MULTI-USE PATHWAYS AND TRAILS MASTER PLAN

Final Report
ACKNOWLEDGEMENTS

The City of Kitchener Multi-use Pathways and Trails Master Plan and Implementation Strategy study team would like to express their appreciation to the following individuals that contributed to the development of this Plan, as well as the many other stakeholders and members of the public who through their input, contributed its development.

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EXECUTIVE SUMMARY

Since the 1970’s with the City of Kitchener’s “Linked Open Spaces” report, the City of Kitchener has embraced the importance of developing and providing off-road pedestrian and cycling routes and facilities throughout the city. This original master plan created a vision for the concept of linked open spaces in the Official Plan. The vision served as the basis for the development of approximately 125 kilometres of Community Trails in existence today including the Water Bean Trail and the Iron Horse Trail.

This original vision placed Kitchener among the leaders of municipal multi-use trails in the 1970’s and 1980’s, however, since that time many municipalities have surpassed Kitchener in terms of the extent, quality and funding of their “off-road” walking and cycling networks. In June 2010, a study Steering Committee consisting of staff who are involved with the Parks Strategic Plan, Kitchener Natural Heritage System Background Report and the Cycling Master Plan for the 21st Century was formed to guide the development of the City of Kitchener Multi-use Pathways and Trails Master Plan. Trail planning and design specialists from MMM Group and Ecoplans Limited were retained by the City in June 2010 to undertake the development of the master plan with city staff.

The implementation of recommendations in this master plan over the next 10-15 years will see Kitchener begin to keep pace with the growing public demand for a high quality, connected system of multi-use pathways that connect neighbourhoods with places of recreation, shopping and employment. In addition, well developed multi-use pathway and trail systems provide a variety of other transportation, economic, environmental and community health benefits. The Kitchener Multi-use Pathways and Trails Master Plan builds upon past and current trail development efforts, and is intended as a blueprint to guide the development and operation of multi-use pathways throughout Kitchener in the short, medium and long term. This plan has been prepared with consideration for the Transportation Master Plan (currently in process) and the Council adopted Cycling Master Plan for the 21st Century (2010). The focus and emphasis on the Pathways and Trails Master Plan is the ‘off-road’ cycling and pedestrian network and its links and connections to the ‘on-road’ cycling network.

WHAT IS A MULTI-USE PATHWAY?

Multi-use pathways and trails in Kitchener include a range of styles and designs due in part to how, when and where they were created. This range includes trails that have been planned and designed by the City such as:

- Hard surfaced trails like the Iron Horse Trail;
- Wide gravel trails in hydro corridors, through neighbourhood parks and natural areas; and
- Narrow gravel or earthen trails through parks and natural areas.
The Multi-use Pathways and Trails Master Plan acknowledges that all of these different types of trails exist and are used by the public to access parks and open space throughout the city. The focus of this master plan, however, is on the main routes throughout the city, currently referred to or branded as “Community Trails”, which have been further clarified within this study as follows:

**MULTI-USE PATHWAYS (TYPE 1 and 2)**

**PRIMARY (TYPE 1)**

- Hard surface (asphalt or concrete)
- 4 season maintenance
- Perform a City-wide function and are important transportation / commuter routes connecting communities, neighbourhoods, parks, community facilities, commercial sites, institutions and residential areas. They provide a 4-season transportation corridor with opportunities for direct and continuous movement in east-west and north-south directions throughout the city, and provide access to major destinations throughout the city and connections to surrounding municipalities.
- Lighting may be considered in the future along frequently used commuter routes
- Example: Iron Horse/Trans Canada Trail

**SECONDARY (TYPE 2)**

- Variable surface
- 3 season maintenance
- Perform a city wide function and are available as a transportation route the spring, summer and fall seasons. They are also used to provide additional connections to local municipalities, neighbourhoods, parks, community facilities, natural areas, schools and conservation areas.
- Example: Walter Bean Grand River Trail

**LOCAL TRAILS (TYPE 3, 4 and 5)**

**PARK ACCESS TRAILS (TYPE 3)**

- Hard surfaced trails through parks which provide universally accessible routes linking parking areas and various recreational facilities and washrooms within a park.

**INTERNAL PARK TRAILS (TYPE 4)**

- Trails which may be hard surface or gravel which provide a variety of trails within parks and natural areas and serve as secondary or alternate routes not required for accessibility to specific recreational facilities.

**HIKING/FOOT TRAILS (TYPE 5)**

- Trails which may have a gravel surface, other improvements or be simply worn paths through frequency of use by the public through parks and natural areas.
Local trails are not considered in detail in this master plan and the planning and management of these trails are considered as a part of individual parks plans or natural area management plans. Many of these existing trails are included in the mapping in Figure 1, but are not considered key links in the broader city-wide network.

The **PRIMARY** and **SECONDARY** multi-use pathways form the city-wide network as detailed in this report and as illustrated in **Figure 1 – Multi-use Pathway Network**.

**CONSULTATION**

An important component of the study was consulting with City staff, members of the public, local committees and interest groups as well as stakeholder groups. The master plan draws upon the knowledge and work already completed by various committees such as the Grand River Accessibility Advisory Committee, Environment Committee and the Cycling Advisory Committee. Broader consultation with the public was undertaken through a number of avenues including posting study information on the City's webpage, an online questionnaire to which almost 300 responses were received, two stakeholder workshops and two Public Information Centres at key points in the study. In addition, residents had the opportunity to submit comments and ideas to the study team over the course of the study through comments forms and email exchange. A detailed summary of the consultation program is contained in **Appendix D** of this report. Some of the highlights noted by the public included:

- Multi-use pathways and trails are important to the citizens of Kitchener and are the most heavily used recreational facility by all groups;
- The existing network of multi-use pathways and trails is poorly connected and disjointed in a number of locations;
- A lack of way-finding aids such as maps and quality signage exacerbates this discontinuity;
- The Iron Horse Trail is very popular and there is a high level of public interest in seeing it completed as a connected north-south route from Waterloo through central Kitchener to Cambridge;
- The existing east-west routes leading into the urban core form a good basis for a city-wide network, but they need to be better connected, more consistent, and signed more effectively;
- Existing multi-use pathways and trails are highly variable in their surfacing and need to have a consistent and higher level of maintenance; and
- Trails which form connected loops through parks and natural areas, easily accessible from neighbourhoods provide for high quality recreational experiences.

**VISION**

Through this study the following vision was created for Multi-use Pathways in Kitchener:
“Multi-use pathways form the primary continuous off-road walking and cycling network that provides residents of all ages and abilities the means to travel easily and safely throughout their neighbourhood, across the City and to neighbouring municipalities. Multi-use pathways offer year-round opportunities for active recreation and active transportation.”

OBJECTIVES

1. Implement a continuous and connected multi-use pathway system throughout the City of Kitchener within open space and greenway corridors outside of road rights of way;
2. Build upon, enhance and improve the continuity and connections to existing and previously developed Multi-use Pathways (Community Trails) including connections to adjacent municipalities;
3. Ensure the implementation of multi-use pathways within all new neighbourhoods;
4. Consult with the public and key stakeholders that could have a role in the development, maintenance and promotion of trails in the City;
5. Coordinate and link the City’s recently approved cycling network, which also includes the approved Region of Waterloo cycling network;
6. Assess the current condition and function of Multi-use Pathways (Community Trails) in Kitchener;
7. Examine current design standards and maintenance practices and make recommendations for changes based on best practice research;
8. Identify and recommend potential policies, strategies, and programs that Kitchener and its partners can support and implement to encourage more people to use the Multi-use Pathways (Community Trail) system more often for recreation and transportation purposes;
9. Examine corporate planning and development process and policies to ensure that pathways are routinely considered in the process in an appropriate and timely manner; and
10. Develop an implementation strategy that will identify trail development costs and prioritize projects for construction.

THE PROPOSED MULTI-USE PATHWAY NETWORK

The PRIMARY and SECONDARY multi-use pathways form the city-wide network as illustrated in Figure EX-1 – Multi-use Pathway Network. This proposed network is the result of a detailed and city wide study which included:

- Field inspection and inventory of all existing “Community Trails” and existing trail conditions;
- Identifying gaps and discontinuous trail connections;
- Establishing route selection principles;
- Selecting candidate routes;
- Recommending a city-wide network of primary and secondary routes;
Chapter 4 of this report provides details of the network development process and the recommended network. The existing 125 kilometers of surfaced “Community Trails” provides a strong basis for the completion of an extensive city-wide multi-use pathway network as illustrated in Figure EX-1;

The completed network of Primary and Secondary multi-use pathways will include a total of over 300 kilometers as summarized in Table EX-1; and

Implementation phasing details are provided in Table EX-2.

