Oshawa®

City of Oshawa

Active Transportation Master Plan

Technical Report - Executive Summary

Policy, Planning, Design and Implementation

Revised February 2015 (DRAFT)

MMM GROUP

Executive Summary

The City of Oshawa Active Transportation Master Plan (ATMP) is a statement of the City's ongoing commitment to promote active lifestyle opportunities and choices for residents, visitors and employees in the City. Walking and cycling for utilitarian and recreational purposes are expected to increase the demand for safe, connected, attractive and convenient pedestrian and cycling facilities as Oshawa continues to grow. In order for the City to deliver on its commitment to encourage and support a high quality of life for all of its residents and support economic development, Oshawa must have a clear long term strategy to shape growth. A key component of such a strategy includes establishing a multi-modal transportation and active recreation network that meets the needs of residents and employees of all ages. Together with the Oshawa Official Plan and the Integrated Transportation Master Plan (ITMP), the ATMP will play a key role in achieving these goals.

This Executive Summary provides an overview of the ATMP and its recommendations in an accessible text format. The proposed active transportation network, cost estimates, suggested phasing and all of the master plan recommendations are included in this Executive Summary. A separately bound technical report is available from the City that includes more detailed background information regarding the rationale for the proposed network, implementation strategy, costing assumptions, facility design guidelines and other supporting technical information.

For more information regarding the Active Transportation Master Plan Technical Report, or if you would like this information presented to you in an accessible format that meets your needs, please call Engineering Services at the City of Oshawa at 1-800-667-4292 or, for TTY service, 905-436-5627. Enquiries may also be emailed to rgill@oshawa.ca.

Preface to the ATMP

Building on previous work including the City's 1999 Cycling Network Study, an initial draft Walking and Cycling Master Plan (WCMP) was prepared by City staff in 2010. However, City staff did not advance the draft WCMP for Council approval at that time for a variety of reasons. These included a desire to integrate trails into the City's walking and cycling networks and to ensure consistency with a variety of relevant policies/plans in development at the time, including the 2012 update to the Durham Regional Cycling Plan (RCP), the development of new provincial cycling facility design guidelines (Ontario Traffic Manual Book 18: Cycling Facilities) and the development of the Greenbelt Cycling Route.

As the City began to develop its ITMP in 2013, a decision was made to concurrently update and expand the draft WCMP as a comprehensive Active Transportation Master Plan (ATMP). The ATMP reflects various recent policies/plans as noted above and also includes updates to reflect current cycling, pedestrian and trail planning and design best practices. Public consultation was an important component of the ATMP update, and was undertaken in conjunction with the public consultation process for the ITMP.

1. Introduction

This ATMP sets out the means for improving and expanding Oshawa's active transportation network. These efforts are predicated on the following vision:

> *Enhance the quality of life for residents and employees in the City by providing a connected, attractive and convenient active transportation system that offers a high degree of comfort and safety, expands recreation options, encourages sustainable modes of transportation, respects the natural scenic character, and supports economic development.*

Flowing from this vision are six key goals:

1) Meet community needs for active transportation facilities;
2) Provide convenient access to and connectivity within the active transportation network;
3) Develop an active transportation system that offers a high degree of comfort and safety;
4) Adopt a phased approach to implementation;
5) Promote active transportation; and
6) Integrate on- and off-road active transportation facilities.

These goals underpin the City's efforts to provide an expanded network of pedestrian and cycling facilities that link the urban and rural centres, connect the various communities and major destinations in Oshawa and provide routes for cross-city recreational and utilitarian trips.

2. Establishing the Need for Active Transportation

Active transportation includes many active modes and methods of travel such as:

- walking/jogging/running;
- cycling;
- in-line skating;
- skateboarding;
- manual and power-assisted mobility devices; and
- snowshoeing / skiing.

Electric bicycles (e-bikes) are allowed on City multi-use trails and on on-road cycling facilities within the travelled portion of road rights-of-way but are prohibited on sidewalks throughout the City.

The process of promoting active transportation modes and working towards the aforementioned goals will allow the City, its residents and its businesses to realize and enjoy the benefits that active transportation brings, including:

- Health – an opportunity to be physically active on a regular basis;
- Social – high accessibility for residents and employees of all ages, lifestyles, and cultural and socio-economic groups, and increases social interactions;
- Transportation – reduced road congestion;
- Environmental – reduced greenhouse gas emissions; and
- Economic – savings on gas, parking, insurance, vehicle maintenance and other costs.

Chapter 2 provides more detail on the need for active transportation as part of a multi-modal network that supports sustainable, healthy and complete communities and will effectively manage and support the City's projected rapid growth in population and employment.

3. Policy Framework

Policies pertaining to cycling, walking, transit, and alternative modes of transportation are dispersed throughout a number of Provincial, Regional and City documents. The ATMP takes direction from these documents and, through specific recommendations, articulates the intent of the policies contained in them. The following policies and documents have been consulted:

- Province of Ontario:
  - Provincial Policy Statement Update (2014);
  - Bill 51 Plan Reform;
  - Highway Traffic Act;
  - Ontario Cycling Strategy #CycleON;
  - Health Promotion;
  - Accessibility for Ontarians with Disabilities Act (AODA);
  - Ontario Trails Strategy;
  - Transit Supportive Guidelines (2012);
  - Metrolinx: The Big Move – Transforming Transportation in the Greater Toronto and Hamilton Area (2008);
  - Places to Grow: Growth Plan for the Greater Golden Horseshoe (2006);

- Greenbelt Plan (2005);
- Oak Ridges Moraine Conservation Plan (2002); and
- Ontario Traffic Manual (OTM) Books 15 and 18.

- Durham Region:
  - Durham Community Strategic Plan;
  - Durham Region Official Plan (DROP); and
  - Regional Cycling Plan (2012).

- City of Oshawa:
  - City of Oshawa Official Plan;
  - Oshawa Integrated Transportation Master Plan; and
  - International Charter for Walking.

These policies and documents are described in more detail in Chapter 3 of the Technical Report.

Recommendations:

3-1 That when preparing amendments to the Oshawa Official Plan the City consider consolidating and expanding active transportation policies, where appropriate, in Part II Plans and the Samac Secondary Plan and incorporate additional policies having City-wide relevance in the Part I Plan; and

3-2 That the City ensure that policies concerning active transportation are sufficiently comprehensive and consistent to provide strong guidance for

the implementation of walking and cycling as viable alternative modes of transportation.

4. Planning Oshawa's Active Transportation Network

Planning the City's active transportation network is a necessary pre-requisite to the detailed design and implementation of network components. In updating the City's draft Walking and Cycling Master Plan (2010), consideration was also given to the network and route selection methodology in Ontario Traffic Manual Book 18: Cycling Facilities (2013).

Routes that form the recommended active transportation network were selected in response to a variety of route selection criteria. These are as follows:

- Aesthetics;
- Connectivity;
- Convenience and Accessibility;
- Context Sensitivity;
- Cost Effectiveness;
- Diversity of Facility Types;
- Comfort, Safety and Security;
- Sustainability; and
- Visibility.

The recommended ATMP network features approximately 100 km of proposed new facilities on city roads and 83 km of proposed new off-road facilities (including in-boulevard facilities along City roads). The City's active

transportation network will then comprise approximately 238 km of facilities, which includes approximately 56 km of existing facilities. In addition to the City of Oshawa's ATMP network, the Region's Cycling Plan includes 7 km of existing facilities and 50 km of proposed facilities, which will result in a 295 km active transportation network in Oshawa. Sidewalks are a key component of active transportation infrastructure in the City. Recognizing that resources available for funding active transportation projects must be balanced with other municipal service needs, it is important that active transportation funding decisions be based on determining which projects provide the greatest possible public benefit in the most efficient way. Having said that, all active transportation facilities need to be made compliant with the Accessibility for Ontarians with Disabilities Act (AODA) in a timely fashion. Addressing sidewalk deficiencies (such as gaps in existing sidewalks and areas that were developed without sidewalks) along recommended on-road active transportation routes should be the focus of a sidewalk retrofit prioritization program. Bridging gaps in sidewalks elsewhere in the City likewise requires attention, to facilitate access to and the use of active transportation routes.

In Oshawa, cyclists (excluding e-bikes) are currently permitted to use pedestrian sidewalks for travel, with the exception of sidewalks in the vicinity of the downtown (as per By-law 78-91). Since sidewalks are not designed for use by cyclists, it is recommended that the City revise the current bylaw to restrict the use of sidewalks by adult cyclists, although children would still be to cycle on sidewalks.

Recommendations:

4-1 That Council endorse the Existing and Proposed Active Transportation Routes maps as the basis for budgeting, financing and phasing the implementation of the City's active transportation network.

4-2 That the City's Active Transportation Network be reviewed, evaluated and updated at least every five years, and involve a public consultation component. Consideration should also be given to improving, expanding and adding missing links to the network through opportunities offered by unopened road allowances, hydro rights-of-way, existing or abandoned rail corridors, open space and recreation areas, development projects, and future roadway improvements.

4-3 That a future Harmony Creek Trail connection across Highway 401 be considered at such time when improvements to the Harmony Road interchange at Highway 401 proceed.

4-4 That the ATMP be flexible to accommodate route revisions and/or changes in facility types, provided that continuity and functionality of the route is maintained in the same general location.

4-5 That the City proactively initiate discussions on improvements that require approvals from the Region and other partners, including adjacent municipalities, and MTO. This plan incorporates the network identified in the 2012 Regional Cycling Plan and no changes are anticipated apart from some minor connecting links.

4-6 That the City consider amending By-law 78-91 to restrict cyclists over the age of 13 from the use of all sidewalks in the City with the exception of an adult who is accompanying children age 13 or younger.

5. Designing Active Transportation Facilities

The planning and design guidelines outlined in Chapter 5 provide the necessary tools to plan and design the on- and off-road components of the City's active transportation network. For the purposes of this study, "on-road" refers to

facilities located within the travelled portion of road rights-of-way, such as bicycle lanes, separated bicycle lanes and raised cycle tracks. In-boulevard facilities and off-road trails are considered “off-road” facilities.

Off-road routes typically run through parks, valley lands and other natural open space areas, within hydro or pipeline corridors, within the boulevard portion of road rights-of-way, along former rail corridors, and through mid-block pathways that run between properties and link streets that are not directly connected by roadways. Off-road routes serve both utilitarian and recreational users.

The City’s Off-Road Facility Standards highlight three different classes (Trail Class I, II and III) of off-road multi-use trail, and provides design guidelines and selection criteria for these facilities. The decision regarding which type of facility to build is typically subject to site-specific contextual conditions, such as the anticipated level of usage, whether or not it is located on-road or off-road, and proximity to major destinations.

