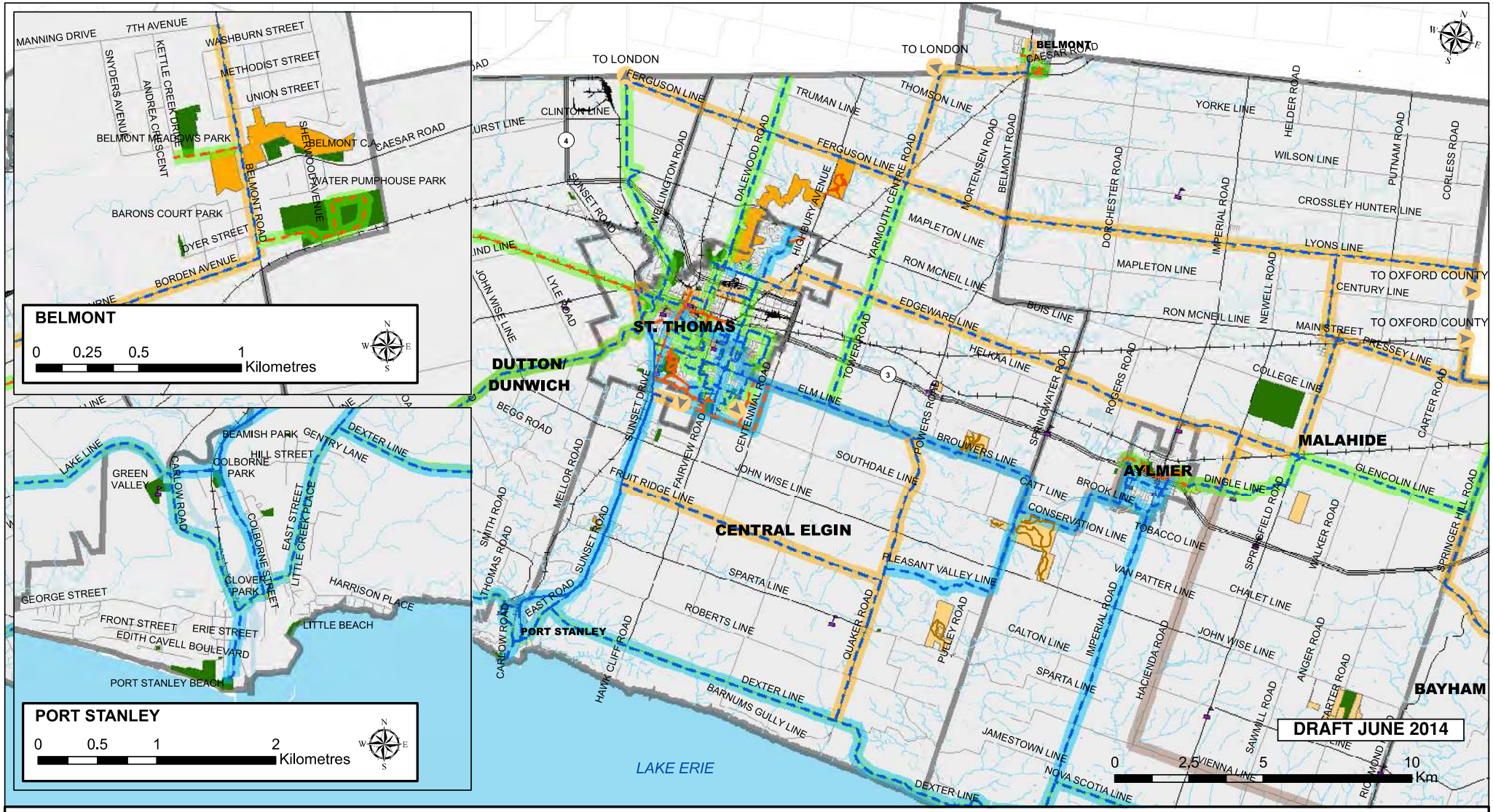
Existing Routes
- Existing Off-Road Route
- Existing On-Road Route

Proposed Routes
- Proposed Off-Road Route
- Proposed On-Road Route

Proposed Phasing
- Short Term (0-10 Years)
- Medium Term (11-20 Years)
- Long Term (20+ Years)

Other
- Local Road
- Collector Road
- Arterial Road
- Highway
- Trans Canada Trail Route
- Railway
- Connection
- School
- Kettle Creek Conservation Authority Property
- Park
- Lakes and Watercourses
- Municipal Boundary

MMM GROUP



ELGIN-ST. THOMAS CYCLING MASTER PLAN
MAP 15
PROPOSED PHASING
CENTRAL ELGIN

Legend

Existing Routes
- Existing Off-Road Route
- Existing On-Road Route

Proposed Routes
- Proposed Off-Road Route
- Proposed On-Road Route

Proposed Phasing
- Short Term (0-10 Years)
- Medium Term (11-20 Years)
- Long Term (20+ Years)

Other
- Catfish Creek Conservation Authority Trail
- Kettle Creek Conservation Authority Trail
- Lake Erie Waterfront Trail
- Trans Canada Trail Route
- Local Road
- Collector Road
- Arterial Road
- Highway
- Railway
- Connection
- School
- Catfish Creek Conservation Authority Property
- Kettle Creek Conservation Authority Property
- Park
- Lakes and Watercourses
- Municipal Boundary

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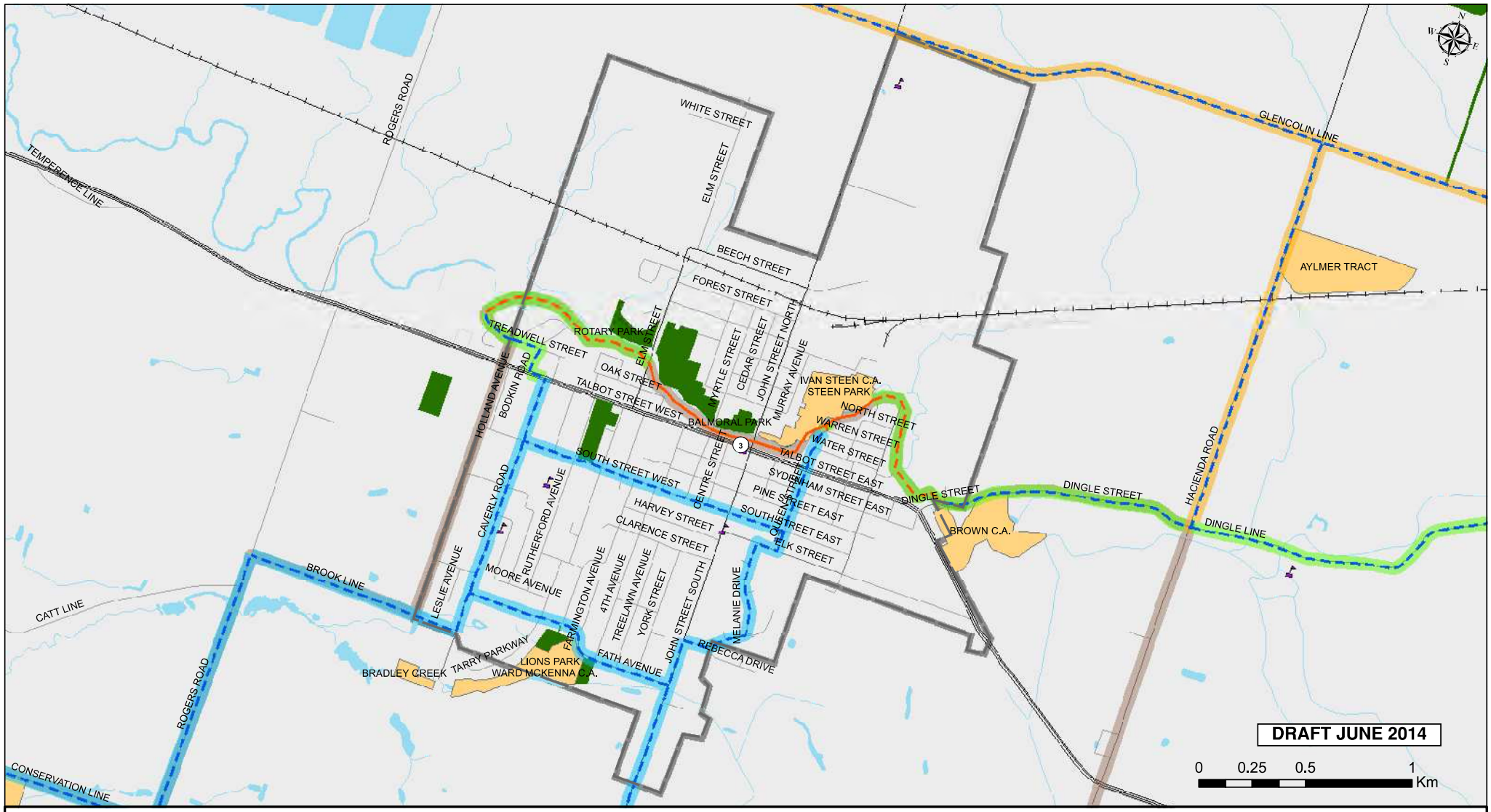


ELGIN-ST. THOMAS CYCLING MASTER PLAN
MAP 16
PROPOSED PHASING
AYLMER

Legend

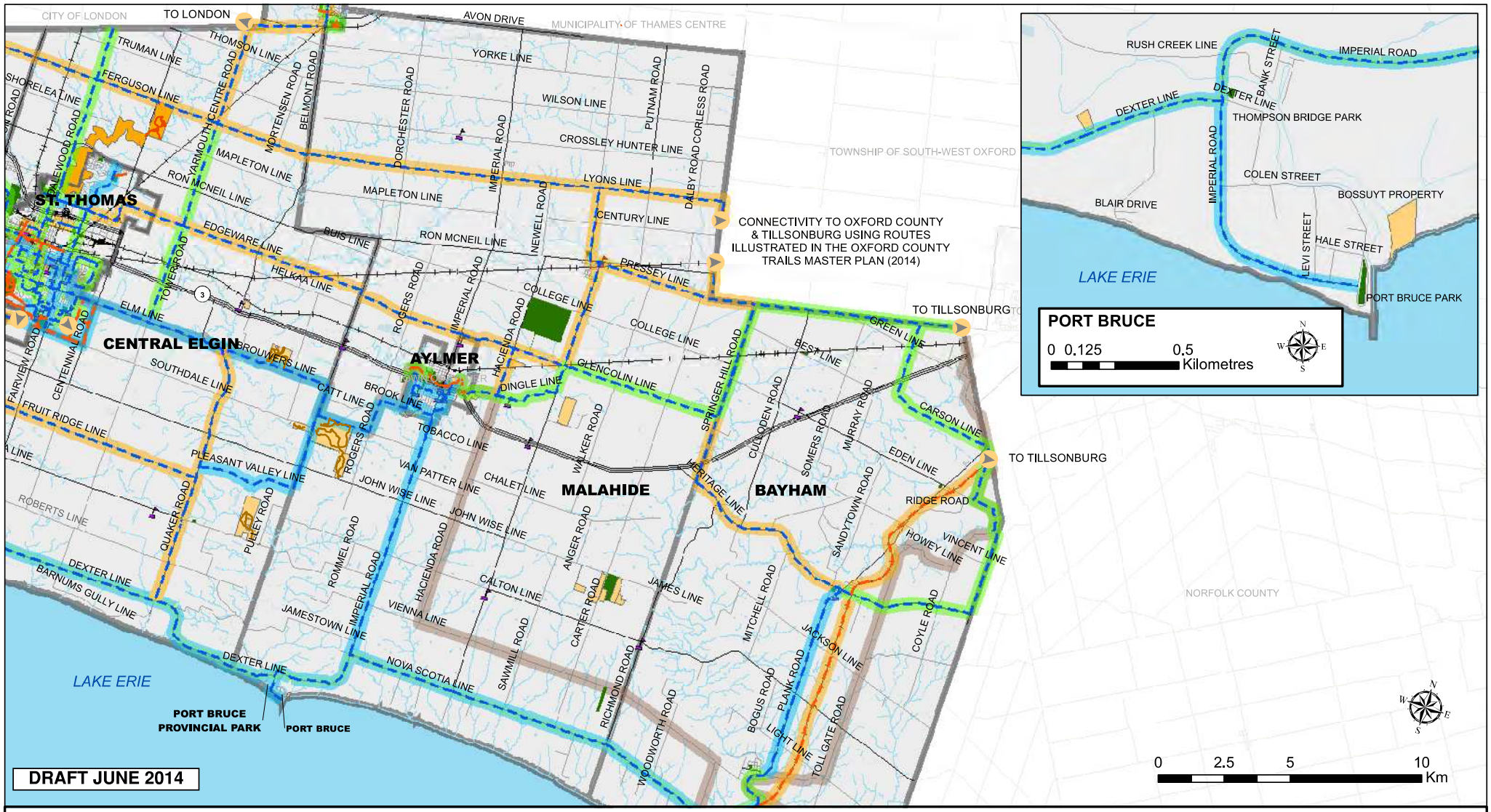
Existing Routes
- Existing Off-Road Route
- Existing On-Road Route