**Table EX-1: Multi-use Pathway Network.**

<table>
<thead>
<tr>
<th></th>
<th>Length (to the nearest 0.1km)</th>
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<tbody>
<tr>
<td><strong>Primary (Type 1)</strong></td>
<td></td>
</tr>
<tr>
<td>Existing Primary Multi-use Pathway (existing pathways proposed for upgrading to Primary standards)</td>
<td>38.3 km</td>
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<tr>
<td>Proposed Primary Multi-use Pathway on lands currently owned by the City</td>
<td>17.9 km</td>
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<tr>
<td>Proposed Primary Multi-use Pathway on lands currently in private ownership</td>
<td>5.1 km</td>
</tr>
<tr>
<td>Proposed Primary Multi-use Pathway within future subdivision development in private ownership</td>
<td>22.9 km</td>
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<tr>
<td>Proposed Connection - Road Right-of-Way (In-boulevard Multi-use path or Cycle Track)</td>
<td>8.8 km</td>
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<tr>
<td>Proposed Connection via on Street Network (bike lane or signed bicycle route and sidewalk)</td>
<td>10.6 km</td>
</tr>
<tr>
<td><strong>PRIMARY TOTAL</strong></td>
<td><strong>103.6 km</strong></td>
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<tr>
<td><strong>Secondary (Type 2)</strong></td>
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<td>Existing Primary Multi-use Pathway</td>
<td>66.6 km</td>
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<td>Proposed Primary Multi-use Pathway on lands currently owned by the City</td>
<td>33.1 km</td>
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<td>Proposed Primary Multi-use Pathway on lands currently in private ownership</td>
<td>14.2 km</td>
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<td>Proposed Primary Multi-use Pathway within future subdivision development in private ownership</td>
<td>37.2 km</td>
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<td>Proposed Connection - Road Right-of-Way (In-boulevard Multi-use path or Cycle Track)</td>
<td>18.6 km</td>
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<td>Proposed Connection via on Street Network (bike lane or signed bicycle route and sidewalk)</td>
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<td><strong>SECONDARY TOTAL</strong></td>
<td><strong>200.2 km</strong></td>
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<tr>
<td><strong>NETWORK TOTAL</strong></td>
<td><strong>303.8 km</strong></td>
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The Parks Strategic Plan provided over-arching recommendations regarding trails which have been clarified and detailed in this master plan. This includes the development of a
trail classification system which included ‘Transportation’ and ‘Recreation’ categories. The Primary and Secondary multi-use pathways included in the recommended network are consistent with recommendations in the Parks Strategic Plan and form the city-wide ‘Transportation’ network. Several categories of ‘Recreation’ trails have also been included. A chart detailing the recommendations from the Parks Strategic Plan and the specific response provided in this master plan is detailed in Chapter 4.

The Primary and Secondary pathways recommended in the Pathways and Trails Master Plan complement the cycle routes detailed in the City’s Cycling Master Plan for the 21st Century. This is illustrated through the following points:

- The City Cycling Plan has a strong focus on on-road routes but also includes off-road links that are deemed critical to an overall cycling network in Kitchener, whereas the main focus of the Multi-use Pathways and Trails Master Plan is an off-road network of pathways and trails located outside of road rights-of-way. All of the critical off-road links in the City Cycling Plan are included as Primary or Secondary pathways in the Multi-use Pathways and Trails Master Plan with the exception of some minor neighbourhood spurs identified in the Cycling Master Plan that are directly connected to Primary or Secondary routes.

- In all but 16 locations any on-street connections in the Multi-use Pathways and Trails Master Plan are consistent with on-road cycling routes in the City Cycling Plan network. These 16 exceptions (with a total combined length of just over 5km) are very short links that make connections between sections of the Primary or Secondary routes in the Multi-use Pathways and Trails Master Plan. In addition all of these 16 routes are located on low volume streets therefore no additional cycling infrastructure is required.

- The “Priority Network” described in the Cycling Master Plan is described as those routes intended to be implemented over the next few years and consists of cycling improvements that are relatively easy to implement yet important in providing connections to key destinations, filling in important gaps in the cycling network. The majority of the Priority Network in the Cycling Master Plan consists of on-road routes, with the exception of 5 locations in the city where these are off-road/outside of the road right-of-way. All 5 of these locations are part of the Pathways and Trails Master Plan and all 5 of these are identified as Primary pathways. All 5 of these locations are part of the 0-5 year or 6-10 year timeframe in the Multi-use Pathways and Trails Master Plan.
### Table EX-2: Implementation Phasing

<table>
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<th>PRIMARY (TYPE 1)</th>
<th>SECONDARY (TYPE 2)</th>
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<tr>
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<td>Upgrade Existing to Primary Standards</td>
<td>Upgrade Existing</td>
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<td>Year 0-5: Distance (km)</td>
<td>Year 6-10: Distance (km)</td>
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<tr>
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<td>3.9</td>
<td>18.3</td>
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<td></td>
<td>9.4</td>
<td>5.3</td>
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<tr>
<td>New/Proposed on city lands</td>
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<td>New/Proposed New subdivision development</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>3.1</td>
<td>5.5</td>
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<td>Within road R.O.W- On-street connection (not included in Cycling Master Plan)</td>
<td>0.5</td>
<td>0</td>
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<tr>
<td>Within Road R.O.W In-boulevard MUP/Cycle Track</td>
<td>7.1</td>
<td>1.3</td>
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<tr>
<td>Within Road R.O.W. On-street connection signed route or bike lane</td>
<td>6.7</td>
<td>0.9</td>
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<td>Subtotal Primary</td>
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<td>31.3</td>
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<td>Road ROW</td>
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<td>Open Space</td>
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<td>New/Proposed New subdivision development</td>
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<tr>
<td>Subtotal Secondary</td>
<td>12.4</td>
<td>56.3</td>
</tr>
<tr>
<td>Total Length by Phase (km)</td>
<td>43.1</td>
<td>87.6</td>
</tr>
<tr>
<td>Network Total (km)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
IMPLEMENTATION OF THE MULTI-USE PATHWAY NETWORK

The success of the Multi-use Pathway and Trails Master Plan is dependent on the initial and on-going support of the City of Kitchener Council and staff members in all departments of the City. The master plan includes an implementation strategy to guide the City in improving its multi-use pathway and trail infrastructure over the next 10+ years and beyond. The proposed implementation plan consists of three phases to be coordinated where possible with the City’s plans for capital projects.

Details of the Implementation Plan are in Chapter 5 of this report and include key priorities such as:

Short Term (0-5 years), which includes:
- Improved and upgraded surfacing on priority existing routes;
- Improved standards for maintenance throughout the network;
- Improved signage and way-finding aids including web-based mapping;
- Road crossing improvements;
- Completion of remaining segments of the Walter Bean Trail on lands that are currently owned by the City;
- Completion of key links to provide greater continuity;
- Expansion of the Iron Horse Trail/Trans Canada Trail as the primary north-south route for active transportation;
- Implementation of major open space loops and scenic road trails in southern Kitchener;
- Ensuring that all new neighbourhoods include the construction of multi-use pathways at the time neighbourhoods are developed;
- Improved connections with the "on-road" cycling network.

Medium Term (6-10 years), which includes:
- Improved and upgraded surfacing on priority existing routes;
- Improved signage and way-finding aids;
- Road crossing improvements;
- Improved connections and the quality of the east-west routes for active transportation;
- Completion of the Iron Horse Trail/Trans Canada Trail as the primary north-south route for active transportation.

Long Term (10+ years), which includes:
- Completion of the Walter Bean Trail including strategic major land acquisitions to establish these connections;
- Completion of primary east-west and north-south active transportation corridors;
- Ongoing expansion and completion of an interconnected system of routes to major destinations and looped recreational routes;
- Completion of trails in valley lands along Strasburg Creek; and
- Lighting of those Primary routes that serve as key commuter routes.

**Figure EX-2: Network Phasing**

<table>
<thead>
<tr>
<th>Existing</th>
<th>0-5 Years</th>
<th>6-10 Years</th>
<th>Years 10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Existing Map]</td>
<td>![0-5 Years Map]</td>
<td>![6-10 Years Map]</td>
<td>![Years 10+ Map]</td>
</tr>
</tbody>
</table>

**FUNDING AND THE MULTI-USE PATHWAYS AND TRAILS MASTER PLAN**

Funding the plan is essential to the benefits are to be realized. **Table EX-3** presents the Parks Capital implementation cost summary for the network. Additional detail regarding this long term proposed investment in active transportation, trails and the associated benefits of improving the health and quality of life of the City of Kitchener residents is provided in **Chapter 5** of this report. To assist the City in funding the recommendations in this plan, the City is encouraged to seek out other sources of
revenue from current and future partners, which may include funding opportunities from the provincial and federal government.

Table EX-3: Parks Capital Costs for Network Implementation (Primary and Secondary).

<table>
<thead>
<tr>
<th></th>
<th>Year 0-5</th>
<th>Year 6-10</th>
<th>Year 10+</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Extended Cost</td>
<td>Extended Cost</td>
<td>Extended Cost</td>
</tr>
<tr>
<td><strong>PRIMARY (TYPE 1)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upgrade Existing MUP</td>
<td>$390,000</td>
<td>$1,830,000</td>
<td>$1,610,000</td>
</tr>
<tr>
<td>(Parks Capital Budget)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New/Proposed Off Street MUP</td>
<td>$2,350,000</td>
<td>$1,325,000</td>
<td>$2,075,000</td>
</tr>
<tr>
<td>(Parks Capital Budget)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New/Proposed Within Road R.O.W- On-street connection, not included in Cycling Master Plan Network</td>
<td>$5,400</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td><strong>Subtotal Primary</strong></td>
<td>$2,745,400</td>
<td>$3,155,000</td>
<td>$3,685,000</td>
</tr>
<tr>
<td><strong>SECONDARY (TYPE 2)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upgrade Existing MUP</td>
<td>$28,000</td>
<td>$1,141,000</td>
<td>$3,493,000</td>
</tr>
<tr>
<td>(Parks Capital Budget)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New/Proposed Off Street MUP</td>
<td>$868,000</td>
<td>$2,506,000</td>
<td>$3,248,000</td>
</tr>
<tr>
<td>(Parks Capital Budget)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New/Proposed Within Road R.O.W- On-street connection, not included in Cycling Master Plan Network</td>
<td>$1,200</td>
<td>$17,400</td>
<td>$25,200</td>
</tr>
<tr>
<td><strong>Subtotal Secondary</strong></td>
<td>$897,200</td>
<td>$3,664,400</td>
<td>$6,766,200</td>
</tr>
<tr>
<td><strong>Total by Phase</strong></td>
<td>$3,642,600</td>
<td>$6,819,400</td>
<td>$10,451,200</td>
</tr>
<tr>
<td><strong>Total Annual Budget</strong></td>
<td>$728,520</td>
<td>$1,363,880</td>
<td>$1,045,120</td>
</tr>
<tr>
<td><strong>Grand Total all Phases</strong></td>
<td>$20,913,200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Currently, through the annual budget process Council commits just under $375,000 per year (2011 = $327,000 capital plus $45,000 Development Charges) for pathway and trail development and maintenance.