Standards for on-road facilities have been developed to meet the needs of a range of users in a variety of contexts and are consistent with Ontario Traffic Manual (OTM) Book 18: Cycling Facilities and Book 15: Pedestrian Crossing Facilities. Chapter 5 also outlines the facility selection process that was developed for OTM Book 18 and used to guide the development of the City of Oshawa active transportation network plan.

The proposed on-road facility types, along with their classifications, include:

- Raised Cycle Tracks (Class Ia and 1b);
- Separated Bicycle Lanes (Class IIa);
- Conventional Bicycle Lanes (Class IIb);

- Rural Paved Shoulder (Class IIIa);
- Urban Paved Shoulder (Class IIIb); and
- Signed-Only Cycling Routes (Class IV).

The City's On-Road Cycling Facility Standards relate to the selection and design of appropriate types of pedestrian and cycling facilities for on-road routes, as shown in Exhibit D. A facility type is recommended for each proposed route based on motor vehicle volumes and operating speeds, along with a variety of context-specific criteria.

The proposed off-road facility types, along with their classifications, include:

- Two-Way In-Boulevard Multi-Use Trail (Class Ia);
- Two-Way In-Boulevard Cycling Facility (Class Ib);
- One-Way In-Boulevard Cycling Facility (Class Ic);
- Standard Multi-Use Recreational Pathway (Class II); and
- Off-Road Rural Nature Trail (Class III).

The City's Off-Road Cycling Facility Standards relate to the selection and design of appropriate types of pedestrian and cycling facilities for off-road routes, as shown in Exhibit C.

Proposed facilities for all on- and off-road routes are shown in Exhibits E1 and E2. Ultimately, the selection of an appropriate design treatment will be based on good planning and engineering judgment that considers and weighs all relevant criteria as identified in the ATMP.

At controlled crossings of arterial roads where grade separation is not feasible, a 'crossride' concept introduced in OTM Books 15 and 18 may be applied.

Crossrides:

- are multi-use facilities for pedestrians and cyclists;
- allow cyclists to legally cross without dismounting;
- are provided in place of a crosswalk;
- feature pavement markings and signage that alert drivers to look out for cyclists and pedestrians;
- can be installed at intersections or mid-block crossings; and
- are available in 'separate', 'combined' or 'mixed' formats.

Chapter 5 also discusses design considerations for sidewalks, trailhead parking, crossing facilities and structures, signage, washrooms, waste receptacles, seating and lighting.

Recommendations:

5-1 That the design and implementation of the constituent components of Oshawa's active transportation network be consistent with the design standards, guidelines, and selection criteria for active transportation facilities provided in Chapter 5, the Off-Road Facility Standards, the On-Road Cycling Facility Standards and the Ontario Traffic Manual series.

5-2 That proposed sidewalks shown in Exhibits B1 and B2 should have a minimum recommended sidewalk width of 1.8 metres, and 2.0 metres in higher demand areas.

5-3 That the City of Oshawa Accessibility Design Standard (or the Accessible Built Environment Standard if this is higher) be applied to the design of all pedestrian facilities and infrastructure components comprising the City's active transportation network.

5-4 That the active transportation facilities proposed for routes along road rights-of-way in urban areas include sidewalks and/or a boulevard path to accommodate pedestrians and other users.

6. Implementing the Active Transportation Network

A practical, phased implemention strategy is outlined in Chapter 6. To facilitate the incorporation of active transportation improvements into projects identified in the capital work program and recommended by the City's Integrated Transportation Master Plan (ITMP), the phasing has been broken down into:

- Phase 1 = Short term (2015-2023); and
- Phase 2 = Medium- to long-term (2023-2031)

Exhibits F1 and F2 depict existing routes and the planned phasing of proposed facilities for implementation as part of Oshawa's active transportation network. Table EX-1 provides a breakdown of the total length of existing and proposed network connections by phase:

Table EX-1: Proposed Length of Oshawa Active Transportation Network by Phase and Facility Type

	City				Region		City and Region
Proposed Facility Type	**Existing**	**Phase 1 (2015-2023)**	**Phase 2 (2023-2031)**	**Existing and Proposed**	**Existing**	**Proposed**	**Existing and Proposed**
Signed Only Bicycle Route	2.7	17.3	9.2	**29.2**	0.2	-	**29.4**
Signed Only Bicycle Route with Sharrows	-	1.9	0.3	**2.3**	-	-	**2.3**
Bicycle Lane	-	15.3	11.2	**26.5**	-	13.7	**40.2**
Separated Bicycle Lane	-	5.5	-	**5.5**	-	0.7	**6.2**
Raised Cycle Track	-	2.4	0.8	**3.3**	-	1.7	**4.9**
Urban Paved Shoulder	21.3	16.9	10.7	**48.8**	-	0.3	**49.2**
Rural Paved Shoulder	-	0.9	6.7	**7.6**	3.2	1.1	**11.9**
In-Boulevard Multi-Use Trail	1.8	4.1	3.6	**9.5**	3.9	32.0	**45.4**
Off-Road Multi-Use Trail	29.7	49.7	26.2	**105.6**	-	-	**105.6**
Total	**55.5**	**114.0**	**68.6**	**238.3**	**7.3**	**49.5**	**295.1**

Where pedestrian facilities are to be retrofitted, it is important that those sections which provide the greatest possible public benefit be targeted as a priority for implementation. The City should also be responsive to public requests for sidewalk implementation as budgets permit, and prioritize construction accordingly.

For greenfield locations, new sidewalks should be provided in accordance with current standards as development occurs, when new roads are opened to the travelling public and when existing roads are improved.

All proposed sidewalks, be they retrofits or new construction, should be consistent with the Built Environment Standards required by the Accessibility for Ontarians with Disabilities Act (AODA). In addition, the City should assess existing pedestrian infrastructure for AODA compliance and plan to upgrade deficiencies where appropriate. Sidewalk upgrades should be prioritized based on where AODA compliant sidewalks are most needed, along with consideration of scheduled right-of-way construction. Prioritized segments should include those in proximity to commercial centres, major institutions, transit hubs or retirement / long-term care residences.

The cost to implement the entire ATMP network is estimated to be approximately $27 million. Over the 17 year implementation horizon of the ATMP, this equates to approximately $1.6 million per year. Since many of the ATMP facilities are can be implemented and funded through roadway reconstruction projects, the annual budget designated specifically for implementation of the ATMP is expected to be less than $1.6 million. This budget may also be partially funded through gas tax revenue. The implementation of Oshawa's Integrated Transportation Master Plan (ITMP), in contrast, will require on the order of $300 million of capital funding over the same period.

Table EX-2 provides the order of magnitude capital cost estimates by phase:

Table EX-2: Estimated Capital Cost of Oshawa Active Transportation Network by Phase

Proposed Facility Type	Phase 1 (2015-2023)	Phase 2 (2023-2031)	Totals
Signed Only Bicycle Route	$26,000	$14,000	$40,000
Signed Only Bicycle Route with Sharrows	$6,000	$1,000	$8,000
Bicycle Lane	$114,000	$84,000	$199,000
Separated Bicycle Lane	$1,929,000	$0	$1,929,000
Raised Cycle Track	$2,440,000	$830,000	$3,270,000
Urban Paved Shoulder	$67,000	$43,000	$110,000
Rural Paved Shoulder	$50,000	$368,000	$418,000
In-Boulevard Multi-Use Trail (Along a City Road)	$1,130,000	$979,000	$2,109,000
Off-Road Multi-Use Trail	$12,413,000	$6,538,000	$18,950,000
Total City Cost:	**$16,793,000**	**$10,206,000**	**$27,032,000**
In-Boulevard Multi-Use Trail (Along a Regional Road)	*See Regional Cycling Plan*	*See Regional Cycling Plan*	*$8,811,000*

Note: Cost estimates have been rounded to the nearest thousand.

After the entire Phase 1 network has been implemented, annual maintenance costs for proposed facilities in the City's right of way and off-road trails are estimated to be approximately $500,000. The total maintenance costs for the

$555,000; over the full 9 years of Phase 1, total maintenance costs are estimated to be approximately $2.0 million.

Once Phase 2 has been fully implemented, annual maintenance costs for proposed facilities in the City's right of way and off-road trails will increase to approximately $848,000. The total cost of maintaining this system during the entire implementation process (Phases 1 and 2 combined) is estimated to be approximately $7.2 million.

Actual maintenance costs may be lower than these estimates, since newer facilities may require less maintenance than facilities in other lifecycle stages. The estimates are also based on year round maintenance of facilities, which the City may or may not choose to provide for all facilities in the network.

While the ATMP is an ambitious and potentially transformative plan for the City of Oshawa, and will require a financial commitment from the City, it is important to consider the cost implications on a per capita basis. Based on projections used in the ITMP, the City of Oshawa is expected to have a population of approximately 197,000 residents by 2031. If fully implemented, the ATMP would be associated with annual capital investment cost of $8.12 per capita and an annual maintenance cost of $4.30 per capita.

A second component of the cost analysis for the proposed ATMP involves estimated costs to retrofit missing sidewalk segments within built-up areas of the City. Based on the number of gaps in the existing sidewalk system, retrofitting all gaps should be a long term goal that the City works toward incrementally. Both capital and maintenance costs will be associated with this goal. Sidewalk retrofits should be planned in conjunction with scheduled roadway and utility work to achieve cost efficiencies. Moreover, consultation with local stakeholders

adjacent to candidate retrofit segments should be a consideration in implementing sidewalk retrofits.

It is suggested that an annual capital budget of $1 million would allow the City to extend the sidewalk network on an on-going basis, and address current network gaps over a 30-year horizon. This time horizon will also enable the City to coordinate many retrofits with other roadway and utility projects, as recommended above. The total capital costs are estimated to be on the order of $29,687,000 if all of the sidewalk gaps currently identified in the City's database were to be retrofitted.

In addition, the City should allow for an increase of approximately $6,000 per added kilometre of sidewalk to its maintenance and operations budget for year-round sidewalk maintenance. Over a 30-year horizon, the total maintenance cost is estimated to be approximately $14.2 million based on year-round maintenance (includes snow clearing). Exhibit I, *City of Oshawa Sidewalk Retrofits - Implementation and Maintenance Cost Estimates*, provides detailed cost estimates by phase for sidewalks along roads identified as active transportation routes and for sidewalks along roads not defined as active transportation routes.