Proposed Routes
- Proposed Off-Road Route
- Proposed On-Road Route

Proposed Phasing
- Short Term (0-10 Years)
- Medium Term (11-20 Years)
- Long Term (20+ Years)

Other
- Local Road
- Collector Road
- Arterial Road
- Highway
- Railway
- Trans Canada Trail Route
- School
- Catfish Creek Conservation Authority Property
- Park
- Lakes and Watercourses
- Municipal Boundary

MMM GROUP



ELGIN-ST. THOMAS CYCLING MASTER PLAN
MAP 17
PROPOSED PHASING
MALAHIDE

Legend

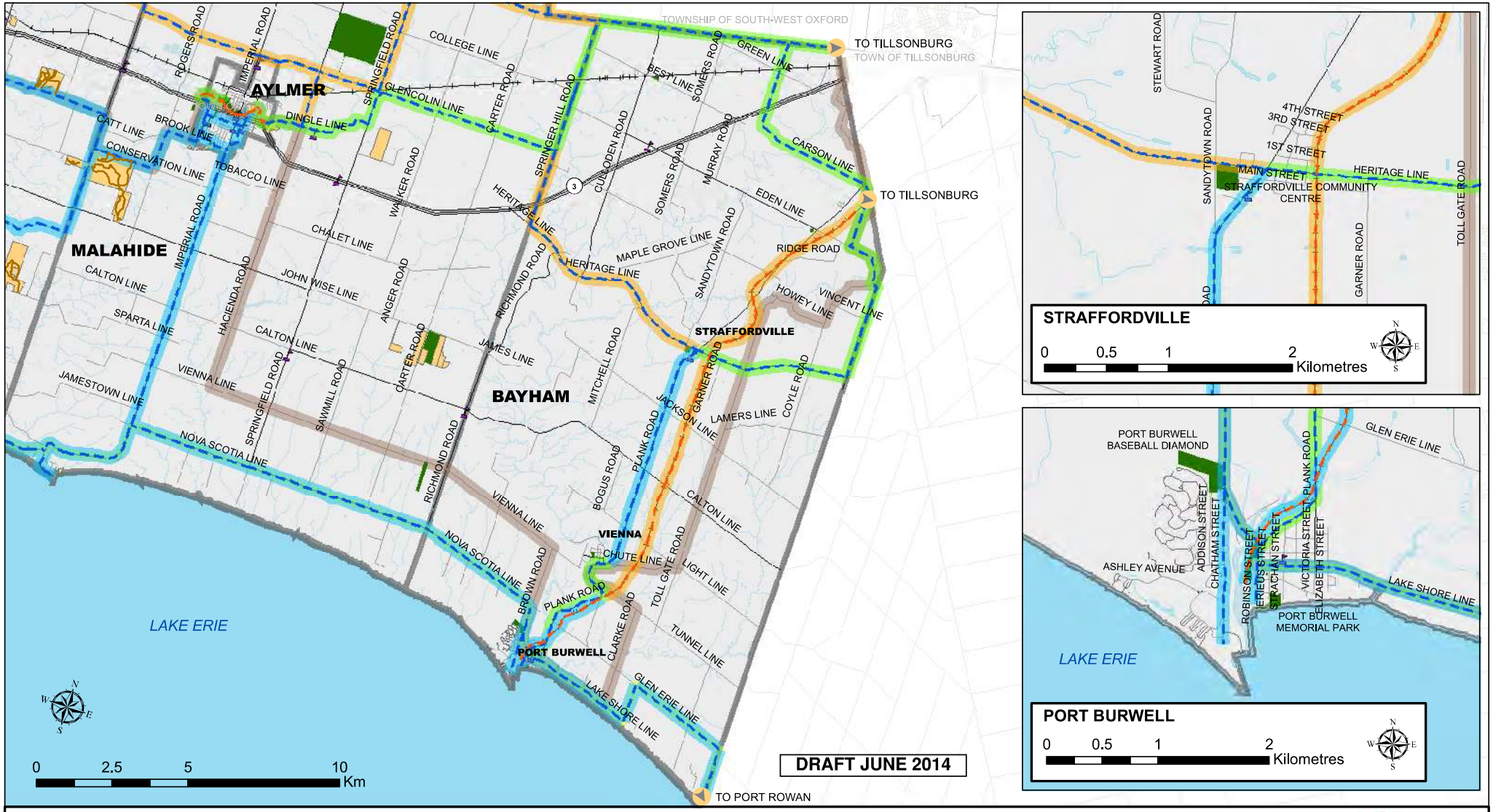
Existing Routes
- Existing Off-Road Route
- Existing On-Road Route

Proposed Routes
- Proposed Off-Road Route
- Proposed On-Road Route

Proposed Phasing
- Short Term (0-10 Years)
- Medium Term (11-20 Years)
- Long Term (20+ Years)

Other
- Catfish Creek Conservation Authority Trail
- Lake Erie Waterfront Trail
- Trans Canada Trail Route
- Local Road
- Collector Road
- Arterial Road
- Highway
- Railway
- Connection
- School
- Catfish Creek Conservation Authority Property
- Park
- Lakes and Watercourses
- Municipal Boundary

MMM GROUP



ELGIN-ST. THOMAS CYCLING MASTER PLAN
MAP 18
PROPOSED PHASING
BAYHAM

Legend

Existing Routes
- Existing Off-Road Route
- Existing On-Road Route

Proposed Routes
- Proposed Off-Road Route
- Proposed On-Road Route

Proposed Phasing
- Short Term (0-10 Years)
- Medium Term (11-20 Years)
- Long Term (20+ Years)

Other
- Local Road
- Collector Road
- Arterial Road
- Highway
- Trans Canada Trail Route
- Railway
- Connection
- School
- Park
- Lakes and Watercourses
- Municipal Boundary

MMM GROUP

Additional details and strategies to facilitate the implementation of the Elgin-St. Thomas Cycling Network can be found in Section 3.0. One of the key objectives of the master plan is to identify long-term full build-out of the network while priority projects to be started and in some cases completed in the short-term. Through the master plan development process the input received from the Active Transportation Technical Committee and public was used to identify the proposed priority projects for implementation within the first few years of the Short-term phase. Table 2.7provides an overview of the priority projects.

Table 2.7 – Summary and Description of Cycling Master Plan Priority Projects

Project Name	Location	Jurisdiction	Rationale
Lake Erie Waterfront Trail Route	Eastern county boundary to western county boundary	Multiple jurisdictions depending on location County-includes portions of County Roads (CR) 3,8,16, 20, 23, 24, 73, 42, 19, 55 Local roads in Bayham, Malahide, Central Elgin, Southwold, Dutton / Dunwich, West Elgin	Recommendation: 1. Paved shoulders (primarily on County – owned roads, with wide paved shoulder on higher volume roads) 2. Signed cycling routes primarily on locally – owned roads 3. Signed cycling routes with Sharrows – primarily in urban towns and villages (e.g. Port Bruce, Port Stanley) Rationale: • Regional cycling route that currently is well-used by cyclists from the local area and outside of Ontario. Anecdotal information suggests that a large number of cyclists traveling through Port Stanley are from the United States. • Route has been marked with Waterfront Trail wayfinding signage and has high potential for bicycle tourism as it is part of a route that extends from Cornwall to Windsor along the Lake Ontario and Lake Erie coastlines

Project Name	Location	Jurisdiction	Rationale
Imperial Road (CR 73) from Alymer to Port Bruce	Malahide	County	Recommendation: Paved Shoulder Rationale: • Provides a direct connection between the Lake Erie shoreline / Waterfront Trail route / Port Bruce and Aylmer • Capital project that is currently scheduled for rehabilitation within the next 3 years
Plank Line (CR 19) from Vienna to Straffordville	Bayham	County	Recommendation: Paved Shoulder Rationale: • Provides a north-south connection on the east side of the county • Capital project that is currently scheduled for rehabilitation within the next 3 years
Rail Trail –Port Burwell riverfront to Teall Nevill Road	Bayham	Bayham	Recommendation: Multi-use Trail on abandoned railway bed Rationale: • Forms part of the connection between Tillsonburg and Port Burwell • Local trail group is actively pursuing funding to have this first 2km section of trail developed • May help to boost local tourism – starting point for the route is at the site of the HMCS Ojibwa

Project Name	Location	Jurisdiction	Rationale
Brouwer's Line from Quaker Road to Springwater Road	Central Elgin	Central Elgin	Recommendation: Signed Bike Route Rationale: • Forms part of a key connection between St. Thomas and Aylmer • Connects with Elm Line and Springwater Road, both signed bike routes recommended for short term implementation (i.e. within first 10 years • Capital project that is currently scheduled for rehabilitation within the next 3 years
East Road (CR 23) from Erie Heights Way / Little Creek Park and Sunset Drive	Central Elgin	County	Recommendation: Paved Shoulder Rationale: • Alternate connection between Waterfront Trail route and Sunset Drive paved shoulder route, and would likely be the route of choice for cyclists traveling west on the Waterfront Trail into Port Stanley who are heading to St. Thomas • Capital project that is currently scheduled for rehabilitation within the next 3 years
Pleasant Valley Line from Quaker Road to Springwater Road	Central Elgin	Central Elgin	Recommendation: Signed Bike Route Rationale: • Part of a popular cycling route and will become part of a loop in the network that includes St. Thomas, Aylmer, Port Bruce and Port Stanley

Project Name	Location	Jurisdiction	Rationale
Caverly Road from Brook Line to South Street West	Aylmer	Aylmer	Recommendation: Bike Lane / Urban Shoulder Rationale: • Capital project that is currently scheduled for rehabilitation in 2015 • Forms part of the connection between Aylmer and Springwater Conservation Area. Connects to the Rogers Road route which was recommended for Share the Road signage installation in 2013
Fath Avenue, Alexander Drive, Melanie Drive, Elk Street, Queen Street	Aylmer	Aylmer	Recommendation: Signed Bike Route Rationale: • Forms part of a signed route loop in the south part of the Town Connects directly with the Caverly Road route
Park Avenue, Forest Avenue, McIntyre Street, Moore Street	St. Thomas	St. Thomas	Recommendation: Signed Bike Route with Sharrow Rationale: • Forms part of a the south loop in the City • Low cost to implement

Project Name	Location	Jurisdiction	Rationale
Sunset Drive (CR 4) from St. Thomas Urban Area to Port Stanley	St. Thomas and Central Elgin	County	Recommendation: Bike route signage Rationale: • Spot improvements to facilitate cycling (e.g. "jughandle" style crossing at railway to enable cyclists to make a perpendicular crossing of the tracks • Wide paved shoulders already in place • Popular cycling route and main connection between St. Thomas and Port Stanley • Low cost to implement signage and spot improvements
Talbot Spur Route	St. Thomas	St. Thomas	Recommendation: Multi-use trail beside active low volume rail line Rationale: • Currently being designed • To be constructed within the next three years • Creates a spine north-south connection in the west end of the City
Burwell Road from Ron McNeil Line to South Edgeware Road	St. Thomas	St. Thomas	Recommendation: Bike Lane – achieved by reallocating existing lane markings on road to eliminate the continuous centre left-turn lane Rationale: • Links with existing facilities on South Edgeware Road, and connects the north part of the city with other routes that are proposed for implementation in the short term • Low cost to implement

Project Name	Location	Jurisdiction	Rationale
Balaclava Street from South Edgeware Road to Kains Street	St. Thomas	St. Thomas	Recommendation: Signed route in northern portion of route & Signed route with sharrow in southern section Rationale: • Links with existing facilities on South Edgeware Road • Low cost to implement
Lakeview Line west of Fingal Line	Dutton / Dunwich	Dutton / Dunwich	Recommendation: Signed Bike Route Rationale: • Forms part of the Waterfront Trail route • Road improvements currently scheduled for short term (within the next 3 years)
Graham Road (CR 76) from Talbot Line to the West Lorne urban area	West Elgin	County	Recommendation: Paved Shoulder Rationale: • Provides a central north – south connection in the west part of the county • Capital project that is currently scheduled for rehabilitation in the short term

It is important to note that the timeline illustrated in the phasing plan as well as the Priority Projects represents when the project is anticipated to be completed. In some cases, the development of a project may occur earlier than scheduled and for the others the duration may span to phases. Once started, direction may be required to inform the implementation of key linkages. Ongoing discussions are encouraged with local public agencies and stakeholders as the County, City and municipalities proceed with the implementation of the master plan. In addition to the Priority Projects for implementation over the first few years of the Short-term, several other network opportunities were identified that require ongoing discussion and investigation in order that plans for implementation can be properly staged. Key opportunities identified in this category are:

- The abandoned CaSo railway line from the west side of St. Thomas to the west county boundary;
- The abandoned railway line from Port Burwell to Tillsonburg; and
- Wonderland Road from St. Thomas to London which includes consideration of MTO plans to develop an interchange at Highway 401.