How does this investment compare to that of other towns and cities in southern Ontario?
As part of the research related to the implementation plan, municipal officials from a number of other southern Ontario communities were contacted regarding their average level of investment in pathways/trails over the past five years. Information was collected regarding the investment through capital funds, Development Charges/developer-built, and operations/maintenance, where available (refer to Figure EX-3). Generally the findings indicate that investment through capital funds plus Development Charge funds varies from $2.12 to $10.49 per capita. If the highest value (Town of Oakville) is removed from this calculation, the average investment through capital plus Development Charge funds is $2.91 per capita among the municipalities contacted. These municipalities also reported a separate budget for operations and maintenance of their trail system, though the annual contribution was not available from all at the time the data was collected.

The City of Kitchener currently budgets an average of $1.56 per capita, based on a population of 219,153 (2011 Census, Statistics Canada).

The approved capital budget for ‘Community Trail’ development in 2012 is $627,000, (which includes a one-time Leaf Fund investment of $250,000) bringing Kitchener close to the range of other municipalities investigated at $3.19 per capita and the recommended funding of this master plan.
It is recommended that Council continue to provide annual funding for the implementation of multi-use pathways, and this amount should be adjusted to an annual level of $728,520 to reflect the recommended phasing plan identified in the Multi-use Pathways and Trails Master Plan and the list of project priorities identified through an annual staff report to Council.

SUMMARY

The Multi-use Pathways and Trails Master Plan contains 47 policy recommendations plus additional guidelines pertaining to planning and design of the multi-use pathway network. A compilation of these recommendations is detailed in the master plan report.

There are numerous benefits that emphasize why the City of Kitchener’s commitment to implement the Multi-use Pathway Master Plan is so important. Appendix C of this report details the various benefits in terms of recreation, health and fitness, transportation, the environment and the economy. In addition the costs can be justified as part of the cost of providing a more sustainable, balanced and efficient transportation and recreation system in the City of Kitchener, and the cities of Waterloo and Cambridge collectively.

Consultations conducted during this study confirmed that City residents enjoy opportunities that pathways and trails create, and that they want a more walkable and bikeable Kitchener. The City of Kitchener Multi-use Pathways and Trails Pathways Master Plan is an essential guiding document to assist the City of Kitchener and other partners in achieving the goal of a comprehensive and linked multi-use pathway and trail system.
SUMMARY OF RECOMMENDATIONS

This section contains a consolidation of all the strategic recommendations contained in the Multi-use Pathways and Trails Master Plan. The recommendations are organized into categories based on the chapter in which they appear in the main report. The recommendations are presented in a table format under the following headings:

- **Number:** Each recommendation is numbered sequentially for reference purposes and this corresponds with the numbered recommendation found in the main report.
- **Recommended Action:** The recommended action or strategy presented in the main body of the report.
- **Funding:** Identifies a cost for each recommended action.
- **Timing:** Identifies the proposed timing for the recommended action to be completed. Those that are noted as ‘ongoing’ should begin immediately and will be continued throughout the life of the Master Plan.
- **Responsibility:** Identifies the key City staff department(s) impacted by or that should contribute to each recommended action. The lead staff department responsibility is generally identified first.

<table>
<thead>
<tr>
<th>Department</th>
<th>Divisions</th>
</tr>
</thead>
</table>
| CAO-CAO’s Office               | CM – Communications and Marketing  
|                                | CS – Customer Service  
|                                | ED – Economic Development (Business, Art, Special Events)                  |
| CS – Community Services        | CPS – Community Programs and Services  
|                                | IS – Inclusion Services  
|                                | DR – Development Review (Planning)  
|                                | LRPP – Long Range Policy Planning (Planning)  
|                                | SD – Site Development (Planning)                                           |
| FCS- Finance and Corporate Services | FP- Financial Planning  
|                                | HR – Human Resources  
|                                | IT – Information Technology (GIS)                                          |
| INS – Infrastructure Services  | SSBS-Support Services and Business Systems  
|                                | DE- Development Engineering  
|                                | EDA-Engineering Design and Approvals  
|                                | CE-Construction Engineering  
|                                | IAP-Infrastructure Asset Planning  
|                                | TP-Transportation Planning  
|                                | OP- Operations  
|                                | OSA- Operational Support and Analysis (Trail maintenance)  
|                                | DD-Parks Design and Development                                            |
### Chapter 3 – Multi-use Pathway Planning Policy

<table>
<thead>
<tr>
<th>RECOMMENDED ACTIONS</th>
<th>DETAILS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3-1</strong> Develop a comprehensive set of Official Plan policies related to multi-use pathways and trails using the themes identified in the Multi-use Pathways and Trails Master Plan as a guide and integrate these in the current Official Plan Update for review and approval.</td>
<td>Existing Resources 2012 CS-LRPP INS- TP, DD</td>
</tr>
<tr>
<td><strong>3-2</strong> The Official Plan shall include a Schedule map for the Primary and Secondary multi-use pathway network as the framework for a comprehensive city wide network. It shall be read in conjunction with the Transportation Schedule map in the Official Plan.</td>
<td>Existing Resources 2012 CS- LRPP FCS- IT (GIS) INS- TP, DD</td>
</tr>
<tr>
<td><strong>3-3</strong> Adjustments to the location and alignment of the Primary and Secondary multi-use pathways are part of the evolution of the network, and these changes will not require an Official Plan Amendment where conditions of location and alignment can be met and changes are justified by staff and approved by the Deputy CAO of Infrastructure Services.</td>
<td>Existing Resources Ongoing CS- DR, LRPP, SD INS- DE, EDA, IAP, TP, DD</td>
</tr>
</tbody>
</table>
The following amendments to the Subdivision and Site Plan Development and Approvals process are required to implement the multi-use pathway network:

a. Draft Plan of Subdivision submission requirements shall be amended to include the requirement for a trail corridor plan which identifies the park, open space or trail corridor blocks required to permit implementation of the required Primary and/or Secondary Multi-use Pathways within the Plan of Subdivision as identified in the Multi-use Pathway and Trails Master Plan and the Official Plan schedule, as well as connecting links to this network within the Plan of Subdivision.

b. The Subdivision Agreement shall include all requirements for Primary and/or Secondary Multi-use Pathway planning, design, engineering, details, permits and construction, including timing of completion.

c. Detailed design drawings and grading plans for all park and trail corridor blocks within the Approved Plan of Subdivision shall be prepared, submitted, reviewed and approved as a component of the grading and engineering infrastructure drawings submissions to the Development Engineering division.

d. Construction of all Primary and Secondary Multi-use Pathways within the Approved Plan of Subdivision shall be generally at the same time as other engineering infrastructure such as roads and grading. This includes all grading and granular base courses for trails. Surfacing shall be completed prior to registration of the subdivision.

e. The developer is required to provide adequate notice to all home purchasers of the proposal to construct multi-use pathways, including identification of pathway plans and cross sections displayed in sales offices and shall be noted in all agreements of purchase and sale when the multi-use pathway is proposed on lands immediately adjacent to the purchased lot.

<table>
<thead>
<tr>
<th>3-4</th>
<th>The Site Plan Review and Approvals process shall include the requirement for the identification and acquisition of the lands, through parkland acquisition or other method, required to implement the Primary and Secondary Multi-use Pathways identified in the Multi-use Pathways Master Plan.</th>
<th>Existing Resources</th>
<th>2012</th>
<th>CS- DR, LRPP, SD INS- DE, TP, OP, DD</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-5</td>
<td></td>
<td></td>
<td></td>
<td>CS- DR, SD INS- DD</td>
</tr>
<tr>
<td>Table Row</td>
<td>Description</td>
<td>Existing Resources</td>
<td>Year</td>
<td>Authors</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------</td>
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<td>---------</td>
</tr>
<tr>
<td>3-6</td>
<td>Where Primary or Secondary multi-use pathways are identified in the Multi-use Pathway Network and are within the study area of an Environmental Assessment (EA) for other infrastructure projects such as roads or stream courses, then the multi-use pathway shall form an integral component of these projects for review and implementation as part of that project.</td>
<td></td>
<td></td>
<td>INS- EDA, IAP, TP, DD</td>
</tr>
<tr>
<td>3-7</td>
<td>Staff will review the suggested strategies for ongoing public participation related to implementing different types of multi-use pathway and trail development and prepare a process that is appropriate for the City of Kitchener.</td>
<td></td>
<td></td>
<td>INS- TP, DD</td>
</tr>
<tr>
<td>3-8</td>
<td>Staff will review the Development Charges (DC) Bylaw to ensure that it includes sufficient language/clauses to enable the use of DC funds to build new, and improve existing Primary and Secondary multi-use pathways and trail facilities in locations where it can be demonstrated that the need is the result of city growth.</td>
<td></td>
<td></td>
<td>CS-LRPP INS- DE, IAP, DD</td>
</tr>
<tr>
<td>3-9</td>
<td>Develop an acquisition strategy for the lands or corridors required for multi-use pathway routes on privately owned land, as illustrated in the recommended Network map and schedule using techniques as described in the Multi-use Pathways and Trails Master Plan.</td>
<td></td>
<td></td>
<td>CS-DR, LRPP, SD INS- TP, DD</td>
</tr>
</tbody>
</table>