Recommendations:

6-1 That Council endorse the ATMP in principle, and authorize City staff to work towards the implementation of its recommendations.;

6-2 That appropriate references to the ATMP be included in an update or amendment to the City of Oshawa Official Plan. Consideration shall be given to:

- *An Appendix showing the recommended Oshawa Active Transportation Network; and*

- *Including references to the ATMP under appropriate sections in the Official Plan.*

6-3 *That references to and policies in support of the ATMP be included in other appropriate current and future long range City planning and guideline documents, including those that deal with land use, environmental and transportation planning.*

6-4 *That the Oshawa Active Transportation Network be guided by the recommended phasing set out in the ATMP.*

6-5 *That between scheduled periodic reviews of the ATMP, changes to the timing of implementation of individual network routes and infrastructure components may be considered and instituted in response to new development projects, the timing of municipal infrastructure improvement projects, changing construction opportunities, specific route-related demand or fluctuations in the availability of funding.*

6-6 *That City staff give consideration to implementing priority projects to improve access to key destinations (e.g. community centres, schools, grocery stores) in areas that are under-served by active transportation / recreation.*

6-7 *That the proposed sidewalk connections identified in the Pedestrian Network (see Exhibits B1 and B2) be approved for phased retrofitting in general accordance with the implementation approach outlined in the ATMP.*

6-8 That the City should develop a sidewalk retrofit prioritization plan to identify those sidewalk segments where an AODA compliance retrofit would achieve the greatest benefit and develop an implementation timeline.

6-9 That an interdepartmental Active Transportation Implementation Co-ordinating Committee be established to provide a forum to ensure that opportunities for active transportation are not being missed, that projects are appropriately coordinated with new development and road improvements, and that the ATMP is carried out.

6-10 That the City establish and support an Active Transportation Advisory Committee, with a Council approved mandate and Terms of Reference.

6-11 That an internal reporting structure be formulated with clearly defined roles for each City staff member, that external agencies and interest groups be engaged and that champions be identified to lead the promotion and outreach campaigns.

6-12 That proponents of subdivision or site plan applications shall be responsible for the preparation of a detailed plan for all on- and off-road active transportation facilities within their projects and along adjacent roads, where such facilities are identified in the ATMP or are proposed by the proponent.

6-13 That proponents of subdivision or site plan applications shall, at a minimum, be responsible for clearing land approved for active transportation facilities of all vegetation and debris, grading the route platform and, where a route segment is off-road (excluding in-boulevard

facilities), applying a granular surface material or, where a route segment is on-road or within a road boulevard, applying an appropriate hard-finished surface such as asphalt or concrete.

6-14 *That through the application review process the City shall ensure that developments are designed to be walkable and bicycle-friendly as a primary design focus, through attention to such factors as site organization, building placement and orientation, bicycle parking, shower and changing rooms, internal and external pedestrian and cycling routes and connections, weather protection, and amenities.*

6-15 *That the Active Transportation Implementation Co-ordinating Committee annually review all active transportation projects planned within five years and beyond during the capital budget process, and also identify opportunities for synergies with the ATMP program when roads or other infrastructure projects are being implemented.*

6-16 *That the GIS database be updated regularly and an annual report covering recent achievements and short-term plans be submitted to Council.*

6-17 *That Council commit to providing capital and operational funding for the implementation of the ATMP on an annual basis.*

6-18 *That where planned capital projects involving road improvements coincide with recommended components of the active transportation network, the implementation of appropriate structural elements of the active transportation network be integrated as part of undertaking the planned capital project, to assist in reducing estimated implementation costs.*

6-19 That Council endorse the establishment of a new Active Transportation Network Development Reserve fund to hold the City's contribution as well as all grants and donations for active transportation development, including sidewalk retrofitting.

6-20 That during the next update, the City's Development Charge By-law be reviewed with consideration given to implementing contributions to support the development of on-road active transportation facilities and augmenting revenue streams for off-road trails development.

6-21 That Council delegate authority to the Active Transportation Implementation Co-ordinating Committee to approve expenditures from the Active Transportation Network Development Reserve fund, subject to an annual report to Council on the progress of the development plan and financial position of the Reserve.

6-22 That the City explore a cost-sharing strategy with agencies, such as Hydro One, to implement route segments that are not under municipal ownership;

6-23 That the Region be requested to apply the cost-sharing protocol identified in the approved Regional Cycling Plan to new routes and extensions along Regional roads in Oshawa that form part of Oshawa's proposed active transportation network.

6-24 That the City enter into discussion with the Region to develop a cost-sharing partnership to share the capital costs for cycling routes that are located on City roads and identified in the Regional Cycling Plan.

7. Supporting Active Transportation

Recognizing that infrastructure alone will not create and support a successful active transportation network, the ATMP recommends a strategic support framework including:

- Monitoring and maintaining pedestrian and cycling facilities once they have been constructed;
- Developing and implementing programs aimed at encouraging and promoting active transportation; and
- Educating users about the proper use of pedestrian and cycling facilities through public service campaigns, signage, network maps and pedestrian/cyclist/motorist etiquette brochures.

Effective maintenance is key to the success and safety of Oshawa's active transportation network and should begin as soon as any given route is completed and open for public use. Maintenance activities typically include sweeping, ensuring adequate drainage, pavement stabilization and surface repairs, landscape and lighting maintenance, sign replacement, mowing/pruning, litter and snow removal, replacement of worn pavement markings and the maintenance of bicycle parking facilities.

A good maintenance program:

- is documented;
- acts as an effective advertisement to promote active transportation as a utilitarian/recreational travel mode;
- can be an effective deterrent to vandalism, litter, and encroachments;

- can make enforcement of regulations on routes more efficient;
- is necessary to preserve positive public relations with adjacent land owners;
- improves the comfort of users by giving them a smooth riding surface; and
- helps to improve the safety and attractiveness of routes and reduce municipal liability.

Priorities for on-road facility maintenance should be consistent with the Municipal Act and the Province's Minimum Maintenance Standards for municipal roads.

Appropriate management of an active transportation network requires monitoring its usage to understand how well network users are being served by the system. Collection of data in this regard will assist in evaluating the effectiveness of the network and the success of efforts to achieve the stated vision and goals of the ATMP. In particular, the data will:

- confirm the overall direction and implementation of the ATMP;
- provide up-to-date statistics on the number and type of trail users;
- validate the route selection process; and
- identify the supply and demand for support facilities.

Origin/destination, screenline and intersection counts should be collected during the highest trail use season every five years in tandem with the recommended ATMP review cycle.

A successful active transportation network is one that is actively and properly used. People of all ages and abilities should be encouraged and educated to use the network for both recreational and utilitarian purposes. This includes improving user skills and raising awareness of the benefits of active

transportation. Educating and communicating with members of the public will be integral to the success of the plan and the increased use of facilities.

As part of the #CycleON Strategy for the Province of Ontario, the Ministry of Transportation has identified four key communication cornerstones that lay the foundation for future promotion and outreach. These consist of education, encouragement, evaluation and enforcement. With respect to the Oshawa ATMP, the City is encouraged to focus on two of the four cornerstones – encouragement and education – as well as other community-based initiatives. Some suggested initiatives related to these cornerstones are provided below.

Encouraging active transportation involves:

- responding to unique groups such as young people and seniors;
- mitigating barriers to participation, particularly safety;
- communicating success stories; and
- providing incentives to active transportation, such as vouchers.

Users can be educated through:

- the use of trail maps;
- educational information in schools;
- information based on socio-demographics for people of a range of ages, abilities and backgrounds; and
- annual status updates on progress regarding the planning and implementation of cycling facilities.

Recommendations:

7-1 That the City review its current maintenance standards alongside Chapter 8 of Ontario Traffic Manual Book 18 and, where necessary, develop new standards to ensure an appropriate level of maintenance for on- and off-road active transportation routes.

7-2 That the City maintain the active transportation network on an on-going basis in keeping with minimum provincial maintenance standards and the City's current trail maintenance guidelines.

7-3 That the City adapt and expand its existing trail data collection program to include user surveys through Parks and Environmental Services and numerical counts pertaining to origins/destinations, intersections and screenlines through Works and Transportation Services.

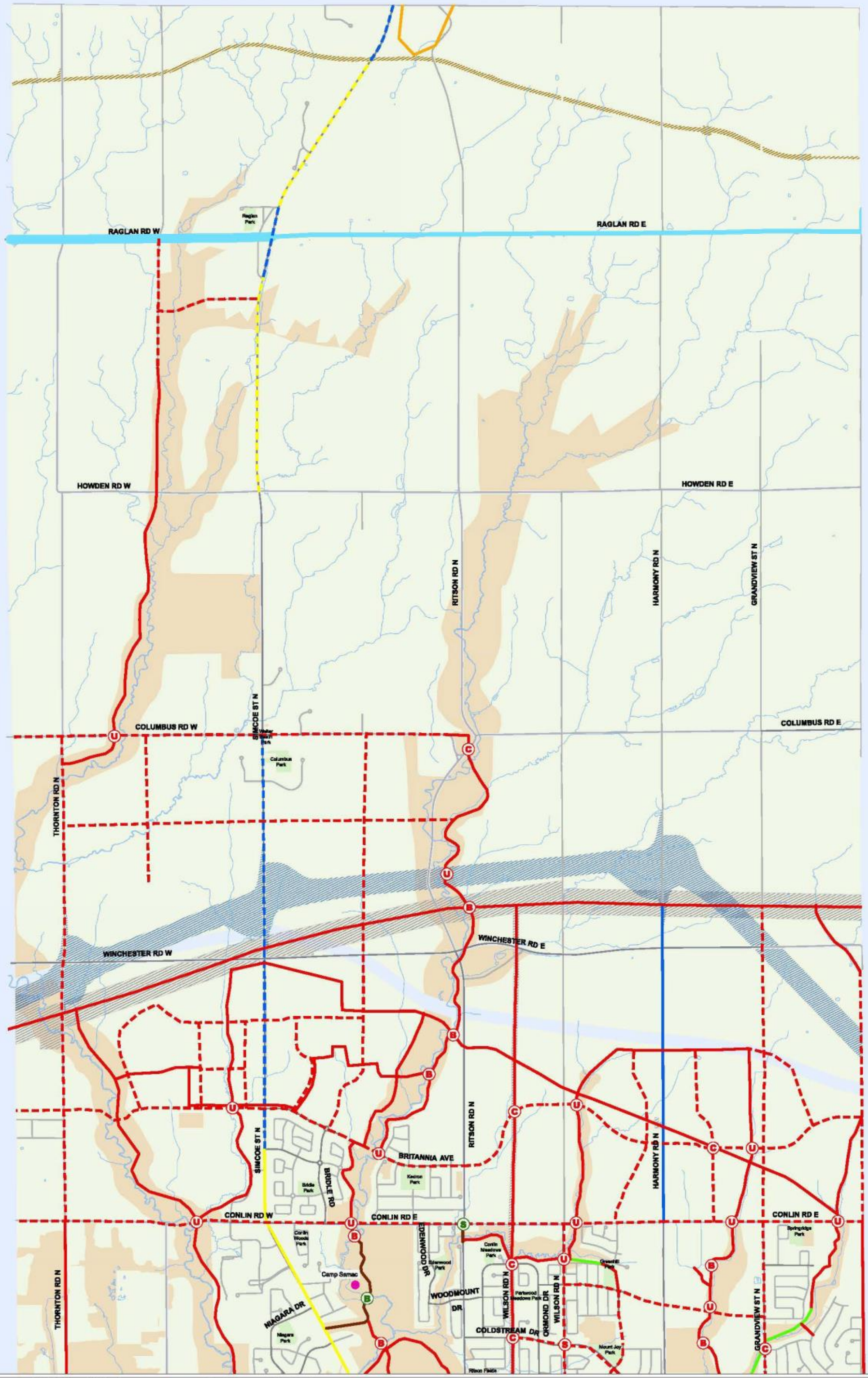
7-4 That the City encourage the use of active transportation facilities through Community Services initiatives such as:

- *maintaining the existing programs that provide route mapping information to the public both in print and on the City's website;*
- *initiating a sponsorship program, such as 'Adopt-a-Route', accompanied with a recognition programme;*
- *initiating recreational programmes on various routes, such as fitness, bird watching, nature walks and eco-tourism; and*
- *supporting special events, such as Bike-to-Work Week and a community walking and cycling day.*

7-5 That the City encourage citizen reporting of problems through Service Oshawa to identify facility maintenance needs or other issues;

7-6 That the City consider developing additional information pamphlets and brochures to educate network users on established etiquette and to inform motorists on the subject of cycling in order to foster a broad awareness of on-road active transportation facilities and respect for cyclists.

7-7 That the City consider adopting a program such as Car Free Sundays to promote and encourage active transportation. Car Free Sundays would include closing a section of a road in downtown Oshawa to motor vehicles but accessible to pedestrians and cyclists.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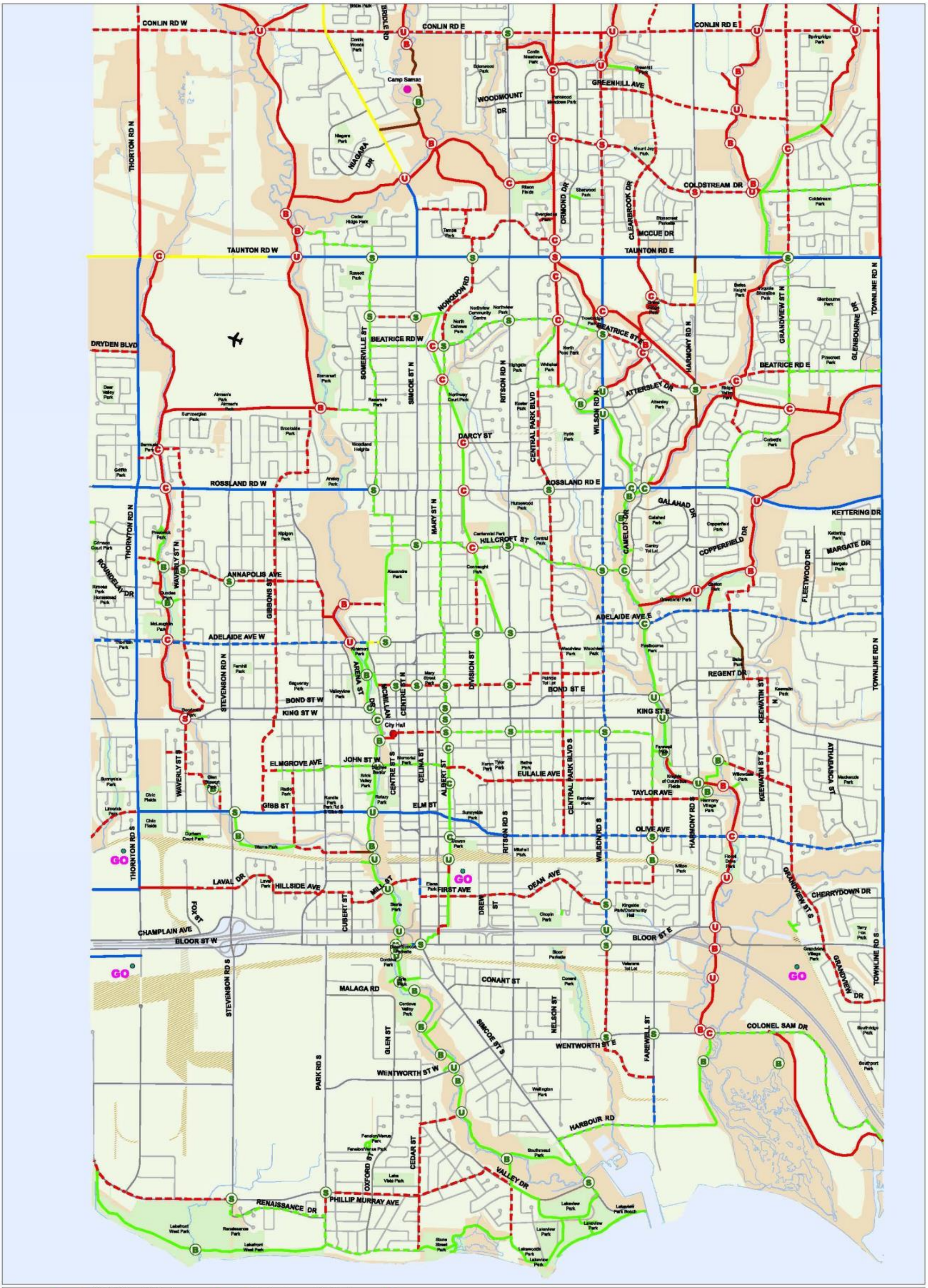
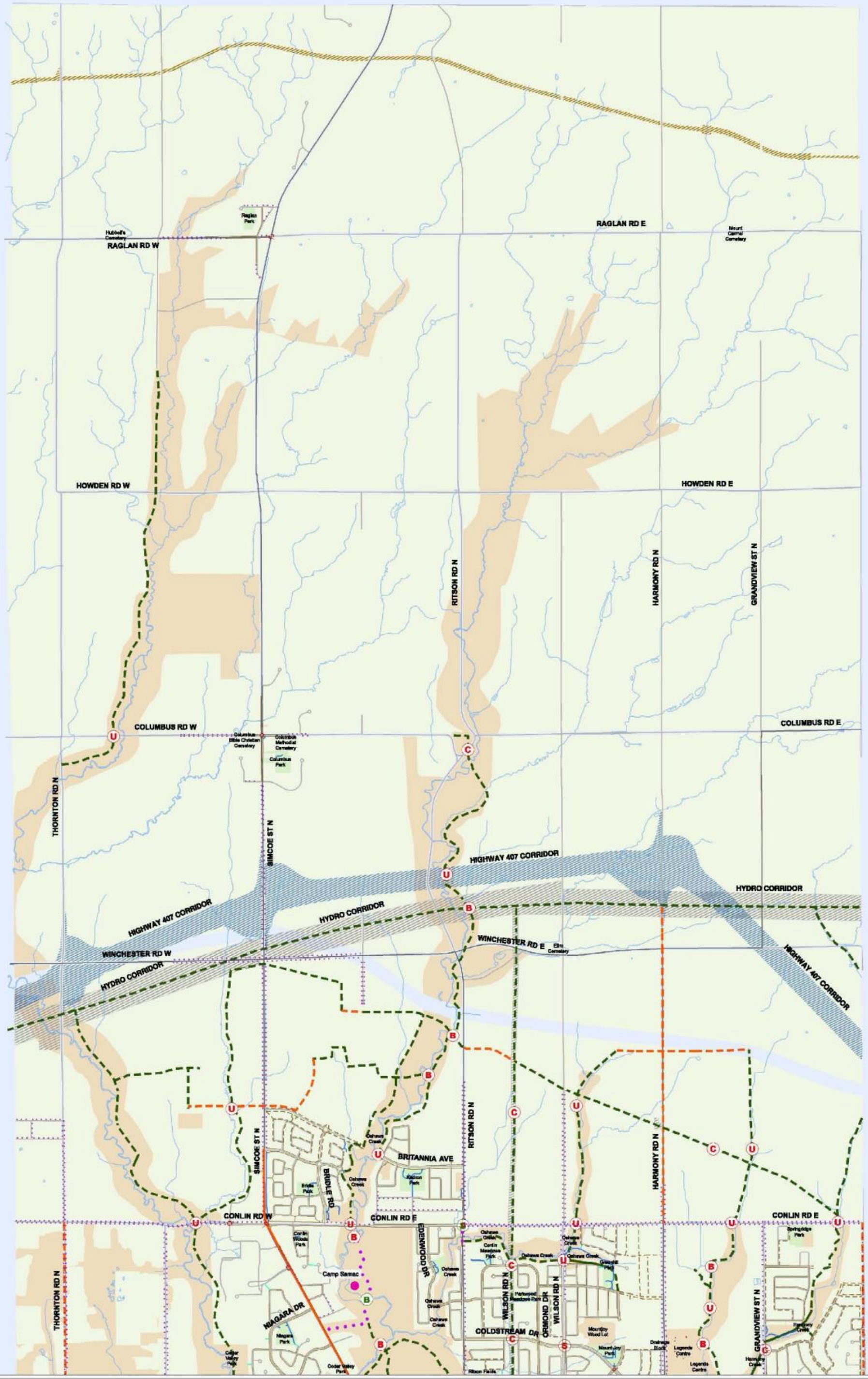
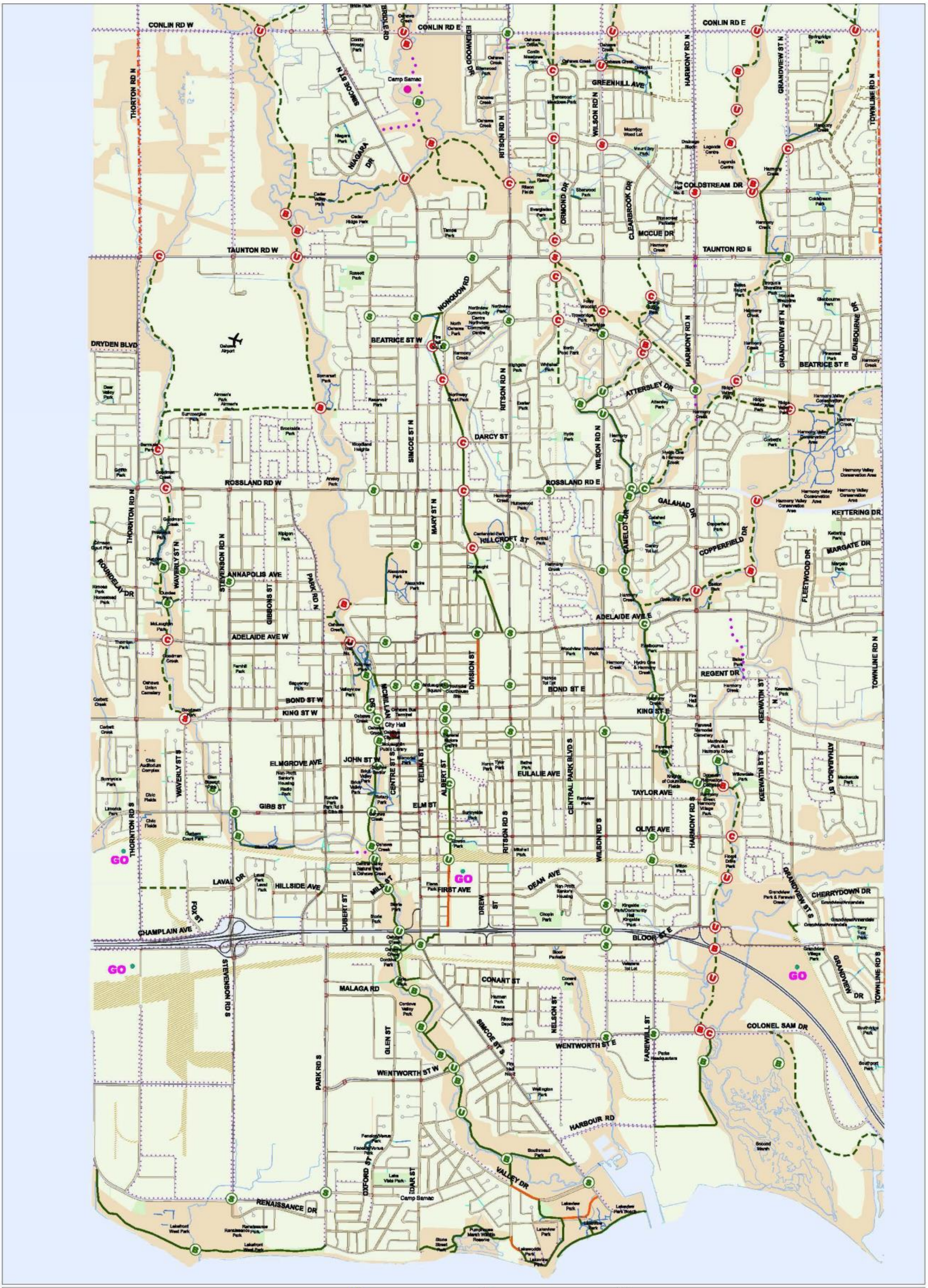
RITSON RD N
HARMONY RD N
GRANDVIEW ST N
COLUMBUS RD W
COLUMBUS RD E
Columbus Park
THORNTON RD N
WINCHESTER RD W
WINCHESTER RD E
BRITANNIA AVE
Kedron Park
BRIDLE RD
Bridle Park
CONLIN RD W
CONLIN RD E
Conlin Woods Park
EDENWOOD DR
Edenwood Park
Conlin Meadows Park
Camp Samac
NIAGARA DR
Niagara Park
WOODMOUNT DR
Parkwood Meadows Park
WILSON RD N
ORMOND DR
COLDSTREAM DR
Mount Joy Park
Springridge Park
Rifton Fields
Legend
City, Existing, Off-Road
City, Existing, On Road
Other, Existing, Off-Road
Region, Existing, On Road
City, Proposed, Off-Road
City, Proposed, On Road
Other, Proposed, Off-Road
Region, Proposed, On-Road
Existing Underpass
Existing Signal
Existing Crossing
Existing Bridge
Proposed Underpass
Proposed Signal
Proposed Crossing
Proposed Bridge
Greenbelt Cycling Route - Regional Road
Greenbelt Cycling Route - Municipal Road
Parks
Open Space
Highway 407 Corridor
Utility Corridor
City of Oshawa
Exhibit A.1
Existing, Previously Proposed and Candidate Active Transportation Network
North Half
N
0
0.75
1.5
Kilometers