2.4 THE CYCLING PLAN: AREAS OF ACTION

The input received from the public, the ATTC, staff and members of Council indicated a need for strategic areas of action to help facilitate master plan implementation and to complement network priority projects. This section provides an overview of five action areas **planning, designing, promoting, maintaining** and **tracking** that are intended to be achieved through recommended initiatives. The actions and initiatives have been summarized in **Table 2.8**.

Table 2.8 – Summary of Cycling Master Plan Action Areas

Planning	Designing	Promoting	Maintaining	Tracking
• Establishing Urban and Rural Connections • Road Diets and the Class EA Process	• Accessibility • Consistent Design Guidelines • Approach to Signing Routes	• Partnership Opportunities • Developing New Programming • Establishing Bicycle Friendly Communities	• Route Maintenance • Establishing a Strategy • Risk Management & Liability	• Evaluating the Implementation • Documenting Findings

2.4.1 Planning

Establishing Urban and Rural Connections

Proposed routes are identified in urban, suburban and rural areas throughout the County, City and municipalities. In urban and suburban areas, users typically live closer to their destinations which increases the possibility of making day-to-day short trips by bicycle.

These areas may require a higher order of infrastructure, however, the selection of a preferred facility type for these areas should also take into consideration other characteristics including roadway speed, surrounding land uses or traffic volumes. Rural linkages may have fewer designated routes. Where possible, off-road linear trails should be provided.

Cycling Facilities and the Class EA Process

The Municipal Engineers Association (MEA) Class Environmental Assessment process was established in 2010. Under this process the construction or operation of sidewalks, bicycle paths or bike lanes designed within the "existing" road right-of-way is considered pre-approved. These types of projects fall into the category Schedule A+ projects which, under the requirements, do not require a full Class EA to be completed but requires formal notification at the commencement of the project.

A road diet is the "redesignation" of existing General Purpose Lanes (GPL) through the application of signage or pavement modifications and does not require any physical construction. For new parking or turning lanes, the conversion of a roadway from one-way to two-way and the conversion of a GPL to a High Occupancy Vehicle (HOV) lane, these fall under the requirements of a Schedule A or A+.

Figure 2-5 – Example of Road Diet Application

#ActiveElginBikes

The Ministry of the Environment, in December 2013 proposed an amendment to the MEA Class EA process. The amendment would add a cycling lane as an alternative for the GPL conversation as well as the creation or removal of cycling lanes as an option and would be included as a Schedule A+ with no financial limitation.

It can generally be concluded that 4 lane roads with an AADT of less than 15,000 would be considered "good candidates" for a road diet consistent with the recommendations found in AASHTO 2012 and OTM Book 18: Cycling Facilities (2014). Figure 2-5 provides an example of the application of a road diet on a wide suburban roadway.

With the implementation of the Cycling Master Plan the County, City and municipalities should consider the application of road diets to accommodate the implementation of future cycling facilities where appropriate. Future amendments to the MEA Class EA process and requirements should be followed and applied where appropriate.

2.4.2 Designing

Accessibility

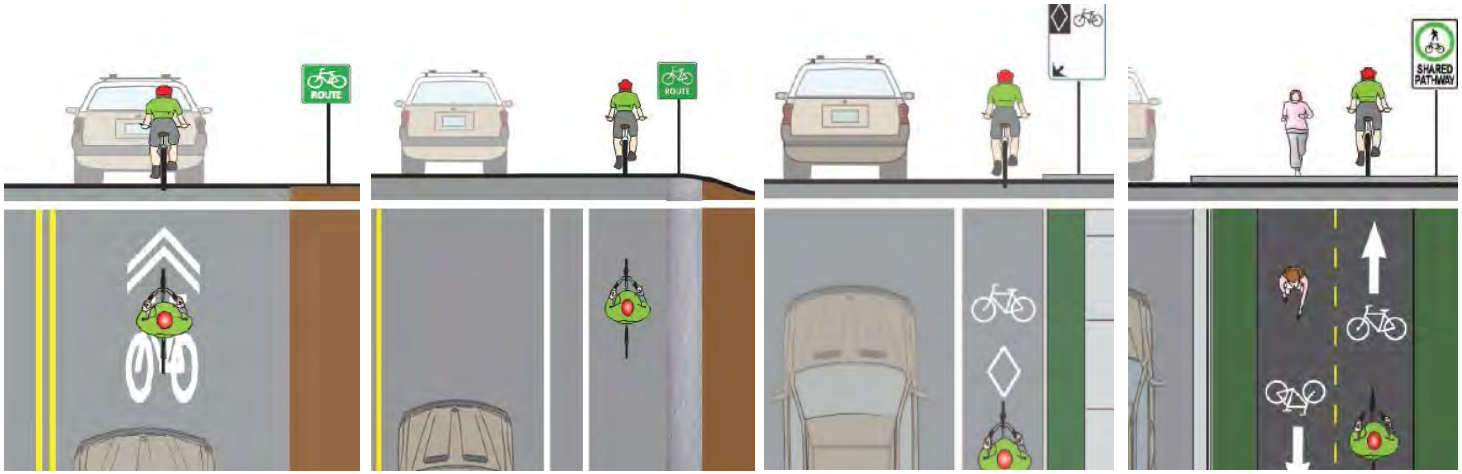
Approximately one in eight Canadians suffers from some type of physical disability. Mobility, agility and pain-related disabilities are by far the most common, each accounting for approximately 10% of reported disabilities nationally. The Accessibility for Ontarians with Disabilities Act (AODA) promotes 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. The intent is to help remove barriers to buildings and outdoor spaces.

The standard only applies to new construction and extensive renovation and is not mandatory for the design of on-road cycling facilities. When designing and implementing off-road cycling facilities and multi-use trails, the County, City and municipalities should refer to the guidelines outlined in the Built Environment Standards to ensure that the needs of all user groups are accommodated. Elgin-St. Thomas should also strive to satisfy the requirements of the AODA to the greatest extent possible, given the context of each trail's location, the surrounding environment and type of trail experience that is desired. Sections 80.8 and 80.10 of the Accessibility Standards for the Built Environment provide the technical requirements for multi-use recreational trails.

Consistent Design Guidelines

Consistency in the application of facility design alternatives is paramount. The way facilities are selected, documented and implemented should be consistent and based on existing standards, guidelines and best practices. Since the development of the ATI, more current provincially accepted design guidelines / standards have been developed. In April 2014, the Ontario Traffic Council (OTC) completed and MTO published these provincially endorsed design guidelines – Ontario Traffic Manual Book 18: Cycling Facilities.

The guidelines were developed by the OTC collaboratively with representatives from the MTO and a number of contributing municipalities from across Ontario. They are intended to be used by municipal staff to facilitate the selection, design, implementation and maintenance of both on and off-road cycling facilities. In addition, the Ministry of Transportation has also developed a set of cycling specific design guidelines which are intended to be used by MTO when designing facilities on highways found within the Ministry of Transportation's jurisdiction. Where appropriate, both OTM Book 18 and the MTO Bikeway Design Manual should be used to guide the selection, design and implementation of cycling facilities within Elgin-St. Thomas.



Narrow Signed Bicycle Route with Optional Sharrow

Signed Bicycle Route with Buffered Paved Shoulder

Conventional Bike Lane

Two-way In-Boulevard Shared-Use Facility

Figure 2-6 – Examples of Cycling Facility Design Alternatives Source; OTM Book 18

The ATI contains a set of guidelines that were developed at the same time that OTM Book 18 was under development. Although both guidelines are generally consistent, there were modifications to OTM Book 18 after the ATI was completed. Therefore it should be assumed that guidelines in the ATI are superseded by OTM Book 18. Hence OTM Book 18 should be the primary reference used by County, City and municipal staff to ensure that a consistent approach is used to inform the decision making process. Figure 2-6 provides some sample cycling facility design concepts as identified in Ontario Traffic Manual Book 18.

Approach to Signing Routes

An accessible and connected system of cycling facilities will require the implementation of signage with a variety of intents and purposes. The County, City and local municipalities, where appropriate, should incorporate a hierarchy of signs – also known as a "family" – with unifying design and graphic elements, materials and construction techniques that becomes immediately recognizable to the user. A description of each of the family of signage as well as their intended use is provided in Table 2.9.

Table 2.9 – Summary of Potential Sign Types

Type	Application	Recommendation
Orientation & Trailhead	• Typically located at key destination points and major network junctions. • Provide orientation to the network through mapping, network information and rules and regulations. • Useful landmark where network nodes are visible from a distance. • Can be used as an opportunity to sell advertising space. May help to offset the cost of signs and/or pathway.	Orientation signs could be considered for implementation when entering the County, City of municipality or at trail junctions.
User Etiquette	• Should be posted at public access points to clearly articulate which trail uses are permitted, regulations and laws that apply, as well as trail etiquette, safety and emergency contact information. • At trailheads, this information can be incorporated into trailhead signs. • In other areas, this information can be integrated with access barriers.	Etiquette signs should be considered for implementation at public access points or where trailheads are located.

Type	Application	Recommendation
Interpretive	• Should be located at key trail features having a story to be told. These features may be cultural, historical, or natural. Interpretive signs should be highly graphic and easy to read. • Should be located carefully in highly visible locations to minimize the potential for vandalism.	Signs should be implemented throughout the network in locations where cultural or historic information should be highlighted.
Route Marker & Trail Directional	• Should be located at key network intersections and at regular intervals along long, uninterrupted sections of network. • Purpose is to provide a simple visual message to users that they are travelling on the pathway network. • May include the network logo or "brand" and communicate other information to users such as directional arrows and distances in kilometres to major attractions and settlement areas. • Should be mounted on standard sign poles and be located on all legs of an intersection or off-road trail junction, as well as at gateways.	Signs should be considered as part of the overall network to identify a route brand and provide users with directional / wayfinding information.
Regulatory	• Required throughout the system. Where traffic control signs are needed (stop, yield, curve ahead etc.), it is recommended that recognizable traffic control signs be used (refer to the Ministry of Transportation for Ontario's (MTO) Ontario Traffic Manual series of books). • Intended to control particular aspects of travel and be used along the road or off-road network. • Warning signs are used to highlight bicycle route conditions that may pose a potential safety or convenience concern to network users. • These signs are more applicable to cycling routes and multi-use trails than pedestrian systems.	Signs should be considered for implementation along proposed multi-use trails or in locations where conditions may change and users should be made aware.

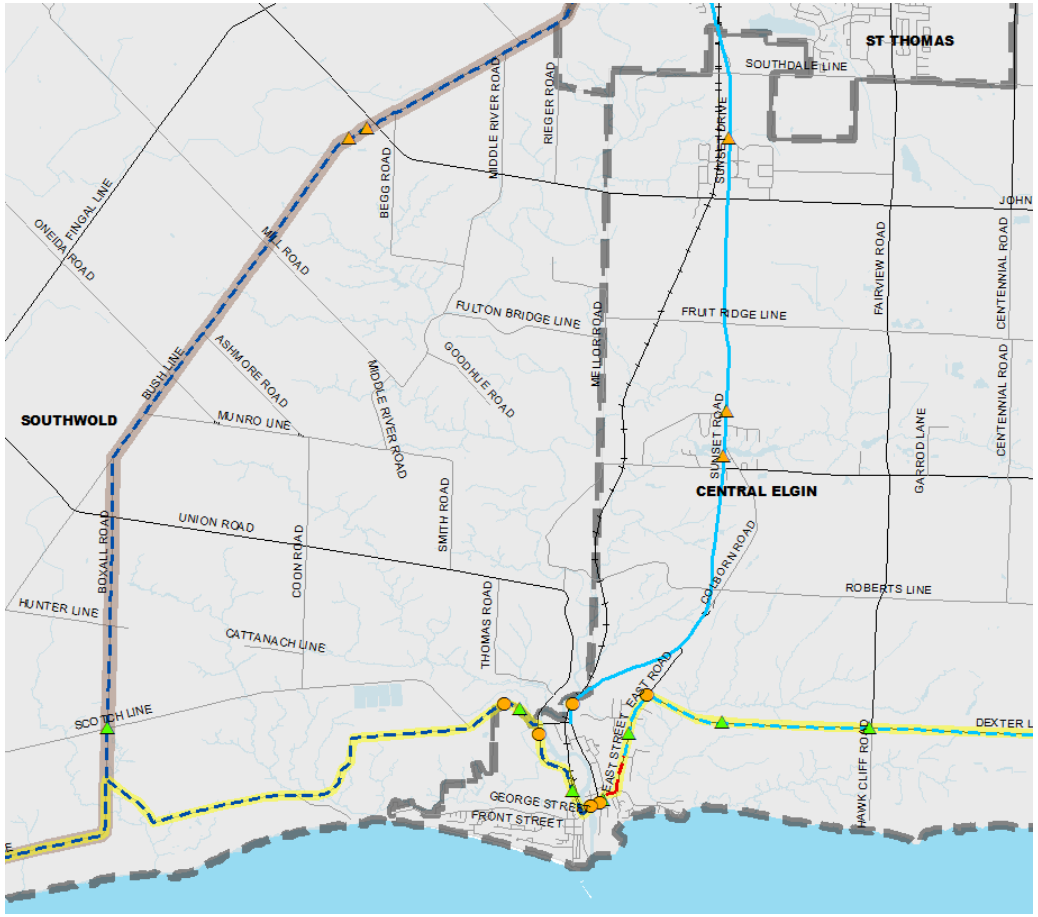
Additional details regarding signage types and potential application can be found in section 4.0 of OTM Book 18 and should be reviewed. In addition to the guidelines, Elgin-St. Thomas is also encouraged to consider the following design principles for signage pertaining to select cycling facilities.