### Chapter 4 – The Recommended Multi-use Pathway Network

<table>
<thead>
<tr>
<th>Table Row</th>
<th>Description</th>
<th>Existing Resources</th>
<th>Year</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-1</td>
<td>Adopt the Multi-use Pathway Network Plan as illustrated in the Multi-use Pathways and Trails Master Plan and Official Plan schedule as a blueprint for the development of a comprehensive multi-use pathway network in Kitchener.</td>
<td></td>
<td></td>
<td>CS-DR, LRPP, SD INS- DE, EDA, IAP, TP, DD</td>
</tr>
<tr>
<td>4-2</td>
<td>The route selection principles described in the Multi-use Pathways and Trails Master Plan shall be considered when future network changes are being explored, new network opportunities are identified, and when individual routes are entering into the detailed planning and design stage of implementation.</td>
<td></td>
<td></td>
<td>CS-DR, LRPP, SD INS- DE, EDA, TP, DD</td>
</tr>
<tr>
<td>4-3</td>
<td>Recognize that adjustments to the approved Network Plan will occur from time to time and that this is consistent with the goal of ensuring the network plan is flexible and can respond to changes and new opportunities. Approval required as per Recommendation 3-3.</td>
<td></td>
<td></td>
<td>CS-DR, LRPP, SD INS- DE, EDA, TP, OP, DD</td>
</tr>
<tr>
<td>Page</td>
<td>Description</td>
<td>Resources</td>
<td>Year</td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------</td>
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<td></td>
</tr>
<tr>
<td>4-4</td>
<td>Staff shall examine in detail, in consultation with the public, the requirements for lighting on Primary Multi-use Pathways and prepare a report detailing the criteria necessary to meet requirements for lighting on these routes and detailed recommendations and priorities for its implementation, including costing and proposed phasing.</td>
<td>Existing Resources</td>
<td>2014</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-5</td>
<td>The design standards and guidelines prepared as part of the Multi-use Pathways and Trails Master Plan are the guiding document regarding the construction of multi-use pathways and trails in the City and are intended to inform and support the details provided in other documents used for implementation such as the Development Manual or Urban Design Standards and Guidelines.</td>
<td>Existing Resources</td>
<td>2013</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4-6</td>
<td>All new standard details and implementation process revisions for the subdivision and site development process shall be reviewed and updated through the Development Manual review process at its next scheduled update.</td>
<td>Existing Resources</td>
<td>2015</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-7</td>
<td>Staff responsible for the design and construction of multi-use pathways and trails shall remain current with best industry design practices.</td>
<td>Existing Resources</td>
<td>Ongoing</td>
<td></td>
</tr>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Chapter 5 – The Implementation Strategy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-1</td>
<td>Staff shall systematically implement the recommended Multi-use Pathway Network as illustrated in the Network Map and Schedule through the subdivision and site planning process as well as through Engineering, Transportation and Parks capital projects within existing city lands or corridors.</td>
<td>Existing Resources</td>
<td>2012</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-2</td>
<td>Staff responsible for implementing the multi-use pathway network shall use the objectives for prioritization identified in the Multi-use Pathways and Trails Master Plan and Phasing Map to inform decision-making related to setting priorities for implementation. Implementation priorities will be confirmed on an annual basis in concert with the Development and Capital Budget process.</td>
<td>Existing Resources</td>
<td>2013</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-3</td>
<td>Staff shall prepare a detailed annual update of the 10 Year Phasing Plan to identify specific multi-use pathway segments proposed and detailed costs estimates.</td>
<td>Existing Resources</td>
<td>2012-2021</td>
<td></td>
</tr>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
### 5-4
The planning, design and development of multi-use pathways in the City shall be consistent with the Network Map and Official Plan Schedule, and master plan standards and guidelines.

| Existing Resources 2012 | CS-DR, LRPP, SD INS- DE, EDA, CE, IAP, TP, OP, OSA, DD |

### 5-5
Over the short term assign the responsibility of multi-use pathway coordinator to an existing staff position. This person shall be responsible for “championing” multi-use pathways, pathway initiatives and programming. In the mid-term and beyond consider creating a new position to lead the implementation of the Plan.

<table>
<thead>
<tr>
<th>Existing Resources – Short Term</th>
<th>1 FTE 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>INS- IAP, TP, OP, DD</td>
<td></td>
</tr>
</tbody>
</table>

### 5-6
Implementation of the multi-use pathway network shall be the responsibility of all departments engaged in the planning, design, engineering and implementation of municipal infrastructure and the Multi-use Pathway network requirements shall be considered within the Asset Management programs of the Engineering and Operations divisions and the Long Range Planning, Development Planning and Site Plan review processes.

- Projects within road rights-of-way: Engineering Capital
- Projects within parks and open space: Operations Capital

| Existing Resources 2012 | CS- CPS, IS, DR, LRPP, SD INS- SSBS, DE, EDA, CE, IAP, TP, OP, OSA |

### 5-7
All city departments and staff involved in long range planning, development planning, transportation planning, site plan and subdivision development review, urban design, infrastructure design and implementation shall include the planning and implementation of the approved Multi-use Pathway Network and related facilities into their standard processes and projects.

Where necessary, staff will revise their standard processes to include the planning and implementation of the approved Multi-use Pathway Network.

| Existing Resources 2012 | CS-DR, LRPP, SD INS- DE, EDA, CE, IAP, TP, OP, OSA, DD |

### 5-8
The coordination and implementation of multi-use pathways shall be included in all related capital infrastructure projects and funding shall be appropriately included as a portion of the project budget.

<p>| To be Determined 2013 | CS-CPS, IS INS- SSBS, DE, EDA, CE, IAP, TP, OP, OSA |</p>
<table>
<thead>
<tr>
<th></th>
<th>Establish an Interdepartmental Working Group consisting of representatives from key departments to ensure that the implementation of multi-use pathways is coordinated with the implementation of other active transportation and city infrastructure. This group may include representatives from Long Range Planning, Development Planning, Urban Design, Development Engineering, Engineering Design and Approvals, Infrastructure Asset Planning, Parks Planning and Development, Operations and Transportation Planning.</th>
<th>Existing Resources 2013</th>
<th>CS-IS, DR, LRPP, SD INS-DE, EDA, CE, IAP, TP, OP, OSA</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-9</td>
<td>Review the mandate of the current Cycling Advisory Committee through 2012, with the goal of broadening their role to include all aspects of active transportation, including the Multi-use Pathway network. Following the review, staff and the current Cycling Advisory Committee will report back to Council with a recommended course of action for the Committee’s new mandate starting in 2013.</td>
<td>Existing Resources 2013</td>
<td>INS-TP, DD</td>
</tr>
<tr>
<td>5-10</td>
<td>Staff shall prepare and implement a pilot signage and way-finding strategy for one key section of Primary multi-use pathway and one Secondary multi-use pathway in consultation with the Cities of Waterloo and Cambridge and the Region of Waterloo.</td>
<td>$50,000 2013</td>
<td>INS-TP, DD</td>
</tr>
<tr>
<td>5-11</td>
<td>Staff shall prepare a detailed city-wide way-finding signage strategy for all Primary and Secondary multi-use pathways throughout the city.</td>
<td>$50,000 2014</td>
<td>INS-TP, DD, OP</td>
</tr>
<tr>
<td>5-12</td>
<td>In the short term—within 2 years staff will facilitate the development of a digital map of the existing pathway and trails network for publishing on the City web site for public use. The map shall be compatible with mobile device use.</td>
<td>To be Determined 2014</td>
<td>CAO-CM, CS FCS- IT (GIS) INS-TP, OP, DD</td>
</tr>
<tr>
<td>5-13</td>
<td>Ongoing updating of the GIS database for both the existing and proposed Primary and Secondary multi-use pathways is essential to ensure that maps for use by the public and staff responsible for implementation and operations are current. Annual GIS updates and reviews for accuracy are required.</td>
<td>Existing Resources 2013</td>
<td>FCS- IT (GIS) INS-TP, OP, DD</td>
</tr>
<tr>
<td>5-14</td>
<td>Explore community based social marketing techniques and opportunities to work with local partners and other public agencies to promote the health and recreational benefits of multi-use pathway and trail use.</td>
<td>To be Determined 2013</td>
<td>CAO-CM CS-LRPP INS-TP, DD</td>
</tr>
<tr>
<td>5-16</td>
<td>Staff shall explore and make recommendations regarding methods to recognize individuals, businesses and organizations that make exemplary contributions to the development of the multi-use pathways and trails in Kitchener.</td>
<td>To be Determined</td>
<td>2014</td>
</tr>
<tr>
<td>------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------</td>
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</tr>
<tr>
<td>5-17</td>
<td>During the first phase of implementation (2012-2017) staff will undertake a detailed analysis of lifecycle costs related multi-use pathways and trails, and prepare a report outlining findings and recommendations regarding the funding required to address these lifecycle costs for capital budget deliberations in 2017.</td>
<td>Existing Resources</td>
<td>2017</td>
</tr>
<tr>
<td>5-18</td>
<td>Multi-use Pathways and Trails Master plan implementation is based on a recommended annual capital funding level of $700,000 annually over the first 5 year period and $1.5M annually over the next 5 years, subject to Capital Budget and Capital Forecast review and approval.</td>
<td>2012-2016</td>
<td>$3.5M</td>
</tr>
<tr>
<td>5-18</td>
<td></td>
<td>2017-2021</td>
<td>$7.5M</td>
</tr>
<tr>
<td>5-19</td>
<td>Allocate a portion of the annual capital funding to implement the recommendations of the signage and wayfinding strategy ($5% or 35,000/yr. 2012-2016, 2.5% or $35,000/yr. 2017-2021). Complete the implementation of signage and wayfinding elements for all existing multi-use pathways by the end of 2021. Signage and wayfinding elements for new pathways will be implemented as part of new pathways construction.</td>
<td>2012-2016</td>
<td>$175,000</td>
</tr>
<tr>
<td>5-19</td>
<td></td>
<td>2017-2021</td>
<td>$175,000</td>
</tr>
<tr>
<td>5-20</td>
<td>In addition to capital funding, explore other outside partnership, cost-sharing and funding opportunities for the implementation of multi-use pathways and trails that are outside the responsibility of the City of Kitchener such as the successful Walter Bean Trail funding, Trans Canada Trail etc..</td>
<td>Existing Resources</td>
<td>2014</td>
</tr>
</tbody>
</table>