CONLIN RD W
CONLIN RD E
CONLIN RD E
BRIDLE RD
Camp Samac
WOODMOUNT DR
GREENHILL AVE
THORTON RD N
NIAGARA DR
ORMOND DR
CLEARBROOK DR
COLDSTREAM DR
MCCUE DR
TAUNTON RD W
TAUNTON RD E
NONQUON RD
SOMERVILLE ST
BEATRICE RD W
SIMCOE ST N
RITSON RD N
HARMONY RD N
GRANDVIEW ST N
GLENBOURNE DR
TOWNLINE RD N
BEATRICE RD E
DRYDEN BLVD
ATTERSLEY DR
WILSON RD N
CENTRAL PARK BLVD
DARCY ST
ROSSLAND RD W
ROSSLAND RD E
GALAHAD DR
KETTERING DR
COPPERFIELD DR
MARGATE DR
FLEETWOOD DR
CAMELOT DR
HILLCROFT ST
MARY ST N
THORNTON RD N
ROUNDELAY DR
WAVERLY ST N
ANNAPOLIS AVE
GIBBONS ST
ADELAIDE AVE W
ADELAIDE AVE E
STEVENSON RD N
ARENA ST
MCMILLAN DR
CENTRE ST N
DIVISION ST
BOND ST W
BOND ST E
KING ST W
KING ST E
REGENT DR
KEEWATIN ST N
City Hall
ELMGROVE AVE
JOHN ST W
CENTRE ST S
CELINA ST
ALBERT ST
EULALIE AVE
TAYLOR AVE
WAVERLY ST S
GIBB ST
ELM ST
RITSON RD S
WILSON RD S
HARMONY RD S
OLIVE AVE
KEEWATIN ST S
ATHABASCA ST
THORNTON RD S
LAVAL DR
HILLSIDE AVE
MILL ST
FIRST AVE
DEAN AVE
DREW ST
CUBERT ST
FOX ST
CHERRYDOWN DR
GRANDVIEW ST S
CHAMPLAIN AVE
BLOOR ST W
BLOOR ST E
TOWNLINE RD S
GRANDVIEW DR
CONANT ST
MALAGA RD
STEVENSON RD S
GLEN ST
PARK RD S
SIMCOE ST S
NELSON ST
WENTWORTH ST W
WENTWORTH ST E
FAREWELL ST
COLONEL SAM DR
HARBOUR RD
CEDAR ST
OXFORD ST
VALLEY DR
RENAISSANCE DR
PHILLIP MURRAY AVE
GO
Legend
City, Existing, Off-Road
City, Existing, On Road
Other, Existing, Off-Road
Region, Existing, On Road
City, Proposed, Off-Road
City, Proposed, On Road
Other, Proposed, Off-Road
Region, Proposed, On-Road
Existing Underpass
Existing Signal
Existing Crossing
Existing Bridge
Proposed Underpass
Proposed Signal
Proposed Crossing
Proposed Bridge
Greenbelt Cycling Route - Regional Road
Greenbelt Cycling Route - Municipal Road
Parks
Open Space
Highway 407 Corridor
Rail Corridor
Utility Corridor
City of Oshawa
Exhibit A2
Existing & Proposed Active Transportation Routes
South Half
N
0
0.75
1.5
Kilometers


RAGLAN RD W
RAGLAN RD E
Hubbell's Cemetery
Raglan Park
Mount Carmel Cemetery
HOWDEN RD W
HOWDEN RD E
RITSON RD N
HARMONY RD N
GRANDVIEW ST N
COLUMBUS RD W
COLUMBUS RD E
Columbus Bible Christian Cemetery
Columbus Methodist Cemetery
Columbus Park
THORNTON RD N
SIMCOE ST N
HIGHWAY 407 CORRIDOR
HYDRO CORRIDOR
WINCHESTER RD W
WINCHESTER RD E
Elm Cemetery
BRITANNIA AVE
BRIDLE RD
CONLIN RD W
CONLIN RD E
EDENWOOD DR
Camp Samac
NIAGARA DR
WILSON RD N
ORMOND DR
COLDSTREAM DR
Oshawa Creek
Brilla Park
Conlin Woods Park
Conlin Meadows Park
Parkwood Meadows Park
Mountjoy Wood Lot
Mountjoy Park
Legends Centre
Springridge Park
Greenhill Park
Harmony Creek
Ritson Falls
Cedar Valley Park
Niagara Park
Ritson Park
Drainage Block
Legend
Existing Off-Road Multi-Use Trail
Proposed Off-Road Multi-Use Trail
Existing In-Boulevard Multi-Use Trail
Proposed In-Boulevard Multi-Use Trail
Crosswalk
Path
Walkway
Existing Sidewalk
Proposed Sidewalk (On a proposed road) 1
Proposed Sidewalk (On an existing road) 1,2
Existing Underpass
Existing Signal
Existing Crossing
Existing Bridge
Proposed Underpass
Proposed Signal
Proposed Crossing
Proposed Bridge
Desire Line
Parks
Open Space
Highway 407 Corridor
Utility Corridor
Note:
1. On roads where two sidewalks and an in-boulevard multi-use trail are shown as proposed, the configuration of each boulevard is to be determined at the design stage.
2. Double lines indicate a proposed sidewalk on both sides of the existing roadway.
City of Oshawa
Exhibit B1
Pedestrian Network
North Half
N
0
0.75
1.5
Kilometers



Legend

- Existing Off-Road Multi-Use Trail
- Proposed Off-Road Multi-Use Trail
- Existing In-Boulevard Multi-Use Trail
- Proposed In-Boulevard Multi-Use Trail
- Crosswalk
- Path
- Walkway
- Existing Sidewalk
- Proposed Sidewalk [1] (On a proposed road)
- Proposed Sidewalk [1,2] (On an existing road)
- (U) Existing Underpass
- (S) Existing Signal
- (C) Existing Crossing
- (B) Existing Bridge
- (U) Proposed Underpass
- (S) Proposed Signal
- (C) Proposed Crossing
- (B) Proposed Bridge
- Desire Line
- Parks
- Open Space
- Rail Corridor
- Utility Corridor

Note:

1. On roads where two sidewalks and an in-boulevard multi-use trail are shown as proposed, the configuration of each boulevard is to be determined at the design stage.
2. Double lines indicate a proposed sidewalk on both sides of the existing roadway.