Share the Road "warning" signs should typically only be implemented on designated network routes and where there are perceived or real hazards such as sightlines or where the road condition such as a narrow width or poor surface could be considered a hazard. Share the road signage should not be implemented as a wayfinding sign or route designation sign. Signed Routes identified as part of the network should be designated by implementing the standard green bike route sign.

Following the development of the ATI and based on an increasing number of requests for Share the Road signage throughout Elgin-St. Thomas the ATTC determined the need for policy directives and criteria to help guide the appropriate application of Share the Road signs County-wide. As a result, a set of criteria were developed to guide future implementation including:

- The route is identified in the Elgin–St. Thomas Cycling network as endorsed by respective councils;
- Where sightlines are limited, such as where there are changes to the horizontal or vertical alignments (hills and/or curves);
- Where busy street activity occurs which has the potential to distract motorists, such as on-street parking;
- Where the cycling facility transitions, for example where a bike lane transitions to a shared curb lane (discontinuation of a bicycle lane);
- On rural roads, especially where no paved shoulders are present and where a significant presence of cyclists is observed;
- Where unusual road characteristics exist, such as very narrow lanes or where a road configuration or cross section changes;
- Where the Share the Road signs may serve to provide motorist with advance notice of the presence of cyclists beyond the motorist's immediate line of sight;
- The signs are not to be used in substitution of any other provincially recognized regulatory sign;
- The signs are not to be used as route markers; and
- Criteria are subject to the Committee Review.

Routes that are recommended for facility upgrades could receive green bike route signage after upgrades are completed. As part of the development of the master plan the study team undertook an inventory of existing signage along the Lake Erie Waterfront Trail as well as along Sunset Drive between St. Thomas and Port Stanley. The inventory was documented through photos and GPS waypoints with information gathered in the field. A summary of existing signage was documented and proposed locations where additional signage could be implemented were identified. Appendix B includes a map illustrating the findings from this exercise. Figure 2.7 is an enlargement of the map for the Port Stanley area.



Signage

- Existing Share the Road Signage
- Recommended Share the Road Signage
- Existing Waterfront Trail Signage
- Recommended Waterfront Trail Sign

Figure 2-7 - Map Excerpt from Existing & Proposed Signage Strategy for Lake Erie Waterfront Trail and Sunset Drive in the Port Stanley area.

2.4.3 Promoting

Partnership Opportunities

Implementation of the master plan will require coordination and collaboration between existing Elgin-St. Thomas Public Health, County, City and municipal staff as well as local stakeholders, interest groups, public agency representatives and members of the public. Successful implementation of the cycling network as well as outreach and promotional programs will be driven by partnerships. Potential partners have been identified that could be involved in the implementation of the plan. They have been organized into **primary** and **secondary** partners based on the level of involvement and input they may have on a project by project basis. Some may be involved as a regulatory or approval body and others may be responsible for providing input based on context sensitive considerations / issues.

Table 2.10 summarizes the potential primary and secondary partners which could provide input to the cycling master plan implementation process. The proposed partners are intended to be reviewed and revised as necessary based on input from County, City and municipal staff.

Table 2.10 – Framework for Potential Cycling Master Plan Implementation Partners

	Primary Partners	Secondary Partners
Description	Would review and provide input to projects that impact lands under their jurisdiction	Would be engaged primarily when soft infrastructure initiatives are being addressed. Some partners may wish to be informed and provide input on select linkages identified in the cycling network at the concept development level.
Partners	Elgin-St. Thomas Public Health Elgin County City of St. Thomas Local Municipalities (Aylmer, Bayham, Central Elgin, Dutton / Dunwich, Malahide, Southwold and West Elgin) Conservation Authorities School Boards Ministry of Transportation	Elgin County OPP, Aylmer Police Service, St. Thomas Police Service Active Elgin Tourism Elgin County Local Businesses Interest Groups Committees to Council Public Representatives

Developing New Programming

Encouraging cycling is typically done through programming and outreach initiatives which are used to promote the use of the cycling network. The goal of developing encouragement programs is to overcome barriers that limit the reach of traditional awareness campaigns and to increase the number of recreational as well as day-to-day cyclists. There are a number of programs which have been implemented since the completion of the ATI (see section 1.2.4 for additional details and descriptions). Additional encouragement and education programs should be explored by the County, City and municipalities in partnership with Active Elgin, Citizens4ActiveTransportation, local stakeholders, interest groups and public agencies including:

- "Be a Bright Cyclist" – a promotion and outreach campaign which encourages cyclists to be sure visible on the roads through the use of bright colours as well as adhering to proper rules of the road. Promotion could be undertaken using brochures as well as posters developed and distributed through Citizens4ActiveTransportation, ActiveElgin and Public Health.
- Celebrations4Cyclists – a means of acknowledging the ongoing promotion and outreach undertaken by local cyclists and interest groups. This could include an annual awards ceremony which celebrates local initiatives and promotes involvement in outreach and engagement events.
- OpeningRStreets - an opening ceremony for on-road cycling facilities undertaken annually to engage local users in understanding the safe and comfortable use of on-road cycling facilities. The street could be closed down on a weekend once implemented and Citizens4ACtiveTransportation could work with local businesses and interest groups to provide educational programs / training workshops, etc. An event of this nature could be part of the annual Bike Festival.
- ActiveElgin4Bikes – A coordinated set of local rides for people of different ages and abilities which explore different cycling and trail routes on a bi-weekly or monthly basis. The ActiveElgin webpage could be used as a hub for scheduling information including meeting points and recommendations for potential routes. Local cycling clubs and/or bike shops could be key partners.

Establishing Bicycle Friendly Communities in Elgin-St. Thomas

There are significant economic and tourism benefits which can be realized by developing a connected and continuous cycling network. Elgin-St. Thomas is already identified as a key destination for long and short-distance recreational and touring cyclists. As a means of further promoting the cycling opportunities as well as future funding and partnership opportunities the City and other local municipalities should explore applying to become bicycle friendly communities. The City of St Thomas submitted a BFC application in 2013 but was not successful. The City should consider reapplying in 2015 or 2016 in partnership with the Elgin-St. Thomas Public Health once the Cycling Master Plan has been adopted and they have started to implement new cycling infrastructure and supporting initiatives.

The program was launched by the Share the Road Cycling Coalition in 2010 and is an award recognition program for Ontario based municipalities. The following are some steps which could be explored to apply for bicycle friendly community status:

- Step 1: Collect information needed for the application – application check list can be accessed using this link: http://www.sharetheroad.ca/files/BFC_Checklist.pdf
- Step 2: Review the application questions to see how bicycle-friendly the community is today - including but not limited to the presence of a cycling related committee. The online application form can be accessed online and all complete applications must be submitted online
- Step 3: Plan a strategy for pitching bicycle-friendly improvements – depending on the level of political involvement and community enthusiasm the approach may vary. The City or municipalities should identify local Council members or stakeholders who will help to promote cycling in the community and pursue cycling related initiatives
- Step 4: Gather support – inquire about a letter of recommendation from an organization that might support cycling within the community e.g. a local bike club, environmental group, businesses or corporate sponsor

There are a number of other steps involved in the suggested process, however, municipalities are encouraged to explore these initial steps to see if receiving bicycle friendly community status is an option. Applicants are judged in five key areas, the majority of which have been identified / highlighted in this master plan - engineering, education, encouragement, enforcement and evaluation. Applications can be submitted by a staff members or someone working collaboratively with staff with a letter of support from the municipality.

2.4.4 Maintaining

Route Maintenance

The Cycling Master Plan is intended to be an infrastructure as well as operations guide. As such, funding is not only required for the implementation of infrastructure and programming but also for the maintenance to ensure elements of the network are sustained. The operations costs associated with the implementation of the cycling master plan could include:

- Establishing an on-going funding program for the implementation of the plan;
- Preparing annual progress reports to Council regarding implementation;
- Working with partners (Conservation Authorities, County, City, local municipalities, Elgin Public Health, Elgin County Tourism, etc.) to develop and delivery promotion and outreach programs; and
- Performing maintenance to achieve a good state of repair.

At full build-out, the complete Elgin-St. Thomas Cycling Network consists of 445.8km of on-road cycling facilities and approximately 126.9km of off-road cycling facilities. The incremental cost to maintain on-road cycling facilities is relatively low compared to standard road maintenance budgets. Most municipalities adjust their maintenance budget based on the number of kilometres of each facility type and increase the budget relative to the length of new infrastructure added on an annual basis. When determining future maintenance costs the following principles should be considered:

- An absolute dollar value for maintenance costs by location and facility type was not calculated for the master plan as the budget will need to grow incrementally along with the growth of the network;

- As each new section is implemented, staff should provide a summary of potential impacts to the operations budget. The dollar amount should be calculated and included in updated budgeting information for the year;
- Maintenance costs for on-road facilities are estimated to range from $1,000.00 to $3,000.00 per km per year depending on the facility types, proportion of urban vs. rural routes and economies of scale gained from incorporating facility maintenance into current road maintenance projects and building on current maintenance practices;
- Annual maintenance can include pavement markings and stencil reapplication, sign replacement, replacement of sharrows or bike lanes on local roads, minor asphalt repair, sweeping, snow plowing and replacement of older style catch basin grates with bicycle friendly grates;
- Maintenance of mature off-road multi-use trails in urban areas particularly in park spaces and greenways which can range in maintenance cost from $2,000.00 to $6,000.00 per km per year depending on the level of service standard set out by the County, City or municipality and trail conditions. Maintenance of rural off-road trails (i.e. rail-trails) can be considerably lower; and
- Annual maintenance for off-road trail facilities including drainage and storm channel maintenance, sweeping, clearing of debris, trash removal, weed control and vegetation management, mowing of grass along shoulders, minor surface repairs, repairs to trail fixtures and staging areas and other general repairs.

Establishing a Strategy

Currently maintenance is a joint venture between the County, City and local municipalities depending on where the route / facility is located. For on-road linkages it is the responsibility of the road authority / owner. For off-road linkages, it is typically the local municipality or other agency (e.g. conservation authority) where the trail is situated that would be responsible for route maintenance.

It is recommended that as the master plan is implemented that the County, City and municipalities each define a maintenance reporting structure and strategy for on and off-road cycling facilities. Maintenance practices / considerations identified in Section C.6 in Appendix C in Ontario Traffic Manual Book 18: Cycling Facilities for on-road facilities should be considered when establishing the structure and strategy.

These principles combined with additional seasonal and context sensitive considerations have been reviewed and considered to form a proposed maintenance strategy which should be considered by the County, City and municipalities. The general objectives of a trail monitoring and maintenance plan are to:

- Provide users with safe, dependable and affordable levels of service;
- Preserve infrastructure assets;
- Manage risk;
- Protect the natural environment;
- Enhance the appearance and health of the community;
- Provide a reference framework against which to measure performance;
- Provide the basis of a peer review that is comparable with other municipalities; and
- Provide citizens and Council with a reference for expectations.

The first step in implementing a maintenance and management program is to determine its scope. Trail plans, maps, inventories, trail logs, traffic count information, regular road patrols (as per provincial standards) and condition surveys are all valuable sources of information for developing maintenance management programs. The maintenance program template outlined below is based on current best practices from municipalities across Ontario and other jurisdictions in Canada. Tasks have been grouped according to the frequency with which they would typically be performed, specifically:

- Immediately (within 24 to 48 hours);
- Regularly (weekly/biweekly/monthly);
- Seasonally;
- Annually;
- Every 3 to 5 years; and
- Every 10 to 20 years.

Although it may represent additional staff time or cost, it has often been demonstrated that simply reorganizing existing maintenance priorities can contribute significantly to an effective maintenance program. Table 2.11 provides an overview of potential off-road trail maintenance considerations.

Table 2.11 – Summary of Off-road Trail Maintenance Considerations

Maintenance Considerations	
Immediate (within 24 hours of becoming aware of the situation through a "hotline", email, other notification or observation)	• As a minimum, mark, barricade and sign the known hazard areas to warn trail users, or close the trail completely until the problem can be corrected. • Remove vegetation and / or windfalls, downed branches etc., where traffic flow on the trail is being impaired or the obstruction is resulting in a sight line issue. Remove hazard trees that have been identified. If the damage is widespread and severe, the trail should be barricaded and signed with closure notices that are clearly visible at trail entry points. • Repair or replace items that have been vandalized or stolen / removed. This is especially important for regulatory signs that provide important information about trail hazards such as road crossings, steep grades, and sharp curves. • Removal of trash in overflowing containers or material that has been illegally dumped. • Repair of obstructed drainage systems causing flooding that poses a hazard to trail users or that is resulting in deterioration which in turn poses an immediate safety hazard. • Monitor trail areas and structures that are prone to erosion after severe storms and repair as required. • Repairs to structural elements on bridges such as beams, railings, access barriers and signs.