### Chapter 6 – Operations and Maintenance

| 6-1 | Staff shall maintain and annually update the GIS based network management tool as part of the Operations Division asset management of multi-use pathways developed as part of the Multi-use Pathways and Trails Master Plan. A new position is required to develop and maintain this asset management tool and its correlation with the work order system. | 1/2 FTE | 2014 | FCS- IT (GIS) INS- SSBS, IAP, TP, OP, OSA, DD |
| 6-2 | Consideration shall be given to winter maintenance of hard surfaced (e.g. asphalt, concrete etc.) Primary multi-use pathways so they can function as 4-season routes where identified as priorities through public consultation. Staff shall review the Multi-use Pathway Network and develop a clear understanding of the benefits and costs of winter maintenance on these key pathway corridors, and develop a strategy for an incremental increase in winter maintenance of these routes over time. | To be Determined | 2014 | INS- SSBS, IAP, TP, OP, OSA, DD |
| 6-3 | Review and develop standards for the management of multi-use pathways in active construction zones, and ensure that standards are employed for all construction projects where pathway circulation is potentially affected. | Existing Resources | 2013 | INS-EDA, CE, TP, OP, OSA, DD |
| 6-4 | As part of its commitment to the provision of reliable and safe public infrastructure the City will continue with inspections and all necessary works related to providing safe pathway bridge infrastructure as outlined in staff report DTS-09-074. | Existing Resources | Ongoing | INS-IAP, OP, OSA, DD |
| 6-5 | The Operations Capital Budget should include funding to meet the required repairs as detailed in the recommendations of the bridge inspection program and this amount should be revised every 2 years to follow the inspection cycle to ensure adequate funding to make required repairs. | To be Determined | Ongoing | INS-IAP, OP, OSA, DD |
| 6-6 | Staff shall prepare an issue paper to identify a capital budget program for the long term maintenance and replacement of pathway bridges. | Existing Resources | 2013 | INS-DD, OP, OSA |
| 6-7 | Using the strategies outlined in the master plan as a starting point, staff shall develop a multi-use pathway and trail maintenance plan that is tailored to meet the City’s needs, and is supported by appropriate staff and appropriate budget. Increase Operations staffing from the current 2-1/2 FTE to 4-1/2 FTE (i.e. the addition of 4-1/2 temporary staff for the spring, summer and fall months). Council will consider annual Operating Budget submissions which reflect the actual costs of operating and maintaining the multi-use pathway network. | 2 FTE | 2012 | INS- SSBS, TP, OP, OSA, DD |
| 6-8 | Staffing needs and the annual maintenance budget requirements for multi-use pathways and trails shall be increased in concert with the number of additional kilometres of multi-use pathway and trails that are added to the network each year and based on the per kilometer costs as identified in the Multi-use Pathways and Trails Master Plan. | Existing Resources | 2014-2023 | INS- SSBS, IAP, TP, OP, OSA, DD |
| 6-9 | Staff will develop performance measures to evaluate and monitor the implementation of the Multi-use Pathway Network and master plan recommendations. | To be Determined | 2014 | INS- SSBS, TP, OP, OSA, DD |
| 6-10 | Operations staff will make an annual presentation to the Infrastructure Services Committee to provide an annual update, for the first 5 years on the progress of the Implementation Strategy. A review of the Network and Implementation Strategy and details of implementation priorities will be completed at the end to the 5th year. Annual priorities for implementation shall be confirmed during Capital and/or Operating Budget deliberations. | Existing Resources | 2012-2017 | CAO-CM, CS-CPS, IS, FCS-FP INS- SSBS, IAP, TP, OP, OSA, DD |
| 6-11 | The Multi-use Pathways Master Plan will be reviewed and updated through a broad public process at least every 10 years. | To be Determined | 2022 | INS-TP, OP, OSA, DD |
MULTI-USE PATHWAYS AND TRAILS MASTER PLAN

MAIN REPORT

May 2012 | 1410420-001
1.0 INTRODUCTION

1.1 A BRIEF HISTORY OF TRAILS IN KITCHENER

As the City of Kitchener continues to grow, the public demand for a high quality, connected system of multi-use pathways continues to increase. In general, the development of multi-use pathways and trails provides a wide range of benefits including the opportunity to pursue healthy, active lifestyles, to experience parks, public open spaces and natural areas as well as the opportunity to travel off-road throughout the city.

Since the 1970’s with the development of the City of Kitchener’s “Linked Open Spaces” report, published by the former Department of Planning, the City of Kitchener has embraced the importance of developing and providing pedestrian and cycling routes and facilities throughout the city. This original master plan created a vision and recognized the concept of linked open spaces in the Official Plan. This vision served as the basis for the development of approximately 125 kilometres of Community Trails in existence today including the Water Bean Trail, the Iron Horse Trail (part of the Trans Canada Trail System) and the Dominic Cardillo Trail to name a few. In addition to these primary trail networks, described in further detail in Chapter 2 of this report there are also numerous informal footpaths along hydro corridors, greenways and watercourses as well as throughout Kitchener’s open spaces and natural parks.

The existing network provides a strong basis for the completion of an extensive city-wide multi-use pathway system which complements the routes identified in the City’s Cycling Master Plan for the 21st Century as well as Parks Strategic Plan.

1.2 PURPOSE OF THE MULTI-USE PATHWAYS AND TRAILS MASTER PLAN AND IMPLEMENTATION STRATEGY

The City of Kitchener has historically and continues to embrace and support the creation of a city-wide multi-use pathways system for residents and visitors. A study Steering Committee was formed to guide the development of the Kitchener Multi-use Pathways and Trails Master Plan. The team included city staff
including those involved with the Parks Strategic Plan, Kitchener Natural Heritage System Background Report and the Cycling Plan for the 21st Century. Trail planning and design specialists from the MMM Group and Ecoplans Limited were retained by the City in June 2010 to undertake the master plan.

The Multi-Use Pathways and Trails Master Plan builds upon past and current trail development efforts, and is intended as a blueprint to guide the development and operation of multi-use pathways throughout Kitchener in the short, medium and long term. The plan identifies a strategy for development of a primarily off-road, city-wide multi-use pathways network linking neighbourhoods, parks and natural areas, public open spaces, schools, shopping areas and other important destinations. The network also links seamlessly with on-road cycling routes identified in the City’s Cycling Master Plan for the 21st Century as well as existing and planned routes in the adjacent cities of Cambridge and Waterloo, and Townships of Woolwich, North Dumfries and Wilmot. This long-term plan also examines current policy related to trails and pathways and makes recommendations for improvements to existing policy and the development of new policy regarding planning, designing, promoting and maintaining multi-use pathways.

1.2.1 The Vision for Multi-use Pathways

The Multi-Use Pathways and Trails Master Plan is guided by a vision and objectives which were confirmed through consultation with the study team, the steering committee, stakeholders and the public.
The vision for Multi-use Pathways in Kitchener is as follows:

“Multi-use pathways form the primary continuous off-road walking and cycling network that provides residents of all ages and abilities the means to travel easily and safely throughout their neighbourhood, across the City and to neighbouring municipalities. Multi-use Pathways offer year-round opportunities for active recreation and active transportation by:

Being linked with approved on-road cycling routes and other elements of the active transportation network;

Linking major destination points; and by

Being appropriately located, designed and maintained in parks, public open spaces and natural areas.”

The objectives of the Multi-Use Pathways and Trails Master Plan are to:

- Implement a continuous and connected multi-use pathway system throughout the City of Kitchener;
- Build upon, enhance and improve the continuity and connections to existing and previously developed Multi-use Pathways (currently known as “Community Trails”) including connections to adjacent municipalities;
- Ensure the implementation of multi-use pathways within all new neighbourhoods;
- Consult with the public and key stakeholders that could have a role in the development, maintenance and promotion of trails in the City;
- Coordinate and link the City’s recently approved cycling network, which also includes the approved Region of Waterloo cycling network;
- Implement the recommendations of the Parks Strategic Plan that pertain to multi-use pathways;

- Assess the current condition and function of Multi-use Pathways (Community Trails) in Kitchener;
- Examine current design standards and maintenance practices and make recommendations for changes based on best practice research;
• Identify and recommend policies, strategies, and programs that Kitchener and its partners can support and implement to encourage more people to use the Multi-use Pathways (Community Trail) system more often for recreation and transportation purposes;

• Examine subdivision and site planning and development process and policies to ensure that pathways are routinely considered in the process in an appropriate and timely manner; and

• Develop an implementation strategy that will identify trail development costs and prioritize projects for construction.

1.2.2 Multi-Use Pathways Defined

Trails and pathways throughout Kitchener encompass a range of styles and designs due in part to how, when and where they were created. This range includes trails that have been planned and designed by the City such as:

• Broad, main hard surfaced trails like the Iron Horse Trail;

• Wide granular-surface trails found in hydro corridors, trails that provide access to, and form loops in local neighbourhood parks; and

• Trails through natural areas such as the Huron Natural Area and Walter Bean Trail.