City of Oshawa

Exhibit B2
Pedestrian Network

South Half

N

0 0.75 1.5
Kilometers

Exhibit C: Off-Road Trail Standards

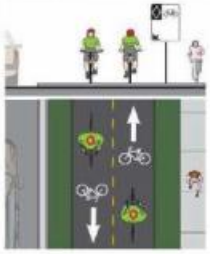
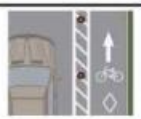
Off-Road Facility Class	Facility Designations	Typical Example	Description	Preferred Design Specifications	Minimum Design Specifications
Ia	Two-Way In-Boulevard Multi-Use Trail		- high volume of AT traffic - pedestrians, cyclists, other AT users accommodated in bi-directional pathway - used for recreational and utilitarian purposes - AODA compliant	- signage - paved surface - bicycle and pedestrian stencils with directional arrow - directional dividing line - 4.0 m width plus cleared area	- signage - paved surface - 3.0 m width plus cleared area
Ib	Two-Way In-Boulevard Cycling Facility		- high volume of AT traffic - cyclists accommodated by bi-directional pathway - pedestrians accommodated by distinct sidewalk - used for recreational and utilitarian purposes - AODA compliant	- signage - paved surface - bicycle stencils with directional arrow - directional dividing line - 4.0 m width plus cleared area	- signage - paved surface (asphalt cycling facility, concrete sidewalk) - 3.0 m width plus cleared area
Ic	One-Way In-Boulevard Cycling Facility		- high volume of AT traffic - cyclists accommodated by uni-directional pathway - pedestrians accommodated by distinct sidewalk - used for recreational and utilitarian purposes - AODA compliant	- signage - paved surface (asphalt cycling facility, concrete sidewalk) - bicycle stencil and directional arrow - 2.0 m width plus cleared area	- signage - paved surface (asphalt cycling facility, concrete sidewalk) - bicycle stencil and directional arrow - 1.8 m width plus cleared area
II	Standard Multi-Use Recreational Pathway		- moderate volume of AT traffic - pedestrians, cyclists, other AT users accommodated in bi-directional pathway - used for recreational and utilitarian purposes - AODA compliant where practicable	- signage - paved surface - directional dividing line - 3.0 m width plus cleared area	- signage - compacted granular surface (e.g. stonedust) - 2.4 m width
III	Off-Road Rural Nature Trail		- low volume of AT users - typically in rural areas -primarily used for recreational purposes - may be AODA compliant where practicable	- signage - compacted granular surface (e.g. stonedust) - 3.0 m width	- natural surface - 2.0 m width

Exhibit D: On-Road Cycling Facility Standards (see section 5.2 and Ontario Traffic Manual Book 18 for more details on facility selection and design)

On-Road Facility Class	Type of Facility (per OTM Book 18)	Typical Example	Description of Facility	Characteristics of Facility	Functional Classification of Roadway	Width of Facility (metre)
IV	Signed Only Route		Shared roadway on which cyclists are permitted unless specifically prohibited. "Shared arrow" stencils may be applied sparingly as an optional treatment. Sharrows may be placed in the centre of a narrow travel lane or offset from the curb (by 1.0m) or parking lane (by 1.3m) where the travel lane is wide enough for side-by-side travel. They are intended to alert motorists of the expectation to share the lane with cyclists, and to guide cyclists as to where they should ride within the shared lane.	Signed only with no cycling-specific pavement markings, On-street parking is allowed.	Local Roads or Minor Collectors	Narrow: 6.0 - 8.0 Wide: 8.0 - 9.0 (curb to curb)
	Signed Only Route (with optional sharrows)			"Sharrow" marking on pavement, parking allowed		
IIIb	Urban Paved Shoulder		A portion of a roadway with an urban cross-section (with curbs) which is contiguous with the travelled way and provides cyclists with an area for riding that is adjacent to but separate from the motor vehicular travel portion of the roadway.	Signs and edgelines, On-street parking is allowed.	Local Roads or Collectors	1.5 to 2.0 (each direction)
IIIa	Rural Paved Shoulder		A portion of a roadway with a rural cross-section (without curbs) which is contiguous with the travelled way and provides cyclists with an area for riding that is adjacent to but separate from the motor vehicular travel portion of the roadway.	Signs and edgelines, On-street parking is allowed.		1.2 to 2.0 (each direction)
IIb	Bicycle Lane		This is a portion of a roadway which has been designated by pavement markings and signage for the preferential or exclusive use of cyclists.	Signs and edgelines, bicycle stencil and diamond. By-law required to prohibit parking.	Major Collectors or Type C Arterials	1.5 - 2.0 with buffer (0.5 -1.0) to on-street parking where applicable
IIa	Separated Bicycle Lane		Physical separation betweem cyclists and motor vehicles. Types of separation may include hatched pavement markings, planters, flex bollards, raised medians and on-street parking.	Signs and physical separation, bicycle stencil and diamond. By-law required to prohibit parking.	Collector Roads or Type B and C Arterials	1.5 - 2.0 with variable buffer depending on type of separation
Ib	One-Way Raised Cycle Track		Adjacent to but vertically separated from motor vehicle travel lanes. For exclusive use by cyclists and distinct from the sidewalk. Typically separated by a curb, which may be mountable.	Signs and Solid Barrier Edgelines, Bicycle Stencil, and By-law, No parking	Type B and C Arterials	One-way: 1.5 - 2.0
Ia	Two-Way Raised Cycle Track		Adjacent to but vertically separated from motor vehicle travel lanes. For exclusive use by cyclists and distinct from the sidewalk. Typically separated by a barrier curb.	Signs and Solid Barrier Edgelines, Bicycle Stencil, and By-law, No parking	Type B and C Arterials	Two-way: 3.0 - 4.0

RAGLAN RD W
RAGLAN RD E
HOWDEN RD W
HOWDEN RD E
SIMCOE ST N
RITSON RD N
HARMONY RD N
GRANDVIEW ST N
COLUMBUS RD W
COLUMBUS RD E
THORNTON RD N
HIGHWAY 407 CORRIDOR
HYDRO CORRIDOR
WINCHESTER RD W
WINCHESTER RD E
BRITANNIA AVE
BIRDLE RD
CONLIN RD W
CONLIN RD E
EDENWOOD DR
WOODMOUNT DR
WILSON RD N
ORMOND DR
COLDSTREAM DR
NIAGARA DR
Camp Samac

Legend

Region	City	
		Existing Off-Road Multi-Use Trail
		Proposed Off-Road Multi-Use Trail
		Existing In-Boulevard Multi-Use Trail
		Proposed In-Boulevard Multi-Use Trail
		Proposed Raised Cycle Track
		Proposed Separated Bicycle Lane
		Existing Bicycle Lane
		Proposed Bicycle Lane
		Existing Urban Paved Shoulder
		Proposed Urban Paved Shoulder
		Existing Rural Paved Shoulder
		Proposed Rural Paved Shoulder
		Proposed Signed Only Bicycle Route with Sharrows
		Existing Signed Only Bicycle Route
		Proposed Signed Only Bicycle Route
		Existing Greenbelt Cycling Route

- U — Existing Underpass
- S — Existing Signal
- C — Existing Crossing
- B — Existing Bridge
- U — Proposed Underpass
- S — Proposed Signal
- C — Proposed Crossing
- B — Proposed Bridge
- Desire Line
- Parks
- Open Space
- Highway 407 Corridor
- Utility Corridor