Maintenance Considerations	
Regular (weekly / biweekly / monthly)	• Trail patrols / inspectors should review the trail conditions (as often as weekly in high-use areas), to assess conditions and prioritize maintenance tasks and monitor known problem areas. • Mow grass along edges of trails (in open, urban settings only). Depending on trail location this may be done weekly, biweekly or monthly and the width can vary according to the location (typically 0.5 to 1.0m). This helps to keep the clear zone open and can slow the invasion of weeds into granular trail surfaces. Not all trails will have mown edges. In woodland and wetland areas, pruning and brushing is typically the only vegetation maintenance needed. • Regular garbage pickup (consider a 10 day cycle or more frequent for heavily used areas). • Restock trailhead information kiosks with brochures as needed. • Repair within 30 days or less, partially obstructed drainage systems causing intermittent water backups that do not pose an immediate safety hazard, but if left unchecked over time will adversely affect the integrity of the trail and/or any other trail infrastructure or the surrounding area. • Repair or replace damaged or missing signage.
Seasonally	• Patching/ minor regarding of trail surfaces and removal of loose rocks from the trail bed. • Culvert cleanout where required. • Top up and grade granular trail surfaces at approaches to bridges. • Planting, landscape rehabilitation, pruning/beautification. • Installation/removal of seasonal signage. • Repair or replace damaged or missing signage.

Maintenance Considerations	
Annually	• Conduct an annual safety audit. This task is not necessarily specific to trails and may be included with general annual safety audits for parks and other recreation facilities. • Evaluate support facilities / trailside amenities to determine repair and/or replacement needs. • Examine trail surface to determine the need for patching and grading. • Topping up of wood chip trails and grading / grooming the surface of granular trails, in particular those where seasonal equestrian uses are permitted. • Pruning / vegetation management for straight sections of trail and areas where branches may be encroaching into the clear zone. This task is more of a preventative maintenance procedure. Cuttings may be chipped on site and placed appropriately or used as mulch for new plantings. Remove branches from the site unless they can be used for habitat (i.e. brush piles in a woodlot setting), or used as part of the rehabilitation of closed trails. Where invasive species are being pruned or removed, branches and cuttings should be disposed of in an appropriate manner. • Inspect and secure all loose side rails, bridge supports, decking (ensuring any structural repairs meet the original structural design criteria). • Aerate soils in severely compacted areas. • Repair or replace damaged or missing signage.
Every 3 to 5 years	• Clean and refurbish signs, benches and other trailside amenities.
Every 10 to 20 years	• Resurface asphalt trails (assume approximately every 15 years). • Replace or reconstruct granular trails (assume approximately every 15 years, but this may not be necessary if adjustments/repairs are made on an annual basis). • Major renovation or replacement of large items such as bridges, kiosks, gates, parking lots, benches etc.

Research indicates that very few municipalities in Ontario maintain their off-road trails during winter months. For those municipalities that do offer winter maintenance services on trails, only certain routes are maintained and these tend to be primary routes hard-surfaced routes that serve a commuter function to key destinations such as schools and community centres or are heavily used by tourists and visitors. The following are some general criteria that are being used in other jurisdictions to identify candidates for winter maintenance of off-road trails.

A. Trail Function and Location

- The trail's role in the overall transportation network and community connectivity (primary vs. secondary function);
- Determine if the trail is integral to the overall network such that it provides a primary route to schools, public facilities such as recreational centres and to other pedestrian generators such as senior's homes, shopping and commercial establishments;
- The trail forms a link that is not duplicated by a nearby sidewalk or trail that is already being maintained in winter. In other words, the trail is not merely a convenient short cut. If the trail is not available for winter use, the length of the detour required should be explored further. Although these should be explored on a case-by-case individual basis, 250m could be considered as a threshold guideline;
- The trail connects dead end streets or cul-de-sacs where alternative routes do not exist;
- Consideration is given to neighbouring land use(s) and how this relates to pedestrian origins, destinations and pedestrian generators; and
- Consideration is given to trails that have historically received winter maintenance, but winter maintenance has never been formally adopted.

B. Trail Design and Condition

The trail should be constructed to a minimum standard including:

- Adequate surface drainage to prevent ponding of water and icing on the trail surface;
- A minimum width has been achieved so there is adequate access and buffer space for maintenance equipment;
- The trail has an asphalt surface (this factor may not apply if a snow blower is used instead of a plow); and
- There are no hazards adjacent to the trail such as a steep drop off that could be a danger for equipment operators.

Findings should also be documented for ongoing trail and program maintenance. A trail maintenance log should be used to document maintenance activities. The log should be updated when features are repaired, modified, replaced, removed, or when new features are added. Accurate trail logs also become a useful resource for determining maintenance budgets for individual items and tasks, and in determining total maintenance costs for the entire trail. In addition, they are a useful source of information during the preparation of tender documents for trail contracts, and to show the location of structures and other features that require maintenance. Trail logs are also a critical document to demonstrate that the trail maintenance program is being appropriately carried out.

Table 2.12 provides a summary and overview of the maintenance considerations for on-road cycling facilities.

Table 2.12 – Summary of On-road Cycling Maintenance Considerations

Maintenance Considerations[1]	
Distortions in the road surface that may pose a potential hazard for cyclists	• Bumps or depressions causing ponding of water on the cycling surface; • Drop-offs at the edges of pavement and vertical discontinuities; • Cracks and potholes.
Street Sweeping and Debris Removal	• Sand left over from winter road maintenance and leaves allowed to accumulate in bike lanes and on paved shoulders can be hazardous to cyclists. Sweeping crews should be instructed to pay particular attention to the right edge of the road along designated bikeways. • Another useful strategy is to organize the spring sweep so that roads with bike lanes and bike routes are swept first.
Snow Plowing	• Clearing of on-road routes as part of the regular removal and de-icing of roadways. A priority-shift to include roads with bike lanes and routes that serve major origins / designations should be considered.
Catch Basin and Utility Access Covers	• Service covers and roadway edges are often the first place where cracking, heaving and breakup of asphalt occur. The condition of road surfaces particularly near the curb and at corners/intersections is one of the most common complaints about on-road cycling facilities. • Patching and pavement overlay procedures may have to be increased to meet these tolerances within the traveled portion of the bikeway.

Maintenance Considerations[1]	
Signing and Pavement Marking	• Maintain on-road route and regulatory signs in the same manner that other roadway signs are maintained. Renew lane markings and symbols at the same time that other roadway lane markings are renewed.

(1) Refer to Minimum Provincial Maintenance Standards for further details.

Risk Management & Liability

Liability concerns are other key considerations which intrinsically relates to route design and maintenance. On-road facilities typically fall into the same liability category as roadways and sidewalks. This means that the County, City and municipalities could be partially liable if a facility is improperly design, constructed or maintained.

All municipalities have a statutory duty to maintain their roads, highway and bridges for all users which includes cyclists. Section 44 of the Municipal Act provides for exemptions from liability for damages or injuries caused by the state of repair or non-repair. These could include those municipalities that:

- Meet or exceed minimum prescribed standards set-out in Ontario Regulation 239/02 (amended in 2013);
- Did not know and could not be reasonably expected to have known about the state of repair; and
- Took reasonable steps to address the state of repair or hazardous situations.

When addressing risk management and liability the County, City and municipalities should review and apply where appropriate the following considerations / practices:

- Improve the physical environment, increase public awareness of the rights and obligations of users and improve access to educational programs;
- Select, design and designate facilities in compliance with the highest prevailing standards. The design of on-road cycling facilities should be consistent with OTM Book 18. Regulatory signs, consistent with the OTM Book 15, should be used;
- Design concepts should comply with all applicable laws and regulations (e.g. Ontario Highway Traffic Act, current Township and Regional by-laws, etc.);

- Conform to acceptable standards. If hazards cannot be removed they should be isolated with a barrier or notified by clear warning signs;
- Document maintenance initiatives, patrols and actions;
- Monitor on and off-road facilities through regular patrols and document the physical conditions and operations. All reports of hazardous conditions should be promptly and thoroughly investigated (consistent with minimum provincial maintenance standards);
- Written records of all monitoring and maintenance activities should be documented and maintained;
- Avoid using description such as "safe" or "safer" for on or off-road routes when promoting use. Industry practices suggest that users prefer to assess their own capabilities or level of comfort;
- Maintain proper insurance coverage as a safeguard against having to draw payment for damages from the public treasury;
- When considering new trail or cycling routes or proposing modifications to the approved network, use the assessment and documentation tool to select the preferred facility similar to the one presented in Appendix C of Ontario Traffic Manual Book 18; and
- Consider the use and application of the principles outlined in the Centre for Sustainable Transportation's Child and Youth Friendly Land Use and Transport Planning Guidelines (Ontario) for unique safety and transportation needs of children and youth.

2.4.5 Tracking

Monitoring & Evaluating the Success of the Plan

Collecting data to evaluate the different and changing aspects of user behaviour will assist in assessing the effectiveness and achievement of master the plan vision and objectives. Performance measures can be used to examine user preference, and levels of use, among other factors.

Data can inform decision making and may contribute to the identification of network and programming priorities as well as appropriate budget allocation. A set of suggested performance measures were identified in **section 4.6** of the ATI. As part of the Cycling Master Plan, a more detailed list of performance measures has been developed.

The measures are based on four key principles – **engineering, education and encouragement** and **enforcement**.

- Engineering:
  - **Existing Use** – an assessment of the number of different users, proximity to cycling facilities, demographics of users and duration of typical cycling trip
  - **Network Provisions** – an assessment of the amount of the network that has been built and the provision of typical end-of-trip facilities or staging areas
  - **Investment** – the amount of municipal funds made available for the implementation of the master plan
- Education & Encouragement:
  - **Partnership and Recognition** – local events and businesses that help to support cycling and external recognition for County, City and municipal commitment (e.g. bicycle friendly community status)
  - **Outreach and Provision** – the amount of educational materials that are developed and provided such as maps, newsletters, educational brochures, etc.
  - **Public Engagement** – a range of opportunities for the public to be involved e.g. events, educational programs that have been implemented, the amount of media coverage generated for cycling facilities / experiences, the number of views on local or regional webpages that promote trails and cycling, the amount of community support from local groups and stakeholders and the amount of tourism that is generated by those visiting for cycling experiences and the amount that they spend when they visit.
- Enforcement:
  - **Safety** – the overall safety of cyclists assessed by the number of collisions and injuries, the safety of trail users assessed by reported incidents and the use of a Share the Road campaign to promote safe use on facilities in the community.
  - **Citations and Ticketing** – the number of citations issued by enforcement officials, or number of positive reinforcement campaigns undertaken to enforce safe use of the facilities or to recognize positive community impacts.

Documenting Findings

The proposed performance measures should be reviewed, revised as necessary and adopted by the County, City and municipalities to gather input on a regular basis following the implementation of elements of the network or programming. It is suggested that the County, City and municipalities explore the collection of data every two to three years at a maximum of every 5 years. The collection of data should occur at the same time / season each year to ensure consistency of characteristics. Implementation is anticipated to commence in 2014.

In addition to some staff time, the collection and analysis of data, the development of relevant recommendations and adjustments to performance targets should be a consideration / role for seasonal staff and / or students from post-secondary institutions, where available. The results that are gathered should be reported to County, City and local Councils as part of an annual information report to provide them necessary updates regarding the progress of the implementation of the master plan.

3.0 IMPLEMENTING THE PLAN

3.1 IMPLEMENTATION TOOLS

3.1.1 Strategies to Facilitate Implementation

Implementation of the cycling network can be guided by a number of key principles. They were used to inform the identification of priority linkages for the cycling network. With the adoption of the master plan, the County, City and municipalities should review and revise these principles as necessary and use them to help prioritize additional network opportunities as they arise:

- Schedule implementation as part of major infrastructure development or improvement projects;

- Ensure Cycling Master Plan is reviewed in the early stage of municipal Environmental Assessments so that options can be considered during the evaluation of options;
- Establish cycling connections and corridors to improve access to important community destinations;
- Look for quick wins, low implementation cost opportunities;
- Construct routes in areas of new development (both greenfield and infill /intensification areas) as planning, design and construction of these areas progresses;
- Close gaps in the existing network, in particular where the completion of a small missing link results in the creation of a significantly longer, continuous connection;
- Provide spine connections between major urban centres and from urban centres to destination trails;
- Build where local interest is strong, where funding is available and / or where partnerships have already been established. Consider new opportunities that arise that were not known at the time the Cycling Master Plan was completed;
- Suggestions / requests from the public; and
- Consider developing or enhancing links where there is user demand.