Trails in Kitchener also include those that were never planned or designed by the City, rather they have evolved through use. Beginning as a “desire line” between two points, these trails take the form of a beaten footpath and they can occur anywhere in the city, regardless of land use and land ownership. In some cases these desire line footpaths are confined to one route between two points, however, in a number of locations such as Steckle Woods a “web” of informal routes has developed over time. Although the city never planned or designed these routes, the maintenance and operation of these informal routes have been inherited by the city where they are located on public land. In some cases, these informal routes have been adopted as official routes and have received some upgrading, in other cases...
Parks Operations staff attend to maintenance issues as required even though these routes have never been formally recognized.

The Multi-Use Pathways and Trails Master Plan acknowledges that all of these different types of pathways and trails exist and form part of the network the citizens are using. However, the focus of this Master Plan, including the existing conditions inventory, the recommended network, and phasing for implementation is generally focused on the main routes throughout the city, currently referred to or branded as “Community Trails”. Minor trails in parks and informal trails in parks and natural areas would be the focus of plans for individual parks and management plans for individual natural areas. Section 4-4 of this master plan provides a more detailed description of each of the multi-use pathway and trail types found throughout the City of Kitchener.

1.3 THE STUDY PROCESS AND ORGANIZATION OF THE REPORT

The Multi-Use Pathways and Trails Master Plan is intended to be a “living” document that is flexible and capable of evolving over time. The report contains the following chapters:

Chapter 1 – Introduction; describes the recent multi-use pathway / trail development history in Kitchener. In addition, it also provides an overview of the purpose of the plan and presents the master plan’s vision, a definition of multi-use pathways and outlines the organization of the report.

Chapter 2 – Existing Context; describes the existing multi-use pathway and trail conditions, facilities and policies currently in place at the federal, provincial, regional and local level that play a key role in the development of the Multi-Use Pathways and Trails Master Plan. In addition, this chapter summarizes an extensive inventory of existing Community Trails across the city that was undertaken as one of the first steps in the master plan process.

Chapter 3 – Multi-use Pathway Planning Policy; outlines the policies which have been developed to guide the future development of multi-use pathways within the City
of Kitchener. These include those policies which are proposed for consideration in the Official Plan update, a separate project that was underway at the same time as the Multi-Use Pathways and Trails Master Plan was being prepared. In addition, this chapter also provides specific details on multi-use pathway planning in new developments, established neighbourhoods and also contains recommendations regarding land acquisition and access securement strategies for key multi-use pathway network links that are not currently part of the public realm.

Chapter 4 – The Recommended Multi-use Pathway Network; describes and illustrates the proposed multi-use pathway network for the City of Kitchener as well as the process undertaken to develop the network during the master plan study process. Also included in this section is a description of the multi-use pathway types proposed for the network.

Chapter 5 – The Implementation Strategy; focuses on the implementation of the Plan and describes strategies that can be employed to ensure that the Multi-Use Pathways and Trails Master Plan is a success. This chapter examines methods of public outreach and various approaches that can be undertaken to encourage the public to use the pathway network as part of a healthy lifestyle. The chapter also includes a high level opinion of cost to implement the plan, recommended phasing as well as funding and partnership strategies that can be used to assist with the development of the network and supporting programs.

Chapter 6 – Operations and Maintenance; focuses on the maintenance and operation of multi-use pathways throughout the City of Kitchener to ensure successful operation of the system into the future.

Chapter 7 – Summary of Recommendations and Next Steps;
includes a summary of all study recommendations, and suggested immediate next steps to facilitate the implementation of the plan.

The Multi-Use Pathways and Trails Master Plan also includes the following appendices which support the findings and recommendations outlined in the main body of the report:

**Appendix A- Multi-use Pathway Design Guidelines;** focuses pathway and trail users and their needs, and these are in-turn translated into a set of multi-use pathway design guidelines to assist trail planners, designers and managers in making informed decisions about the design of the pathway and trail system. This resource will also be an important communication tool to assist, staff, Council, the development industry and public understand what is expected for the design of new pathways and upgrading of existing ones.

**Appendix B – Unit Cost Schedule;** provides a list of guideline unit costs for multi-use pathway construction. Key unit costs listed in the appendix were used to calculate the order of magnitude opinion of cost to develop the multi-use pathway network, and other unit prices were provided for reference when more detailed estimates are being prepared for individual projects.

**Appendix C – Benefits of Multi-use Pathways and Trails;** describes some of the numerous benefits associated with the investment and development of multi-use pathways and trails within communities. More specifically, the many benefits described include health and fitness, environmental, economic development and tourism as well as overall benefits to the transportation system.

**Appendix D – Public Consultation: Learning from Kitchener’s Residents;** summarizes the public consultation process undertaken to aid in the development of the Multi-Use Pathways and Trails Master Plan. It highlights the public input received through a number of avenues and provides insight into how this input was incorporated into this Master Plan.

“**Appendix B – Unit Cost Schedule;** lists a guideline cost for the construction of various facilities and amenities for the multi-use pathway and trail network in Kitchener.”
2.0 EXISTING CONTEXT

2.1 CURRENT POLICIES AND INITIATIVES RELATED TO MULTI-USE PATHWAYS AND TRAILS

In addition to understanding the potential benefits associated with the implementation of multi-use pathways within the City of Kitchener, it is also important to understand the support for such development from the highest levels of government at the Federal level, through to the Provincial and Regional and down to the local municipal level with respect to policies, initiatives and organizations that have a bearing on the implementation of multi-use pathways in communities across the country. Many of these policy initiatives relate directly to the benefits outlined in Appendix C. The following outlines the key policies at each of these levels which support the provision / development of a multi-use pathways network and associated facilities.

2.1.1 Federal

Transport Canada

The 2005 “Strategies for Sustainable Transportation Planning: A Review of Practices and Options” released by Transport Canada provides a foundation on which to build guidelines for incorporating sustainable transportation principles into municipal transportation plans.¹ Some of these principles include the creation of policies related to walking and cycling that can be used to develop effective and implementable transportation plans that promote sustainable transportation on a federal level. Some relevant strategies that can be introduced into local plans are listed below:

Integration with Land Use Planning

- Encourage desirable land use form and design (e.g. compact, mixed-use, pedestrian/bike-friendly) through

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transportation plan policies.

Environmental Health
- Identify strategies to mitigate the air quality impacts of transportation activities;
- Identify strategies to mitigate the noise impacts of transportation activities;
- Identify ways that transportation systems influence the achievement of the community’s economic and social objectives. Provide support in the plan’s strategic directions;
- Recognize the importance of ensuring access to opportunity for disabled and low-income persons, recent immigrants, youth and the elderly. Set goals and objectives for reducing the need to travel, improving transit mobility, and preserving minimum levels of service on roadways. Identify related strategies to encourage ridership;
- Address the transportation needs of persons with disabilities, notably with regards to public transit service and barrier-free design in public rights-of-way and include strategies, policies, facilities and services to make transit operations more accessible and sustainable;
- Recognize the public health impacts of transportation activity arising through road safety, pollution and physical activity levels. Identify effective strategies to strengthen positive impacts and lessen negative ones; and
- Recognize the impact of transportation related death and injury on quality of life and the economy. Set goals and objectives for multimodal road safety. Identify effective road safety strategies.

2.1.2 Provincial

The following section summarizes the key provincial policies that impact walking and cycling. These policies focus on pedestrian, cycling, trail, transit and alternative modes of transportation as they relate to:
- Land Use and Development;
- Bicycle and Trail Networks;

“The Kitchener Multi-use Pathways Master Plan builds upon past and current trail development efforts, and is intended as a blueprint to guide the development and operation of multi-use pathways throughout Kitchener in the short, medium and long term.”
• Transit, Coordination & Enforcement;
• Maintenance;
• Transportation Efficiency; and
• The contribution that alternative modes of transportation can play in Transportation Demand Management strategies.

Provincial Policy Statement
The Provincial Policy Statement (PPS) sets the foundation for regulating land use and development within the Province and supports provincial goals. The PPS provides for appropriate development and protects resources of provincial interest. The vision of the land use planning system in the PPS is that the “long-term prosperity and social well-being of Ontarians depend on maintaining strong communities, a clean healthy environment and a strong economy.” The PPS promotes transportation choices that facilitate pedestrian and cycling mobility and other modes of travel.

Bill 51 – Plan Reform
Bill 51 includes reforms to the Planning Act, and provides the legislative framework for land use planning in Ontario. Bill 51 includes changes to the planning process that are intended to support intensification, sustainable development and protection of green space by giving municipalities greater powers, flexibility and tools to use land, resources and infrastructure more efficiently.

Bill 51 is consistent with Ontario’s recent policy shift towards sustainable land use development and planning. For instance, Bill 51 permits municipalities to require environmentally sustainable design for both individual buildings and entire neighbourhoods. It also adds sustainable development as a provincial interest in the Provincial Policy Statement.

Municipal Act, 2001
The Municipal Act, 2001 gives municipalities a broad new flexibility to deal with local circumstances, and to react quickly to local, economic, environmental or social changes. It recognizes municipalities as responsible and accountable governments with respect to matters
within their jurisdiction. The Municipal Act, 2001 also provides policies relating to municipal jurisdiction over municipal highway rights-of-way.

**Ministry of Health Promotion**

The Ministry of Health Promotion has been designated a lead ministry for trails in Ontario and has the responsibility for the coordination of recreational trail issues, policy development and planning. The Ministry of Health Promotion has drafted a vision for Ontario trails as:

“A world-class system of trails that capture the uniqueness and beauty of Ontario’s vast open spaces and natural and built cultural/heritage resources. People and places are connected through quality, diverse, safe, accessible and environmentally sensitive urban, rural and wilderness experience trails for recreational enjoyment, active living and tourism development”.