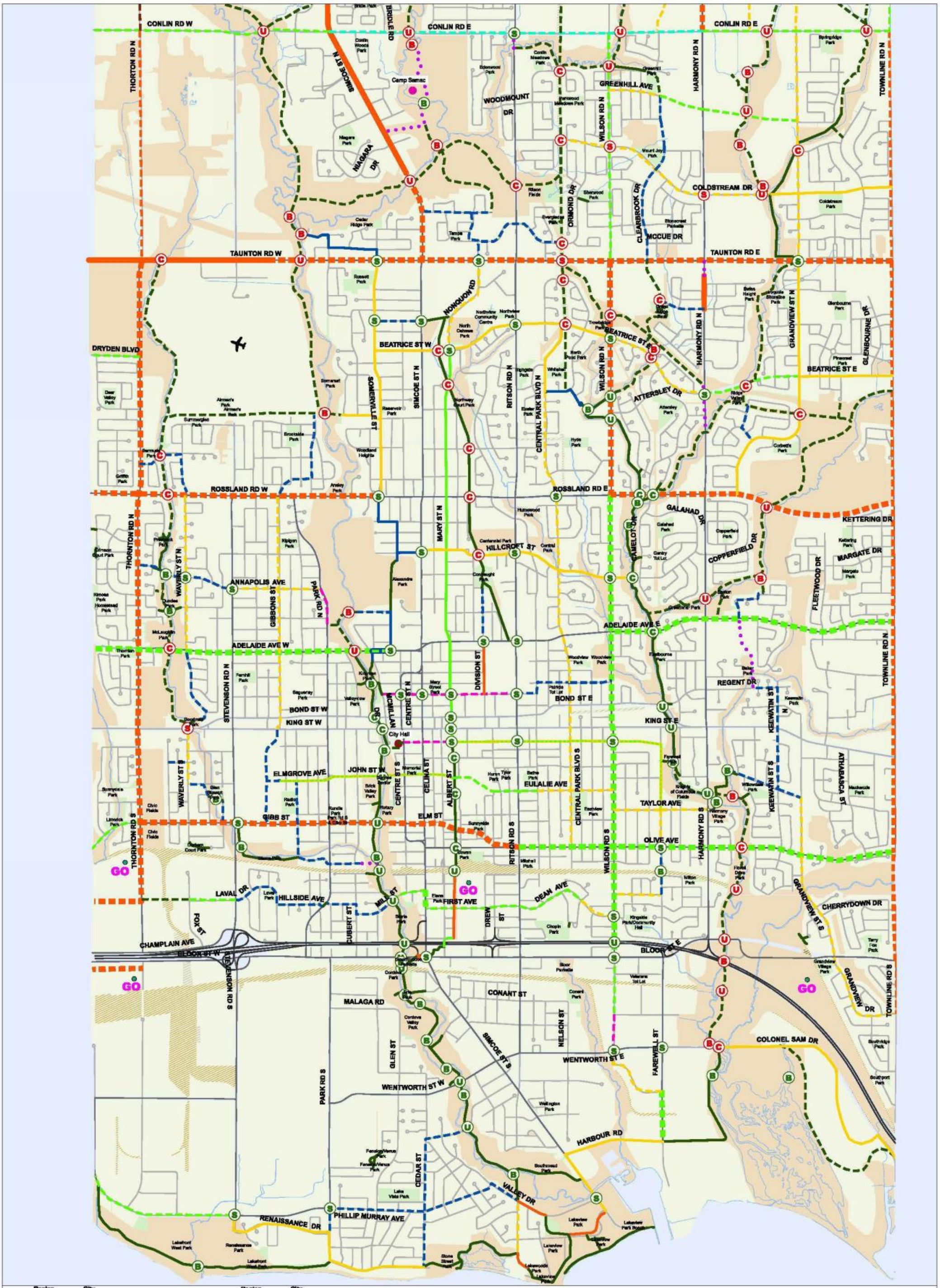
City of Oshawa

Exhibit E1
Proposed Cycling and Trail Network by Facility Type

North Half

N

0 0.75 1.5
Kilometers


CONLIN RD W
CONLIN RD E
CONLIN RD E
THORTON RD N
BRIDLE RD
SIMCOE ST N
Camp Samac
WOODMOUNT DR
GREENHILL AVE
HARMONY RD N
TOWNLINE RD N
WILSON RD N
NIAGARA DR
ORMOND DR
CLEARBROOK DR
COLDSTREAM DR
MCCUE DR
TAUNTON RD W
TAUNTON RD E
NONQUON RD
BEATRICE ST W
BEATRICE ST E
DRYDEN BLVD
SOMERVILLE ST
SIMCOE ST N
RITSON RD N
CENTRAL PARK BLVD N
ATTERSLEY DR
GRANDVIEW ST N
GLENBOURNE DR
ROSSLAND RD W
ROSSLAND RD E
GALAHAD DR
KETTERING DR
COPPERFIELD DR
MARGATE DR
FLEETWOOD DR
THORNTON RD N
WAVERLY ST N
ANNAPOLIS AVE
GIBBONS ST
PARK RD N
MARY ST N
HILLCROFT ST
CAMELOT DR
ADELAIDE AVE W
ADELAIDE AVE E
STEVENSON RD N
DIVISION ST
REGENT DR
TOWNLINE RD N
BOND ST W
BOND ST E
KING ST W
KING ST E
KEEWATIN ST N
McMILLAN DR
CENTRE ST N
City Hall
ELMGROVE AVE
JOHN ST W
CELINA ST
ALBERT ST
EULALIE AVE
CENTRAL PARK BLVD S
ATHABASCA ST
WAVERLY ST S
CENTRE ST S
TAYLOR AVE
KEEWATIN ST S
GIBB ST
ELM ST
RITSON RD S
OLIVE AVE
WILSON RD S
HARMONY RD S
THORNTON RD S
LAVAL DR
HILLSIDE AVE
MILL ST
FIRST AVE
DEAN AVE
DREW ST
GRANDVIEW ST S
CHERRYDOWN DR
FOX ST
CUBERT ST
CHAMPLAIN AVE
BLOOR ST W
BLOOR ST E
STEVENSON RD S
CONANT ST
MALAGA RD
GLEN ST
SIMCOE ST S
NELSON ST
FAREWELL ST
WENTWORTH ST W
WENTWORTH ST E
COLONEL SAM DR
PARK RD S
HARBOUR RD
CEDAR ST
VALLEY DR
RENAISSANCE DR
PHILLIP MURRAY AVE
TOWNLINE RD S
GRANDVIEW DR
GO
Legend
Region
City
Existing Off-Road Multi-Use Trail
Proposed Off-Road Multi-Use Trail
Existing In-Boulevard Multi-Use Trail
Proposed In-Boulevard Multi-Use Trail
Proposed Raised Cycle Track
Proposed Separated Bicycle Lane
Existing Bicycle Lane
Proposed Bicycle Lane
Existing Urban Paved Shoulder
Proposed Urban Paved Shoulder
Existing Rural Paved Shoulder
Proposed Rural Paved Shoulder
Proposed Signed Only Bicycle Route with Sharrows
Existing Signed Only Bicycle Route
Proposed Signed Only Bicycle Route
Existing Greenbelt Cycling Route
Existing Urban Paved Shoulder: Proposed Bicycle Lane
Existing Signed Only Bicycle Route: Proposed Urban Paved Shoulder
Existing Signed Only Bicycle Route: Proposed Bicycle Lane
N/A
Existing Underpass
Existing Signal
Existing Crossing
Existing Bridge
Proposed Underpass
Proposed Signal
Proposed Crossing
Proposed Bridge
Desire Line
Parks
Open Space
Highway 407 Corridor
Utility Corridor
City of Oshawa
Exhibit E2
Proposed Cycling and Trail Network by Facility Type
South Half
N
0
0.75
1.5
Kilometers

RAGLAN RD W
RAGLAN RD E
HOWDEN RD W
HOWDEN RD E
COLUMBUS RD W
COLUMBUS RD E
WINCHESTER RD W
WINCHESTER RD E
CONLIN RD W
CONLIN RD E
BRITANNIA AVE
WOODMOUNT DR
COLDSTREAM DR
NIAGARA DR
THORNTON RD N
SIMCOE ST N
BRIDLE RD
RITSON RD N
WILSON RD N
ORMOND DR
EDENWOOD DR
HARMONY RD N
GRANDVIEW ST N
Raglan Park
Waller Smith Park
Columbus Park
Bridle Park
Kedron Park
Corbin Woods Park
Edenwood Park
Corbin Meadows Park
Parkwood Meadows Park
Greenhill Park
Springridge Park
Niagara Park
Mount Joy Park
Wilson Fields
Camp Samac

Legend

- Phase 1 (2014 - 2023)
- Phase 2 (2023 - 2031)
- Existing
- Regional
- U Existing Underpass
- S Existing Signal
- C Existing Crossing
- B Existing Bridge
- U Proposed Underpass
- S Proposed Signal
- C Proposed Crossing
- B Proposed Bridge
- Greenbelt Cycling Route - Regional Road
- Greenbelt Cycling Route - Municipal Road
- Parks
- Open Space
- Highway 407 Corridor
- Utility Corridor