3.1.2 Establishing a Development Process

The master plan and proposed network is not intended to be set-in stone. Timing and details related to implementation when proceeding to the detailed design and implementation phase will evolve through environmental assessment, planning and capital budget processes. In section 4.3.2 of the ATI and as noted in section 1.2.3 of the Cycling Master Plan, a five-step implementation / network development process was proposed for consideration by the County, City and municipalities. The process is a suggested tool which is intended to be reinforced through the Cycling Master Plan implementation process. The five steps are presented in Figure 3-1.

Figure 3-1 – Overview of the Five-Step Network Development Tool from the ATI

The Five-Step Network Development Tool should be used to guide the implementation of the proposed cycling facilities and routes. The more detailed information regarding each of the steps can be found in the ATI and should be reviewed, revised – as necessary – and used as the guiding principles behind the design, development and implementation of proposed cycling routes in Elgin-St. Thomas.

3.1.3 Identifying Roles & Responsibilities

The implementation of the master plan should be built on partnerships, leadership and champions. Since the adoption of the ATI, Elgin-St. Thomas Public Health, the County, City, municipalities and its partners have continued their commitment to the promotion of active transportation and recreation. To facilitate the implementation of the cycling master plan it is recommended that this momentum and commitment from the ATI be maintained and enhanced by building on some of successes from the cycling master plan. Implementation is proposed to be based around the engagement of three key groups:

- Healthy Communities Partnership – a group of representatives from County, City and local Council, municipal staff, public health representatives as well as members of the public that were engaged to develop the ATI.
- Active Transportation Technical Committee – a group of engineering, public works and planning staff from the County, City and municipalities that provided input over the course of the development of the Cycling Master Plan including key technical data and implementations processes.
- Citizens4Active Transportation – the citizen based promotion and outreach group that works with Public Health, County, City and municipal staff to help facilitate implementation at the community-level.

Implementation roles and responsibilities have been organized based on decision making regarding hard infrastructure e.g. facilities and amenities and soft infrastructure e.g. programs and outreach initiatives. Table 3.1 presents some of the roles and responsibilities for each of the groups with regard to master plan implementation.

Table 3.1 – Cycling Master Plan Roles & Responsibilities

Soft Infrastructure		Hard Infrastructure
Citizens4ActiveTransportation	Healthy Communities Partnership	Active Transportation Technical Committee
• Responsible for providing input to the design and delivery of promotion and outreach activities County-wide • Should continue to meet monthly for regular updates • Should strive to engage new members • Should work with the Healthy Communities Partnership and Active Transportation Technical Committee to undertake data collection where possible	• Responsible for leading the development of program and outreach initiatives related to cycling and AT County-wide, and as well as data collection with input from the C4AT • Should strive to schedule regular meetings throughout the year to discuss opportunities • Should engage one member from the Citizens4ActiveTransportation group as a permanent member	• Responsible for leading the implementation of cycling facilities County-wide • Municipal representatives to be responsible for on-road and off-road facilities under their jurisdiction • County representatives to be responsible for on-road facilities on County roads • Staff to guide the development and implementation of a formal maintenance strategy for the network

The proposed roles for each of the groups as identified in Table 3.1 should be reviewed and confirmed by County, City and municipal staff to guide future implementation of hard and soft infrastructure.

3.1.4 Funding Opportunities

Funding of the Cycling Master Plan is intended to build on the partnerships established through the ATI – e.g. Elgin-St. Thomas Public Health, local Conservation Authorities, the County, the City of St. Thomas, local municipalities and Active Elgin. The implementation and maintenance of the network should not be the sole responsibility of the County, City or the municipalities and should be collaborative effort based on external funding opportunities. Potential funding and partnership opportunities should regularly be explored and pursued wherever possible.

Table 3.2 highlights potential funding sources which could be explored to support the implementation of the Cycling Master Plan.

Table 3.2 – Potential Funding Opportunities for Cycling Infrastructure and Programming

Funding Opportunities	Additional Details
Ontario Cycling Strategy Funding	• For additional details regarding the #CycleON strategy refer to: http://www.mto.gov.on.ca/english/pubs/cycling/index.shtml
Federal / Provincial Gas Tax	• For the federal program please refer to: http://www.infrastructure.gc.ca/plan/gtf-fte-eng.html • For the provincial program refer to: http://www.mto.gov.on.ca/english/service-commitment/gas-tax-program.shtml
Transport Canada's MOST (Moving on Sustainable Transportation)	• For details on the MOST program and the projects that fall in-line with their funding alternatives refer to: http://data.tc.gc.ca/archive/eng/programs/environment-most-aboutmost-685.htm
ecoMobility (TDM) Grant Program	• For details on the ecoMobility Grant Program refer to: http://data.tc.gc.ca/archive/eng/programs/environment-ecomobility-menu-eng-144.htm
Federation of Canadian Municipalities Green Municipal Fund	• For additional details regarding the Green Municipal Fund and potential funding alternatives refer to: http://www.fcm.ca/home/programs/green-municipal-fund.htm
Healthy Communities Fund	• For additional details regarding the Healthy Communities Fund refer to: http://www.mhp.gov.on.ca/en/healthy-communities/hcf/default.asp
Trans Canada Trail Funding and Federal Fund Matching	• For additional information regarding trail funding alternatives refer to: http://old1.tctrail.ca/trail_funding.php

Funding Opportunities	Additional Details
Federal and Provincial Infrastructure / Stimulus Programs	• For Federal Government infrastructure stimulus fund details refer to: http://www.bcfontario.ca/english/isf/guide.html • For Provincial Government infrastructure stimulus fund details refer to: http://www.moi.gov.on.ca/en/infrastructure/stimulus.asp
Ontario Trillium Foundation	• For details regarding potential funding alternatives refer to: http://grant.otf.ca/
Corporate Environmental Funds (Shell and MEC)	• For additional details regarding MEC's fund to preserve recreationally significant landscapes refer to: http://www.mec.ca/AST/ContentPrimary/Community/CommunityContributions/LandAcquisition.jsp
Corporate Donations	• Money or service in king and have been contributed by a number of large and small corporations over the years
Ontario Trails Strategy Funding	• As part of the Ontario Sport and Recreation Communities Fund: http://www.grants.gov.on.ca/GrantsPortal/en/OntarioGrants/GrantOpportunities/PRDR006918
Tourism Development Fund	• For additional details regarding the Tourism Development fund refer to: http://www.grants.gov.on.ca/GrantsPortal/en/OntarioGrants/GrantOpportunities/OSAPQA005130
Service Club Support	• Lions, Rotary and Optimist clubs who often assist with highly visible projects at the community level.
Private Citizen Donation / Bequeaths	• Can also include tax receipts for donors where appropriate

3.2 THE INVESTMENT

A high-level opinion of cost has been developed for the implementation of the network based on a set of unit costs derived from recent design and construction projects across Ontario. Appendix C lists the costs for the construction of various elements of the cycling network. The appendix also includes guideline unit costs for amenities that may also be considered for implementation on a project by project basis.

The costs are presented in 2014 dollars and are based on typical or normal / average conditions for construction but do not include:

- Cost of property acquisition, utility reallocation, driveway / entrance restorations or permits and approvals for construction;
- Annual inflation including increased cost of labour, materials, fuel, etc.; and
- Applicable taxes.

Based on these assumptions as well as the unit costs presented in Appendix C, a three phased 20+ year opinion of cost has been established – consistent with full build-out of the network and the phases identified in section 3.1. Table 3.3 summarizes the costs by facility type and phase for the Elgin-St. Thomas Cycling Network.

Table 3.3 – Summary of Network Costs by Facility Type and Phase

Facility Type	Short-Term		Medium-Term		Long-Term	
	Km	$	Km	$	Km	$
Multi-Use Trail	13	$3,230,000	56	$14,070,700	17	$4,340,000
Bike Lane	6	$44,843	7	$55,875	1	$9,098
Paved Shoulder	107	$6,625,450	12	$643,500	24	$1,589,600
Signed Bike Route	59	$44,513	80	$60,225	109	$81,893
Signed Bike Route with Edgeline	4	$17,880	5	$19,040	1	$3,000
Signed Bike Route with Sharrow	10	$34,090	6	$20,230	3	$9,345
Total	199	$9,996,775	166	$14,868,870	155	$6,032,935

The costs associated with full build-out of the network have been further summarized in Appendix D based on the different jurisdictions. The estimated cost to implement the 20+ year network is $30,898,580 of which $8,115,083 is Elgin County's share, $2,997,910 is the City's share and $1,583,088 is the responsibility of the local municipalities. The costs associated with Phases 2 and 3 would need to be revisited as the plan is implemented. The budget associated with these linkages will be dependent on achieving economies of scale through future capital plans as well as priorities identified by County, City and local municipal Councils. The network costing reported in Table 3.3 and Appendix D does not include potential savings which could be realized through other avenues such as external funding opportunities and partnerships.

3.3 RECOMMENDATIONS

Throughout the Cycling Master Plan report, areas of discussion that form recommendations have been identified for consideration by Elgin-St. Thomas. Table 3.4 identifies these recommendations. They are intended to be reviewed and considered by the County, City and local municipalities to facilitate the implementation of the Master Plan.

Table 3.4 – Summary of Cycling Master Plan Recommendations

R#	Recommendation
R1	Adopt the Cycling Master Plan as the blueprint for future design, development and delivery of cycling infrastructure and programming in Elgin - St. Thomas.
R2	Use the network and implementation / phasing maps as a guide for the implementation of the cycling network, and as a base to assist with the preparation of annual budgets related to cycling infrastructure.
R3	Recognize that the network and phasing plan is flexible, and that adjustments will need to occur from time to time to respond to local priorities and opportunities.
R4	The Active Transportation Technical Committee should use the Priority Projects identified in the Cycling Master Plan as a guide regarding short-term network development.
R5	Ontario Traffic Manual (OTM) Book 18 should be used as the primary guide for facility selection, assessment and design when proceeding with the detailed design and implementation of the cycling network.

R#	Recommendation
R6	Consider road diets as one means of implementing on-road cycling facilities
R7	Have regard to the requirements / standards from the Accessibility for Ontarians with Disabilities Act (AODA) when designing trail and pedestrian facilities.
R8	Review and apply the suggested signing recommendations for the Lake Erie Waterfront Trail route and Sunset Drive as a guide for future implementation.
R9	Continue to deliver education, encouragement, promotion and monitoring programs and initiatives / events that support cycling. This should include consideration for the new programming suggestions outlined in the Cycling Master.
R10	Take steps to achieve the Bicycle Friendly Communities designation.
R11	Consider the risk management and maintenance considerations described in the Cycling Master Plan and update existing maintenance practices as necessary.
R12	Consider developing a facility maintenance and performance log to track progress on an ongoing basis.
R13	Review the performance tracking suggestions outlined in the Cycling Master Plan to enhance existing programs and / or develop new initiatives to track the performance of soft infrastructure (programs) and hard infrastructure (facility types).
R14	Review and apply the prioritization principles as opportunities arise during the implementation of the cycling network.
R15	Apply the five-step network development process / tool to guide the implementation of the cycling network.
R16	The Healthy Communities Partnership and Active Transportation Technical Committee should continue to work collaboratively to develop and deliver cycling infrastructure and programs in Elgin-St. Thomas. They should be joined by other partners such as the Citizens4ActiveTransportation where appropriate.
R17	Investigate external funding opportunities to supplement County, City and Local Municipal funding of the cycling network.