**The Ontario Trails Strategy**

The Provincial government has developed the **Ontario Trails Strategy** in response to the popularity of trail activities and infrastructure, the desire of trail organizations for government leadership, the need to protect provincial investment in trails and the significant trail issues or challenges that confront the future of Ontario’s trails. The **Ontario Trails Strategy** is a long-term plan that will establish a strategic direction for government and stakeholders on the planning, management, promotion and use of trails, toward a healthier and more prosperous Ontario. Developed in collaboration with other ministries and a wide range of stakeholders in the community, the strategy supports continued cooperation among governments and the not-for-profit and private sectors.

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3 Ministry of Municipal Affairs and Housing: ww.mah.gov.on.ca/userfiles/HTML/mts_1_7748_1.html
There are five strategic directions that comprise the Ontario Trails Strategy:

- Improving collaboration among stakeholders;
- Enhancing the sustainability of Ontario’s trails;
- Enhancing the trail experience;
- Educating Ontarians about trails; and
- Fostering better health and a strong economy through trails.

A number of goals and strategies have also been identified to support each of the five strategic directions.

The Ontario Trails Strategy recommends that trail organizations should develop common standards to guide the development and use of trails. This will help the trail system evolve to meet the particular needs of new users. Trail organizations also need more effective tools and better ways of distributing information to more Ontarians. As these challenges require coordination at all levels, the provincial government and the public, not-for-profit and private sectors will continue to collaborate on priorities, roles and responsibilities, timeframes, and methods to strengthen and enhance existing and future trails in Ontario.

2.1.3 Region of Waterloo

Region of Waterloo Growth Management Strategy

The Growth Management Strategy for the Region of Waterloo was developed as a long-term plan for the future of residential and employment growth throughout the Region. More specifically, the strategy looks at how the growth for the future will be accommodated.

One of the key components of the plan is the development of a “balanced” transportation system which provides residents of the Region with choices for both utilitarian and recreational transportation. Page 13 of the strategy presents Goal 3 which states that providing greater transportation choices is the driving factor behind the achievement of this goal. This will be used as an overall means of increasing the amount of cycling facilities and creating a more pedestrian-friendly environment.

“The Ontario Trails Strategy recommends that trail organizations should develop common standards to guide the development and use of trails. This will help the trail system evolve to meet the particular needs of new users.”
Overall the Region wishes to implement facilities and programs which integrate different transportation modes while balancing the transportation system.

**Regional Official Plan (2010)**
The Regional Official Plan, as approved with modifications in December 2010 (currently under appeal), outlines a set of goals which include but are not limited to increasing the number of transportation options throughout the Region. In addition, a vision was developed to guide the implementation of the plan which states that the Region should develop into “an inclusive, thriving and sustainable community committed to maintaining harmony between rural and urban areas and fostering opportunities for current and future generations”. The plan itself looks to refine the Region’s balance approach when dealing with future growth.

More specifically, the plan emphasizes the importance of developing a multi-modal transportation system including the integration of trails. **Section 2.D.17** states that the Region should “establish a network of continuous sidewalks, community trails and bicycle pathways that provide direct, safe, comfortable and convenient linkages within the neighbourhood and externally to other neighbourhood”.

**Section 3.B, Walking and Cycling**, outlines the importance of these transportation modes as “a substantial portion of the community does not, or will not have access to private automobiles either by choice or due to financial, age or physical limitations”.

The vision for walking and cycling within the Region (in collaboration with the Regional Transportation Master Plan) is to “promote a vibrant, healthy community using a combination of land use destinations and urban design initiatives that make a wide range of transportation choices viable in the region”. **Section 3.C Transportation Demand Management** also alludes to the integration of multiple modes of transportation with an emphasis on human power forms of travel.

“The Region’s Official Plan, developed in 2009, outlines a set of goals which include but are not limited to increasing the number of transportation options throughout the Region.”
Region of Waterloo Transportation Master Plan

The Regional Transportation Master Plan—Moving Forward 2031 places great emphasis on the role of public transit to provide a more balanced transportation system. It is guided by the Ontario government’s Places to Grow Growth Plan, the Regional Growth Management Strategy, the Regional Official Plan, and the Rapid Transit Plan. It also reflects the significant public interest for greater transportation choice, which was strongly reflected in consultation and survey efforts.

The study goals include the following:

- Optimize the Transportation System—Make the most of what exists: preserve and maximize the use of facilities and services—avoid or defer the need for new infrastructure that does not support the other goals.
- Promote Transportation Choice—Provide and maintain a transportation system that offers competitive choices for moving people and goods in an integrated and seamless manner while minimizing single occupancy vehicle trips.
- Foster a Strong Economy—provide a transportation system that supports the retention of existing businesses and attraction of sustainable economic activity.
- Support Sustainable Development—Provide and maintain a transportation system that supports sustainable growth in both urban and rural areas and reduces transportation contributions to climate change.

The Region has identified walking, cycling and public transit among a suite of potential target areas to create a more sustainable transportation system. The Transportation Master Plan makes increasing walking and cycling modal a focus for future development throughout the tri-city area. The target for walking and cycling throughout the Region by 2031 is 12% which represents an increase of 8% for afternoon (“PM”) peak period trips. The Region has identified that this will not be achieved solely through the implementation of a recommended network but through the development and implementation of a set of recommended policies. The policy sections throughout the Plan which directly relate to the development of pedestrian and cycling facilities include:

- Planning the System;

“The Region has identified walking, cycling and public transit among a suite of potential target areas to create a more sustainable transportation system. The Transportation Master Plan makes increasing walking and cycling modal a focus for future development throughout the tri-city area.”
develop supportive policies and plan for new development areas; and

- Develop / Maintain Design Standards for Pedestrian and Cycling Facilities.

**Region of Waterloo Cycling Master Plan**

The Regional Cycling Master Plan, completed in 1994 and updated in 2004 includes a cycling network, design strategies, and policies as well as supportive initiatives. **Map 2** of the master plan provides an illustration of the existing trails and cycling facilities throughout the Region. The network map provides an image of cycling facilities (on and off-road) that have been completed in Waterloo Region by both the Region and Local Municipalities. The plan also notes that one of the challenges for next 20 years is to connect existing on and off-road facilities to provide a network that gives access to destinations so that cycling is a viable form of transportation.

From the public attitude survey conducted as part of this study it is clear that respondents support the development of off-road trail facilities throughout the Region. Specifically the plan notes that almost one in three volunteered that adding more bike lanes is the one thing that the Region could do to improve cycling. In addition, 16% suggested that adding more off-road trails would improve cycling in the Region."

There are also a number of guidelines which speak to the development of trails related facilities such as multi-use trails and boulevard multi-use trails. These are key guidelines to consider when developing the Multi-use Pathways Master Plan as these facilities may be considered in some detail throughout the network. The guidelines include but are not limited to:

Guideline (page 46): "Off-road multi-use trails in the Regional Network will be constructed to a minimum width of 3.0m to accommodate two-way travel. On trails that may experience high demand of a significant percentage of pedestrian and / or..."
in-line skating traffic a width of 3.5m to 4.0m will be considered. In some circumstances, narrower widths may be considered, not only for short distances.

Guideline (page 47): “Boulevard multi-use trails as part of the Regional Network will be considered for implementation where there are 0 to 3 crossings (driveways / intersections) per kilometre, on a site-by-site basis and where satisfactory conditions exist for the various design elements identified.

2.1.4 City of Kitchener

City of Kitchener Official Plan

The Official Plan sets out high level policies which are intended to guide the creation of a “safe and healthy urban environment within which opportunities are provided for people to satisfy their social, economic and psychological needs and for maintaining and conserving the integrity of their natural and culture heritage”. The “vision and goals” for the plan are to be achieved through the implementation of a number of planning principles. Of these planning principles, trails are identified as a key component of the transportation system (Principles 7 and 11). These principles state the following:

- Principle 7: “The City of Kitchener will balance an efficient and comprehensive road system to be compatible with an effective and accessible public transportation system. This transportation scheme will facilitate the convenient movement of persons between residences, places of employment, recreational facilities and community services. The transportation system will be integrated with community trail links, Scenic-Heritage Roads and neighbourhood development so as to improve and encourage pedestrian and bicycle use.”

- Principle 11: “The City recognizes the valleys of the Grand River and its major tributaries as primary open space and a recreational resource and will increase the linkages of this resource with other open space and recreational features in the municipality through trail development.”

“The Official Plan sets out high level policies which are intended to guide the creation of a “safe and healthy urban environment within which opportunities are provided for people to satisfy their social, economic and psychological needs and for maintaining and conserving the integrity of their natural and culture heritage”.

Chapter 2

FINAL REPORT May 2012
The Official Plan also outlines a number of issues for consideration by the City. These include:

- Housing;
- The Economy;
- Community and Cultural Services;
- Health and Safety;
- Conservation and Community;
- Urban Design;
- Natural Resources Management;
- Transportation; and
- Downtown.

For each of the areas of consideration, policies, recommendations and opportunities are identified for future consideration. Throughout the Official Plan there are references to trail development for Kitchener, however, in many cases the policies pertain to park space, open spaces and linked open space. Overall, there is strong support for recreational facilities and the development of those facilities which support a healthy and safe community. In addition, the development of multi-use pathways and trails will also help to achieve the following objectives as outlined in the plan:

- “a continuous linear open space system in the City of Kitchener which includes the diverse natural areas of the municipality and the Grand River and its major tributaries”;
- “provide for linkages between open space areas to be used for a community trail network throughout the city”;
- “provide a balanced distribution of open space and leisure facilities for both active and passive recreational uses to satisfy the needs of all residents of Kitchener”;
- “maximize the opportunities for both passive and active recreational pursuit in all areas of the municipality”.