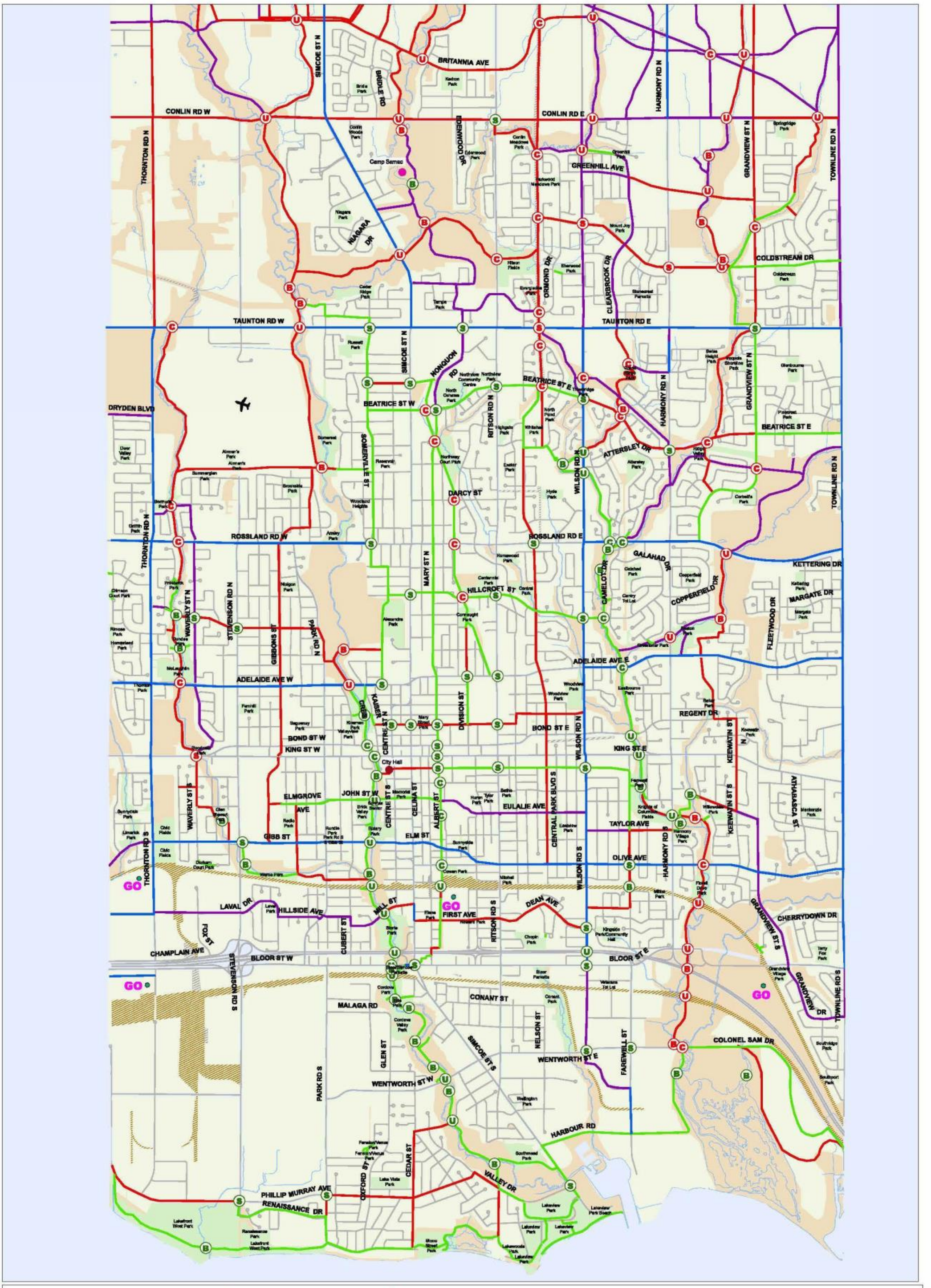
City of Oshawa

Exhibit F1
Route Implementation Phasing

North Half

N

0 0.75 1.5
Kilometers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CONLIN RD W
CONLIN RD E
THORNTON RD N
SIMCOE ST N
BRIDLE RD
GREENWOOD DR
HARMONY RD N
GRANDVIEW ST N
TOWNLINE RD N
Camp Samac
GREENHILL AVE
NIAGARA DR
ORMOND DR
CLEARBROOK DR
COLDSTREAM DR
TAUNTON RD W
TAUNTON RD E
DRYDEN BLVD
MONGUON RD
BEATRICE ST W
BEATRICE ST E
RITSON RD N
SOMERVILLE ST
ATTERSLEY DR
DARCY ST
WILSON RD N
ROSSLAND RD W
ROSSLAND RD E
MARY ST N
HILLCROFT ST
GALAHAD DR
CAMELOT DR
COPPERFIELD DR
KETTERING DR
MARGATE DR
FLEETWOOD DR
ADELAIDE AVE W
ADELAIDE AVE E
KAISER CRES
CENTRE ST N
DIVISION ST
BOND ST W
BOND ST E
KING ST W
KING ST E
REGENT DR
KEEWATIN ST
City Hall
ELMGROVE AVE
JOHN ST W
EULALIE AVE
CENTRAL PARK BLVD S
TAYLOR AVE
HARMONY RD S
WAVERLY ST S
GIBB ST
ELM ST
ALBERT ST
CELINA ST
OLIVE AVE
WILSON RD S
ATHABASCA ST
LAVAL DR
HILLSIDE AVE
MILL ST
FIRST AVE
DEAN AVE
CHERRYDOWN DR
GRANDVIEW ST S
TOWNLINE RD S
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BLOOR ST W
BLOOR ST E
FOX ST
CUBERT ST
STEVENSON RD S
GIBBONS ST
PARK RD N
PARK RD S
MALAGA RD
CONANT ST
NELSON ST
GLEN ST
SIMCOE ST S
WENTWORTH ST W
WENTWORTH ST E
FAREWELL ST
COLONEL SAM DR
HARBOUR RD
CEDAR ST
OXFORD ST
VALLEY DR
PHILLIP MURRAY AVE
RENAISSANCE DR
GO
Legend
Phase 1 (2014 - 2023)
Phase 2 (2023 - 2031)
Existing
Regional
Existing Underpass
Existing Signal
Existing Crossing
Existing Bridge
Proposed Underpass
Proposed Signal
Proposed Crossing
Proposed Bridge
Greenbelt Cycling Route - Regional Road
Greenbelt Cycling Route - Municipal Road
Parks
Open Space
Highway 407 Corridor
Rail Corridor
Utility Corridor
City of Oshawa
Exhibit F2
Route Implementation Phasing
South Half
N
0
0.75
1.5
Kilometers

Exhibit G - Unit Costs of Active Transportation Facilities & Sidewalks

Type of Trails	Estimated Installation Cost (per km)[1]	Estimated Average Maintenance Cost (per year per km)	Comments / Assumptions
On-Road Facility			
Signed Only Bicycle Route	$1,500	$300	Price for both sides of the road, assumes one sign a minimum of every 330m / direction of travel (e.g. 6 signs / km). Signs are replaced approximately every five years.
Signed Only Bicycle Route with Sharrows	$3,500	$700	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. Signs are replaced approximately every five years.
Bicycle Lane (No construction)	$7,500	$1,500	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. Signs are replaced approximately every five years.
Separated Bicycle Lane (Construction / Road Widening)	$350,000	$2,500	Price can vary from $300,000 to $350,000. 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. Signs are replaced approximately every five years.
Raised Cycle Track (Uni-directional)	$1,000,000	$8,000	Both sides of the roadway. 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. Approximate maintenance cost is $8.00 per metre.
Urban Paved Shoulder	$4,000	$800	Price can vary from $4,000 to $15,000. Price of $4,000 includes edgeline painting on both sides of two-lane roadway. Assumes painted line at $1/m ($1,000/km) plus $2,000 for signs. Price may increase depending on cross-section of roadway (e.g. multi-lane roadway) and potential repainting / restriping of roadway.
Rural Paved Shoulder	$55,000	$11,000	Price for both sides of the road, 1.5m paved shoulder, assumes cycling project pays for additional granular base, asphalt and edge line (assume $110,000 per kilometre if additional widening of granular base required). Signs are replaced approximately every five years.
Off-Road Facility			
In-Boulevard Multi-Use Trail	$275,000	$8,000	3.0m wide hard surface pathway (asphalt) within road right of way (no utility relocations). Approximate maintenance cost is $8.00 per metre.
Off-Road Multi-use Trail	$250,000	$7,000	3.0m wide hard surface pathway (asphalt) within park setting (normal conditions) 90mm asphalt depth. Approximate maintenance cost is $7.00 per metre.
Sidewalk	$100,000	$6,000	Approximate maintenance cost is $6.00 per year per metre for equivalent 1.5 to 2.0 metre sidewalk facility.

Notes:

1. Unit Prices are for functional design purposes but do not include contingency, design and approval costs as proposed facility types and location may vary. Unit prices may vary on a case-by-case basis if proposed routes are identified on roads included in the City's future scheduled roadway improvements projects.
2. Annual maintenance will be required on off and on-road routes to ensure that network elements are sustained and properly maintained throughout their lifespan.

Exhibit H - City of Oshawa Active Transportation & Pedestrian Network Implementation and Maintenance Cost Estimates

Capital Cost by Facility Type (Cycling and Trails)

Type of Facility	Type of Treatment	Phase 1 (2015-2023)		Phase 2 (2023-2031)		Total	
		Distance (km)	Cost	Distance (km)	Cost	Distance (km)	Cost
On-Road	Signed Only Bicycle Route	17.3	$25,980	9.2	$13,740	26.5	$39,720
	Signed Only Bicycle Route with Sharrows	1.9	$6,790	0.3	$1,120	2.3	$7,910
	Bicycle Lane	15.3	$114,375	11.2	$84,225	26.5	$198,600
	Separated Bicycle Lane	5.5	$1,928,500	0.0	$0	5.5	$1,928,500
	Raised Cycle Track	2.4	$2,440,000	0.8	$830,000	3.3	$3,270,000
	Urban Paved Shoulder	16.9	$67,440	10.7	$42,720	27.5	$110,160
	Rural Paved Shoulder	0.9	$50,050	6.7	$367,950	7.6	$418,000
Off-Road	In-Boulevard Multi-Use Trail (Along a Municipal Road)	4.1	$1,130,250	3.6	$979,000	7.7	$2,109,250
	In-Boulevard Multi-Use Trail (Along a Regional Road)[1]	N/A	N/A	N/A	N/A	32.0	$8,811,000
	Off-Road Multi-Use Trail	49.7	$12,412,500	26.2	$6,537,500.00	75.8	$18,950,000

Capital Cost Summary (Cycling and Trails)

Type of Facility	Type of Treatment	Phase 1 (2015-2023)		Phase 2 (2023-2031)		Total	
		Distance (km)	Cost	Distance (km)	Cost	Distance (km)	Cost
Cycling Routes on City Roads		60.2	$4,633,135	38.9	$1,339,755	99.14	$5,972,890
Off-Road & In-Boulevard Routes on City ROW		53.8	$13,542,750	29.7	$7,516,500	83.47	$21,059,250
Total AT Network (City Capital Cost)		**114.0**	**$18,175,885**	**68.6**	**$8,856,255**	**182.6**	**$27,032,140**
In-Boulevard Facilities on Regional ROW		N/A	N/A	N/A	N/A	32.0	$8,811,000

Annual Maintenance Cost Upon Completion of Phase (Cycling and Trails)

Type of Facility	Type of Treatment	Phase 1 (2015-2023)	Phase 2 (2023-2031)	Total
Cycling Routes on City Roads		$119,102	$137,071	**$256,173**
Off-Road & In-Boulevard Routes on City ROW		$380,430	$211,530	**$591,960**
Total AT Network (City Maintenance Cost)		**$499,532**	**$348,601**	**$848,133**
In-Boulevard Facilities on Regional ROW		$135,699	$120,621	**$256,320**

Aggregate Cost Over Phase Period (Cycling and Trails)

Type of Facility	Type of Treatment	2015-2019	Phase 1 (2015-2023)	Phase 2 (2023-2031)	Total
Cycling Routes on City Roads		$132,336	$476,408	$1,432,565	$1,908,973
Off-Road & In-Boulevard Routes on City ROW		$422,700	$1,521,720	$3,783,795	$5,305,515
Total AT Network (City Maintenance Cost)		**$555,036**	**$1,998,128**	**$5,216,360**	**$7,214,488**
In-Boulevard Facilities on Regional ROW		$150,776	$542,795	$1,507,765	$2,050,560
Total Capital Cost and Aggregate Maintenance Cost			**$20,174,013**	**$14,072,615**	**$34,246,628**

**note that the aggregate maintenance costs for Phase 2 include the cost of maintaining facilities constructed in Phase 1 during the Phase 2 time frame (2024-2031).*

N/A: Not Applicable

Notes:

1. The distance and estimated capital cost of proposed on-road routes along Regional roads has not been included in the Oshawa Active Transportation Master Plan (Draft January 2015). Refer to the Regional Cycling Plan for additional details for proposed on-road routes on Regional Roads.
2. Total maintenance cost may vary depending on the age and location of a proposed facility type. It is assumed that trail and cycling facilities will typically have lower maintenance costs in the first 3-5 years of their lifespan and could require minimal maintenance / service (e.g. annual pavement marking renewal). Mature trail and cycling facilities may require a higher level of maintenance including resurfacing, repairs, signage replacement, etc.

Exhibit I: City of Oshawa Sidewalk Retrofits – Implementation and Maintenance Cost Estimates

Implementation and Maintenance Cost Summary (Sidewalks)		
Proposed sidewalks along AT routes (as per plan)	Distance (km)	91.7
	Capital cost	$9,167,000
	Aggregate maintenance cost (2015-2031)	$4,400,160
	Total Estimated Capital Cost and Maintenance Cost	**$13,567,160**
Sidewalks along other existing City roads (e.g. on all roads not identified in the proposed AT network)	Distance (km)	205.2
	Capital cost	$20,520,000
	Aggregate maintenance cost (2015-2031)	$9,849,600
	Total Estimated Capital Cost and Maintenance Cost	**$30,369,600**
Total for all sidewalks	Distance (km)	**296.9**
	Capital cost	**$29,687,000**
	Aggregate maintenance cost (2015-2031)	**$14,249,760**
	Total Estimated Capital Cost and Maintenance Cost	**$43,936,760**

N/A: Not Applicable

Notes:

1. Improvements to the existing sidewalk infrastructure are based on the current GIS database provided by the City of Oshawa. The GIS database includes data for roads that currently have an existing sidewalk on one side and a proposed sidewalk on the adjacent side. The total estimated distance and cost for sidewalks only includes proposed sidewalks on existing roads. The cost of a proposed sidewalk along new (proposed) roads should be included in the cost of future planned developments and future scheduled roadway improvements projects identified in the City's approved capital budget / forecast.