Appendix A

ACTIVE TRANSPORTATION INITIATIVE FINAL REPORT

Active Transportation Initiative Placeholder

Electronic copy can be accessed using the following link: http://activeelgin.ca/content/resources

Appendix B

PROPOSED SIGNING STRATEGY FOR LAKE ERIE WATERFRONT TRAIL AND SUNSET DRIVE

ELGIN-ST. THOMAS CYCLING MASTER PLAN
APPENDIX B
PROPOSED SIGNAGE STRATEGY FOR LAKE ERIE WATERFRONT TRAIL & SUNSET DRIVE

Legend

Existing Routes
- Existing Paved Shoulder

Proposed Routes
- Proposed Paved Shoulder
- Proposed Signed Route
- Proposed Signed Route with Sharrow

Signage
- Existing Share the Road Signage
- Recommended Share the Road Signage
- Existing Waterfront Trail Signage
- Recommended Waterfront Trail Sign

Other
- Local Road
- Collector Road
- Arterial Road
- Highway
- Lake Erie Waterfront Trail Route
- Trans Canada Trail Route
- Railway
- Connection
- Lakes and Watercourses
- Municipal Boundary

MMM GROUP

Appendix C

UNIT PRICE SCHEDULE

Appendix C - Unit Price Schedule
Elgin-St. Thomas Cycling Master Plan
Draft June 2014

ITEM	DESCRIPTION	UNIT	VALUE	COMMENTS/ASSUMPTIONS
1.0 GENERAL ACTIVE TRANSPORTATION FACILITIES				
Shared Lanes / Paved Shoulders				
1.1	Signed Bike Route in Urban Area	linear KM	$900.00	Price for both sides of the road, assumes one sign a minimum of every 330m / direction of travel (e.g. 6 signs / km).
1.2	Signed Bike Route in Rural Area	linear KM	$600.00	Price for both sides of the road, assumes one sign a minimum of every 600m / direction of travel (e.g. 4 signs / km)
1.3	Signed Bike Route with Sharrow Lane Markings	linear KM	$3,500.00	Price for both sides of the road, includes route signs every 330m ($1,500/km both sides), and sharrow stencil every 75m as per Ministry Guidelines (Painted $75 each x 26/km = $1,950 in table) If thermoplastic type product is used assume $250 / each x 26 = $6,500 source Flint Trading Inc.
1.4	Signed Bike Route with Wide Curb Lane with Construction of a New Road	linear KM	$60,000.00	Price for both sides of the road, assumes 0.5m to 1.0m widening on both sides of the road (3.5m to 4.0m)
1.5	Signed Bike Route with Wide Curb Lane with Road Reconstruction Project	linear KM	$240,000.00	Price for both sides of the road, includes curb replacement, catch basin adjustments, lead extensions and driveway ramps
1.6	Signed Bike Route with Paved Shoulder in conjunction with existing road reconstruction / resurfacing	linear KM	$55,000.00	Price for both sides of the road, 1.5m paved shoulder, assumes cycling project pays for additional granular base, asphalt and edge line. Increase to $75,000 per km for 2.0m wide shoulder (assume $110,000 per kilometre if additional widening of granular base required).
1.7	Signed Bike Route with Buffered Paved Shoulder in conjunction with existing road reconstruction / resurfacing project	linear KM	$150,000.00	Price for both sides of the road, 1.5m paved shoulder + 0.5 to 1.0m paved buffer, assumes cycling project pays for additional granular base, asphalt, edge lines and signs (buffer zone framed by white edge lines)
1.8	Addition of Rumble Strip to Existing Buffered Paved Shoulder (rural)	linear KM	$3,000.00	Price for both sides
1.9	Granular Shoulder Sealing	linear KM	$3,000.00	Both sides spray emulsion applied to harden the granular shoulder. This will reduce gravel on the paved portion of the shoulder and significantly reduce shoulder maintenance.

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	Conventional and Separated Bike Lanes			
1.10	Conventional 1.5m-1.8m Bicycle Lanes by Adding Bike Lane Markings and Signs	linear KM	$7,500.00	Price for both sides of the road, includes signs, stencils and edge line. Price is for conventional paint, (assumes painted lane line at $1 / m + $75 / symbol x 26 + $2000 for signs)increase budget to $20,000 /km for Thermoplastic) e.g. lane line in thermo is $5.50/m compared to $1.00/m for paint
1.11	Conventional 1.5m-1.8m Bicycle Lanes through Lane Conversion from 4 lanes to 3 lanes	linear KM	$35,000.00	Price for both sides. Includes grinding of existing pavement, markings, signs, line painting and symbols
1.12	Conventional 1.5m-1.8m Bicycle Lanes in Conjunction with a New Road or Road Reconstruction Project	linear KM	$300,000.00	Price for both sides of the road, assumes 1.5m bike lanes on both sides of the roadway (1.5m x 2 sides = 3.0m). Includes catch basin leads, asphalt, signs, pavement markings sub-base only. Road project funds all other improvements
1.13	Conventional 1.5m-1.8m Bicycle Lanes by Retrofitting / Widening Existing Road	linear KM	$700,000.00	Price for both sides of the road, includes the cost for excavation, adjust catch basins, lead extensions, new curbs/driveway ramps, asphalt and sub-base, pavement markings and signs.
1.14	Wide Bicycle Lane (2.0m - 2.5m BL) in Conjunction with New Road or Road Widening Project	linear KM	$250,000.00	Price for both sides of the road, assumes 2.0m to 2.5m bike lanes on both sides of the roadway . Includes catch basin leads, asphalt, signs, pavement markings sub-base only
1.15	Buffered Bicycle Lane with Hatched Pavement Markings - Assumes New Road or Road Reconstruction/Widening already Planned	linear KM	$350,000.00	Price for both sides of the road, assumes 1.5m bike lanes + 0.5m - 1.0m buffer zone with hatched pavement markings on both sides of the roadway. Includes catch basin leads, asphalt, signs, pavement markings sub-base only. Road project funds all other components
1.16	Buffered Bicycle Lane with Flex Bollards - Assumes New Road or Road Reconstruction/Widening Already Planned	linear KM	$365,000.00	Price for both sides of the road, assumes 1.5m bike lanes + flex bollards centred in hatched buffer zone at 10m intervals. Includes catch basin leads, asphalt, signs, edge line pavement markings (both sides of buffer zone) sub-base only
1.17	Buffered Bicycle Lane with Pre-Cast Barrier - Assumes New road or Road Reconstruction/Widening Already Planned	linear KM	$400,000.00	Price for both sides of the road, assumes 1.5m bike lanes + pre-cast and anchored curb delineators . Includes catch basin leads, asphalt, signs, edge line pavement markings (both sides of buffer zone) sub-base only
	Cycle Tracks			
1.18	Uni-directional Cycle Tracks: Raised and Curb Separated - Retrofit Existing Roadway	linear KM	$500,000 - $1,200,000	Both sides. Includes construction but excludes design and signal modifications. Form of cycle track and materials as well as related components such as bike signals, upgrade/modification of signal controllers, utility/lighting pole relocations, bike boxes etc. are project specific and will impact unit price
1.19	Two Way Cycle Track - Retrofit Existing Roadway	linear KM	$500,000 - $800,000	One side. Includes construction but excludes design and signal modifications. Form of cycle track and materials as well as related components such as bike signals, upgrade/modification of signal controllers, utility/lighting pole relocations, bike boxes etc. are project specific and will impact unit price

Appendix C - Unit Price Schedule
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Active Transportation Paths and Multi-Use Trails				
1.20	Two Way Active Transportation Multi-use path within road right-of-way	linear KM	$250,000.00	3.0m wide hard surface pathway (asphalt) within road right of way (no utility relocations)
1.21	Two Way Active Transportation Multi-use path within road right-of-way on one side with removal of existing sidewalk	linear KM	$275,000.00	3.0m wide hard surface pathway (asphalt) within road right of way on one side of road in place of 1.5m concrete sidewalk (includes crushing of existing sidewalk and compacting for trail base)
1.22	Concrete Splash Strip placed within road right-of-way between Active Transportation Multi-Use Path and Roadway	m^2	$150.00	Colour Stamped Concrete
1.23	Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (New)	linear KM	$250,000.00	3.0m wide hard surface pathway (asphalt) within park setting (normal conditions) 90mm asphalt depth
1.24	Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (Upgrade existing granular surface)	linear KM	$100,000.00	Includes some new base work (25% approx.), half of the material excavated is removed from site. Add trail marker signs
1.25	Granular Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting	linear KM	$140,000.00	3.0m wide, compacted stone dust surface normal site conditions
1.26	Granular Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Rural Setting (New)	linear KM	$200,000.00	3.0m wide, compacted stone dust surface in complex site conditions (includes cost of clearing and grubbing)
1.27	Upgrade existing granular surface trail to meet 3.0m wide compacted granular trail standard	linear KM	$50,000.00	Includes some new base work (25% approx.) and an average of 20 regulatory signs per kilometre
1.28	Off-Road Multi-Use Trail Outside of Road Right-of-Way on Abandoned Rail Bed in a Rural Setting	linear KM	$130,000.00	3.0m wide, compacted stone dust surface, includes signage along trail and gates at road crossings
1.29	Granular Surfaced Multi-use Trail in a Woodland Setting	linear KM	$120,000.00	2.4m wide, compacted stone dust surface

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2.0 STRUCTURES AND CROSSINGS				
2.1	Pedestrian Boardwalk (Light-Duty)	linear KM	$1,500,000.00	Structure on footings, 3.0m wide with railings
2.2	Self weathering steel truss bridge	m²	$2000 - $2500	Footings/ abutments additional, assume $30,000 per side for spread footings; $50,000 - $90,000 per side for piles
2.3	Retrofit / Widen Existing Pedestrian / Trail Bridge (29m long, 3m clear width)	m²	$2,500.00	Price assumes modifications to existing abutments
2.4	Grade separated cycling/overpass of major arterial/highway	each	$1,000,000- $8,000,000	Requirements and design vary widely, use price as general guideline only
2.5	Metal stairs with hand railing and gutter to roll bicycle	vertical M	$3,000.00	1.8m wide, galvanized steel
2.6	Pathway Crossing of Private Entrance	each	$1500 - $2000	Adjustment of existing curb cuts to accommodate 3.0m multi-use pathway
2.7	Pathway / Road transition at unsignalized intersection(crossride)	each	$5,000.00	Typically includes warning signs, curb cuts and minimal restoration (3.0m pathway)
2.8	Pathway / Road transition at existing signalized intersection (crossride)	each	$25,000.00	Typically includes installation of 4 signal heads, 2 poles, 2 foundations, 2 controller connector and 2 arms.
2.9	At grade mid-block crossing	each	$5,000.00	Typically includes pavement markings on pathway, warning signs, curb cuts and minimal restoration. Does not include median refuge island.
2.1	Median Refuge	each	$20,000.00	Average price for basic refuge with curbs, no pedestrian signals
2.11	Mid-block Pedestrian Signal	each	$75,000-$100,000	Varies depending on number of signal heads required
2.12	At grade railway crossing	each	$120,000.00	Flashing lights, motion sensing switch (C.N. estimate)
2.13	At grade railway crossing with gate	each	$300,000.00	Flashing lights, motion sensing switch and automatic gate (C.N. estimate)
2.14	Below grade railway crossing	each	$500,000-$750,000	3.0m wide, unlit culvert style approx. 10 m long for single elevated railway track
2.15	Multi use subway under 4 lane road	each	$1,000,000-$1,200,000	Guideline price only for basic 3.3 m wide, lit.
2.16	Retaining Wall	m²	$600.00	Face metre squared

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3.0 BARRIERS AND ACCESS CONTROL FOR MULTI-USE TRAILS OUTSIDE OF THE ROAD RIGHT-OF-WAY				
3.1	Lockable gate (2 per road crossing)	each	$5,000.00	Heavy duty gates (e.g. equestrian supported step over gate). Price for one side of road - 2 required per road crossing. Typically only required in rural settings or city boundary areas
3.2	Metal offset gates	each	$1,200.00	"P"-style park gate
3.3	Removable Bollard	each	$500-$750	Basic style (e.g. 75mm diameter galvanized), with footing. Increase budget for decorative style bollards
3.4	Berming/boulders at road crossing	each	$600.00	Price for one side of road (2 required per road crossing)
3.5	Granular parking lot at staging area (15 car capacity-gravel)	each	$35,000.00	Basic granular surfaced parking area (i.e. 300mm granular B sub-base with 150mm granular A surface), with precast bumper curbs. Includes minor landscaping and site furnashings, such as garbage receptacles and bike racks.
3.6	Page wire fencing	linear M	$20.00	1.5m height with peeled wood posts
3.7	Chain link fencing	linear M	$100.00	Galvanized, 1.5m height
4.0 SIGNAGE				
4.1	Regulatory and caution Signage (off-road pathway) on new metal post	each	$150-$250	300mm x 300mm metal signboard c/w metal "u" channel post
4.2	Signboards for interpretive sign	each	$500-$800	Does not include graphic design. Based on a 600mm x 900mm typical size and embedded polymer material, up to 40% less for aluminum or aluminum composite panel
4.3	Staging area kiosk	each	$2,000-$10,000	Wide range provided. Price depends on design and materials selected. Does not include design and supply of signboards
4.4	Signboards for staging area kiosk sign	each	$1,500-$2,000	Typical production cost, does not include graphic design (based on a 900mm x 1500mm typical size and embedded polymer material). Up to 40% less for aluminum or aluminum composite panel
4.5	Pathway directional sign	each	$500-$750	Bollard / post (100mm x100mm marker), with graphics on all 4 sides
4.6	Pathway marker sign	each	$250.00	Bollard / post (100mm x100mm marker), graphics on one side only
4.7	Pathway marker sign	linear KM	$1,500.00	Price for both sides of the path, assumes one sign on average, per direction of travel every 0.5 km

Appendix C - Unit Price Schedule
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5.0 OTHER				
5.1	Major rough grading (for multi-use pathway)	m^3	$10-$25	Varies depending on a number of factors including site access, disposal location etc.
5.2	Clearing and Grubbing	m^2	$2.00	
5.3	Bicycle rack (Post and Ring style)	each	$150-$250	Holds 2 bicycles , price varies depending on manufacturer (includes installation)
5.4	Bicycle rack	each	$1,000-$1,200	Holds 6 bicycles, price varies depending on manufacturer (includes installation)
5.5	Bicycle Locker	each	$3,000.00	Price varies depending on style and size. Does not include concrete mounting pad
5.6	Bench	each	$1000-$2,000	Price varies depending on style and size. Does not include footing/concrete mounting pad
5.7	Safety Railings/Rubrail	linear M	$100-$120	1.4m height basic post and rail style
5.8	Small diameter culvert	linear M	$150-$250	Price range applies to 400mm to 600mm diameter PVC or CSP culverts for drainage below trail
5.9	Pathway Lighting	linear M	$130-$160	Includes cabling, connection to power supply, transformers and fixtures
5.10	Relocation of Light / Support Pole	each	$4,000.00	Adjustment of pole offset (distance between pole and roadway)
5.11	Relocation of Signal Pole / Utility Box	each	$8,000.00	Adjustment of pole offset (distance between pole and roadway)
5.12	Flexible Bollards	each	$100.00	Should be placed at 10m intervals where required
5.13	Pavement Markings	linear M	$1.00	
5.14	Upgrade Granular Surface Back Road to Chip Seal Surface	linear M	$40,000.00	Price includes pulverizing existing surface with double treatment or tar and chip at 7m wide.

NOTES:

1. Unit Prices are for functional design purposes only, include installation but exclude contingency, design and approvals costs (unless noted) and reflect 2014 dollars, based on projects in southern Ontaric
2. Estimates do not include the cost of property acquisitions, signal modifications, utility relocations, major roadside drainage works or costs associated with site-specific projects such as bridges, railway crossings, retaining walls and stairways, unless otherwise noted.
3. Assumes typical environmental conditions and topography.
4. Applicable taxes and permit fees are additional.

Appendix D

NETWORK COSTING SPREADSHEET

Appendix D - Network Costing Spreadsheet
Elgin-St. Thomas Cycling Master Plan
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DRAFT TABLE D.1 - SUMMARY OF EXISTING AND PROPOSED FACILITY TYPES BY JURISDICTION

EXISTING AND PROPOSED LENGTH OF NETWORK BY FACILITY TYPE AND JURISDICTION																
Jurisdiction	Existing						TOTAL DISTANCE (EXISTING)		Proposed Routes						TOTAL DISTANCE (PROPOSED)	
	Multi-Use Trail	Bike Lane	Paved Shoulder	Signed Route	Edgeline	Sharrow	Total (km)	% of Total Existing	Multi-Use Trail	Bike Lane	Paved Shoulder	Signed Route	Edgeline	Sharrow	Total (km)	% of Total Proposed
	Distance (km)	Distance (km)	Distance (km)	Distance (km)	Distance (km)	Distance (km)			Distance (km)	Distance (km)	Distance (km)	Distance (km)	Distance (km)	Distance (km)		
Elgin County	0.0	0.0	10.6	0.0	0.0	0.0	**10.6**	20.5%	0.0	1.6	127.4	76.2	2.8	6.2	214.2	41.1%
West Elgin	1.3	0.0	0.0	0.0	0.0	0.0	**1.3**	2.4%	0.9	0.0	0.0	8.8	0.0	0.0	9.7	1.9%
Dutton / Dunwich	0.8	0.0	0.0	0.0	0.0	0.0	**0.8**	1.5%	0.0	0.0	3.7	1.1	0.0	0.0	4.8	0.9%
Southwold	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**	0.0%	0.0	0.0	0.0	25.1	0.0	0.0	25.1	4.8%
St. Thomas	18.8	0.8	0.0	0.0	0.0	0.0	**19.6**	37.9%	9.9	13.0	6.6	11.7	7.2	10.1	58.5	11.2%
Central Elgin	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**	0.0%	1.3	0.0	2.0	55.3	0.0	1.9	60.5	11.6%
Malahide	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**	0.0%	0.2	0.0	2.2	30.0	0.0	0.0	32.4	6.2%
Bayham	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**	0.0%	0.0	0.0	0.0	36.1	0.0	0.0	36.1	6.9%
Aylmer	2.7	0.0	0.0	0.0	0.0	0.0	**2.7**	5.2%	1.5	0.0	0.9	4.6	0.0	0.0	7.1	1.4%
Other (Partnerships)	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**	0.0%	72.8	0.0	0.0	0.0	0.0	0.0	72.8	14.0%
Catfish Creek Conservation Authority	16.5	0.0	0.0	0.0	0.0	0.0	**16.5**	31.9%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
Kettle Creek Conservation Authority	0.3	0.0	0.0	0.0	0.0	0.0	**0.3**	0.6%	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0%
TOTAL (KM)	40.3	0.8	10.6	0.0	0.0	0.0	51.7		86.6	14.6	142.8	248.8	10.0	18.2	521.0	
															TOTAL EXISTING AND PROPOSED DISTANCE (KM)	
TOTAL EXISTING AND PROPOSED NETWORK (KM)															572.7	

Appendix D - Network Costing Spreadsheet
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DRAFT TABLE D.2 - PROPOSED FACILITY TYPE AND COST BY PHASE AND JURISDICTION

PHASE 1 (0-10 YEARS)

Facility Type	Unit Price	Unit Value	Elgin County		West Elgin		Dutton / Dunwich		Southwold		St. Thomas		Central Elgin		Malahide		Bayham		Aylmer		Other (Partnerships)		Total Distance for Phase 1 (KM)	Total Estimated Cost for Phase 1
			Proposed Cost by Jurisdiction																					
			Distance (KM)	Estimated Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost		
Multi-Use Trail																								
Two Way Active Transportation Multi-use path within road right-of-way	$250,000	linear KM	0	$0	0	$0	0	$0	0	$0	4	$1,052,500	0	$0	0	$0	0	$0	0	$0	0	$0	4	$1,052,500
Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (New)	$250,000	linear KM	0	$0	0	$0	0	$0	0	$0	4	$997,500	1	$327,500	0	$0	0	$0	0	$0	0	$0	5	$1,325,000
Multi-use Trail on Abandoned Rail Bed in a Rural Setting	$130,000	linear KM	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	3	$852,500	3	$852,500
Bike Lane	$7,500	linear KM	1	$6,375	0	$0	0	$0	0	$0	5	$38,468	0	$0	0	$0	0	$0	0	$0	0	$0	6	$44,843
Paved Shoulder	$55,000	linear KM	63	$3,438,050	0	$0	4	$200,750	0	$0	3	$139,700	0	$0	0	$0	0	$0	1	$51,700	0	$0	70	$3,830,200
Paved Shoulder ($75,000 / km)	$75,000	linear KM	37	$2,795,250	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	37	$2,795,250
Signed Bicycle Route	$750	linear KM	17	$12,570	0	$0	0.5	$345	13	$9,615	0.4	$323	14	$10,380	4	$3,165	7	$4,890	4	$3,225	0	$0	59	$44,513
Signed Route with Edgeline	$4,000	linear KM	1	$3,600	0	$0	0	$0	0	$0	4	$14,280	0	$0	0	$0	0	$0	0	$0	0	$0	4	$17,880
Signed Route with Sharrow	$3,500	linear KM	3	$11,760	0	$0	0	$0	0	$0	6	$20,860	0	$1,470	0	$0	0	$0	0	$0	0	$0	10	$34,090
PHASE 1 TOTAL			**122**	**$6,267,605**	**0**	**$0**	**4**	**$201,095**	**13**	**$9,615**	**26**	**$2,263,630**	**16**	**$339,350**	**4**	**$3,165**	**7**	**$4,890**	**5**	**$54,925**	**3**	**$852,500**	**199**	**$9,996,775**

PHASE 2 (11-20 YEARS)

Facility Type	Unit Price	Unit Value	Elgin County		West Elgin		Dutton / Dunwich		Southwold		St. Thomas		Central Elgin		Malahide		Bayham		Aylmer		Other (Partnerships)		Total Distance for Phase 1 (KM)	Total Estimated Cost for Phase 2
			Proposed Cost by Jurisdiction																					
			Distance (KM)	Estimated Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost		
Multi-Use Trail																								
Two Way Active Transportation Multi-use path within road right-of-way	$250,000	linear KM	0	$0	0	$0	0	$0	0	$0	0.3	$67,500	0	$0	0	$0	0	$0	0	$0	0	$0	0.3	$67,500
Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (New)	$250,000	linear KM	0	$0	1	$222,500	0	$0	0	$0	1	$240,000	0	$0	0.2	$47,500	0	$0	2	$375,000	0	$0	4	$885,000
Multi-use Trail on Abandoned Rail Bed in a Rural Setting	$130,000	linear KM	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	52	$13,117,500	52	$13,117,500
Bike Lane	$7,500	linear KM	0	$0	0	$0	0	$0	0	$0	7	$55,875	0	$0	0	$0	0	$0	0	$0	0	$0	7	$55,875
Paved Shoulder	$55,000	linear KM	10	$532,950	0	$0	0	$0	0	$0	0	$0	2	$110,550	0	$0	0	$0	0	$0	0	$0	12	$643,500
Signed Bicycle Route	$750	linear KM	1	$863	1	$1,080.00	0.7	$510	12	$9,218	10	$7,313	18	$13,718	10	$7,320	27	$20,205	0	$0	0	$0	80	$60,225
Signed Route with Edgeline	$4,000	linear KM	1	$4,520	0	$0	0	$0	0	$0	4	$14,520	0	$0	0	$0	0	$0	0	$0	0	$0	5	$19,040
Signed Route with Sharrow	$3,500	linear KM	1	$2,800	0	$0	0	$0	0	$0	4	$12,460	1	$4,970	0	$0	0	$0	0	$0	0	$0	6	$20,230
PHASE 2 TOTAL			**13**	**$541,133**	**2**	**$223,580**	**0.7**	**$510**	**12**	**$9,218**	**26**	**$397,668**	**22**	**$129,238**	**10**	**$54,820**	**27**	**$20,205**	**2**	**$375,000**	**52**	**$13,117,500**	**166**	**$14,868,870**

PHASE 3 (20+ YEARS)

Facility Type	Unit Price	Unit Value	Elgin County		West Elgin		Dutton / Dunwich		Southwold		St. Thomas		Central Elgin		Malahide		Bayham		Aylmer		Other (Partnerships)		Total Distance for Phase 1 (KM)	Total Estimated Cost for Phase 3
			Proposed Cost by Jurisdiction																					
			Distance (KM)	Estimated Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost	Distance (KM)	Total Cost		
Multi-Use Trail																								
Two Way Active Transportation Multi-use path within road right-of-way	$250,000	linear KM	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Hard Surfaced Off-Road Multi-Use Trail Outside of Road Right-of-Way in an Urban Setting (New)	$250,000	linear KM	0	$0	0	$0	0	$0	0	$0	0.4	$107,500	0	$0	0	$0	0	$0	0	$0	0	$0	0	$107,500
Multi-use Trail on Abandoned Rail Bed in a Rural Setting	$130,000	linear KM	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	17	$4,232,500	17	$4,232,500
Bike Lane	$7,500	linear KM	1	$5,475	0	$0	0	$0	0	$0	0	$3,623	0	$0	0	$0	0	$0	0	$0	0	$0	1	$9,098
Paved Shoulder	$55,000	linear KM	5	$277,200	0	$0	0	$0	0	$0	4	$222,200	0	$0	2	$120,450	0	$0	0	$0	0	$0	11	$619,850
Paved Shoulder ($75,000 / km)	$75,000	linear KM	13	$969,750	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	13	$969,750
Signed Bicycle Route	$750	linear KM	58	$43,710	7	$5,520	0	$0	0	$0	2	$1,155	23	$17,348	16	$11,993	3	$1,943	0.3	$225	0	$0	109	$81,893
Signed Route with Edgeline	$4,000	linear KM	1	$3,000	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	1	$3,000
Signed Route with Sharrow	$3,500	linear KM	2	$7,210	0	$0	0	$0	0	$0	1	$2,135	0	$0	0	$0	0	$0	0	$0	0	$0	3	$9,345
PHASE 3 TOTAL			**80**	**$1,306,345**	**7**	**$5,520**	**0**	**$0**	**0**	**$0**	**7**	**$336,613**	**23**	**$17,348**	**18**	**$132,443**	**3**	**$1,943**	**0.3**	**$225**	**$17**	**$4,232,500**	**155**	**$6,032,935**

	Elgin County		West Elgin		Dutton / Dunwich		Southwold		St. Thomas		Central Elgin		Malahide		Bayham		Aylmer		Other (Partnerships)		TOTAL DISTANCE FOR ALL PHASES (KM)	TOTAL ESTIMATED COST FOR ALL PHASES
	Total Distance (KM)	Total Estimated Cost	Total Distance (KM)	Total Estimated Cost	Total Distance (KM)	Total Estimated Cost	Total Distance (KM)	Total Estimated Cost	Total Distance (KM)	Total Estimated Cost	Total Distance (KM)	Total Estimated Cost	Total Distance (KM)	Total Estimated Cost	Total Distance (KM)	Total Estimated Cost	Total Distance (KM)	Total Estimated Cost	Total Distance (KM)	Total Estimated Cost		
TOTAL FOR ALL PHASES	214	$8,115,083	10	$229,100	5	$201,605	25	$18,833	59	$2,997,910	60	$485,935	32	$190,428	36	$27,038	7	$430,150	73	$18,202,500	521.0	$30,898,580