“As part of the development of the KMUP a detailed analysis of policies in the current Official Plan was undertaken and recommendations for additional/new policies were provided for consideration as part of the Official Plan review process…”
As part of the development of the Multi-Use Pathways and Trails Master Plan a detailed analysis of policies in the current Official Plan was undertaken and recommendations for additional/new policies were provided for consideration as part of the Official Plan review process that was underway at the same time this Master Plan was being prepared. The results of this work are presented in Chapter 3 of this report.

A Plan for a Healthy Kitchener (2007 to 2027)

This policy document was based on the work completed by Compass Kitchener in 2000, 2003, 2005/2006 which identified positive qualities about the City as recognized by the residents. The final document provides the City with “a strategic approach to delivering results in key areas that are essential to the health and vitality” of the City. The policy outlines a set of priorities to consider when looking into future development which includes:

- Quality of Life;
- Leadership & Community Engagement;
- Diversity;
- Downtown;
- Development; and
- Environment.

Of these priorities, many relate to the development and promotion of trails throughout the City to achieve the goals for the community. With regards to the definition of healthy community, the policy includes bike trail facilities as a key component / means of achieving this. More specifically, the priorities of development and the environment identify trail development as a focus for the government as well as a municipal service in high demand by the residents of the community.

Kitchener Growth Management Strategy (January 2009)

The Growth Management Strategy developed for the City of Kitchener sets out a number of objectives for future growth throughout the community. Those that relate to or influence the development of trails include the implementation of a transportation
demand management plan and the incorporation of cycling planning and infrastructure for destination travel.

One of the recommended actions includes the implementation of a cycling route installation plan in addition to the transportation master plan—“Following the identification of cycling routes in a Master Plan, establishing a clear implementation plan for what routes should be improved for cycling connections, with timing priority given to routes to major destinations”. This goal will be complemented and initial steps developed through the network development of the Multi-Use Pathways and Trails Master Plan.

**Transportation Master Plan**

The Transportation Master Plan for the City of Kitchener, currently underway. An integrated transportation system is vital to a complete and healthy Kitchener. Active Transportation plays an important role in the transportation system, giving residents choices on how they can travel throughout the city. The on-road cycling network from the city’s approved Cycling Master Plan, the off-road pathway and trails network being proposed in Multi-use Pathways and Trails Master Plan and the network of city sidewalks all work together to provide residents with travel choices that reduce dependence on the automobile and a decrease in greenhouse gas emissions, an increase in community involvement, a focus on pedestrian issues and increased public outreach.

**Parks Strategic Plan**

The Parks Strategic Plan reflects “the community’s desire to reposition parks as a core municipal service by acknowledging the parks system as essential public infrastructure vital to improving and sustaining the health of individuals, the community, environment and economy”. The master plan identifies the connection between healthy parks and healthy
people which help in the development of an overall healthy and sustainable community.

In 2009, a community survey report identified a high level of community satisfaction related to parks. However, “a renewed effort is needed to ensure that parks continue to meet the needs of residents and to protect the long term sustainability of the parks system”. Within the Parks Strategic Plan there are a number of policies and recommendations which speak to the development of additional trails both on and off-road. It identifies the growing demand for “innovative, structured, connected, and comprehensive trail system, and increasing expectations for high quality trails that are well marked, innovative and easily accessible”. In addition to identifying the future of trails as a key initiative for the City, the policy also describes the qualities of a successful trail system which includes a range of physical challenges, good wayfinding techniques, accessible options, connectivity and a wide range of facilities.

A set of guidelines is identified as part of the Parks Strategic Plan to provide additional direction for the planning, design, development, management and maintenance of the trails network. As part of these guidelines, a recommendation is outlined which states that an inventory of trails throughout Kitchener should be developed as part of the recommended Trails Master Plan and Implementation Strategy.

City of Kitchener Cycling Master Plan for the 21st Century (2010)

The City recently adopted a new cycling plan that includes policies, programs and design standards as well as infrastructure recommendations to support and promote recreational and commuter cycling within the City. Key categories identified to increase and promote cycling as a viable transportation mode include:

- Infrastructure;
- Integration with other modes of transportation;
- Social marketing and promotion;
- Advocacy (local groups and stakeholders);
- Education and information; and
- Sympathetic Land Uses.

“The primary goal of the Cycling Master Plan is to make the City a bicycle-friendly environment for utilitarian and recreational cyclists.”
The primary goal of the cycling master plan is to make the City a bicycle-friendly environment for utilitarian and recreational cyclists. In addition, the plan provides the City with a clear vision to guide future development in order to achieve this goal. The vision includes reference to the development of a multi-use pathways system to facilitate the development of a connected cycling network. The vision states that:

“In recognizing the social, health, environmental and economic benefits of cycling, the City of Kitchener Cycling Master Plan for the 21st Century continues to support residents, employees and visitors in considering cycling. It further enhances the choice to bicycle as a viable means of transportation and recreation through the provision of a safe and comfortable, connected bikeway network on City streets and quality multi-use trails and a behavioural shift in information and programming that promotes awareness and safe use…”

The Master Plan also identifies the integration of trails and trails related facilities and routing to promote and achieve the goals for cycling in Kitchener. Multi-use trails are recognized as an essential element in expanding both the on and off-road network. The master plan states that “quality multi-use trail means functional integration of trails with the on-street network and expansion within open spaces where impacts on the natural environment can be mitigated”. The development of the Multi-use Pathways Master Plan will play a key role in helping to complement the Cycling Master Plan and achieve this goal for the city.

City of Kitchener Development Charges Background Study

The Development Charges bylaw developed for the City of
Kitchener is used “to fund capital projects related to growth throughout the City so that development continues to be serviced in a fiscally responsible manner” (page 4 of the manual). It lists eligible city services related to trail development, which are built into the analysis for Development Charges e.g. Outdoor Recreation, which includes the development of parks and trails.

The study identifies close to 236 linear kilometres of trail for future development within the City of Kitchener. Trails are defined in the Development Charges Bylaw to include Cemetery, Community and Woodland Trails within the City of Kitchener. With the development of the integrated master plan, these funds could be considered for the development of future multi-use pathways and trails throughout the city.

**City of Kitchener Development Manual (2009)**

The Development Manual for the City of Kitchener was developed in 2009 and provides specific processes for the design of community facilities throughout the City. Specifically the chart on page 133 of the Manual illustrates how trails fit into the development process, and lists key requirements for Developer Built Park and Community Trails development. Some of the key milestone involving the planning, designing and construction of trails as part of the development process include:

- Requirements for Draft Plan of Subdivision;
- Prior to or at the time of registration of the applicable stage of subdivision;
- Within one year of registration of the applicable stage of subdivision;
- During warranty period; and
- Final acceptance.

Included in the manual are also specific requirements for park and community trail development. Community Trails are defined in the document as both a “recreational facility and a non-vehicular traffic route providing city wide, off-road transportation routes for walking and cycling”. Community Trails, when developed, are to be accessible and barrier free, and are meant to connect parks and open space within subdivisions and provide connections to other neighbourhoods of the city.
Kitchener Urban Design Guidelines Part A-C

The Urban Design Guidelines for Kitchener provide a uniform set of requirements and objectives for the design of community facilities. Part A of the Design Guidelines relates to design elements for “Parks, Open Spaces and Trails”, the goal of which is:

“To provide a variety of outdoor recreational and amenity opportunities for all age groups. To provide an accessible and linked parks and open space system.”

More specifically, design guidelines are provided for trail development which includes:

- Design urban areas to allow for appropriate public access to important natural features, community trails and major park spaces.

The plan acknowledges the importance of introducing elements of Crime Prevention Through Environmental Design (CPTED) into the design of parks, open spaces and trails. The overall goal for this design is to provide the City with “a safe recreational environment for people of all ages”. Trails are identified as an important part of the community which should be visible from both homes and streets and accessible to users of all ages and abilities. Specific guidelines for trail development under CPTED principles include:

- “Parks, open spaces and trails should be designed to provide direct links to the surrounding community and neighbourhood.”
- “Trails should provide multiple points of entry and exist to prevent entrapment”.
- “Parks, open spaces and trails should be signed with the appropriate details of hours or operation, behaviour expectations and contact information for reporting problems.”
- “Provide an entrance and feature at the principles access point for parks and trails.”
- “Design trails along preferred desire lines.”
- “Ensure trails are inspected in a timely fashion to remove any debris, garbage or deadfall from trees.”
2.1.5 The Federation of Canadian Municipalities (FCM)
The Federation of Canadian Municipalities (FCM) considers itself the national voice of municipal government since 1901. The organization fosters sustainable communities enjoying a high quality of life by promoting strong, effective and accountable municipal government. There are currently more than 1,775 members as the organization represents the interest of municipalities on policy and program matters that fall within the federal jurisdictions. Members include Canada’s largest cities, small urban and rural communities, and 18 provincial and territorial municipal associations. FCM recently developed the Communities in Motion: Bringing Active Transportation to Life initiative. This document is a key resource for all Canadian municipalities with the goals of promoting active transportation options, eliminating barriers to different travel mode choices and following a new path to promote active transportation such as cycling and walking as a part of everyday life. More specifically, the document outlines and promotes the inclusion of potential facilities such as off-road options. The document notes that “some pedestrians and cyclists stick to city streets to reduce travel time and distance. Others, however, prefer less stressful off-road routes that let them connect with nature. Lit trails improve safety and security, wayfinding systems help people get where they’re going, bike ramps let cyclists get up and down staircases with ease, and dedicated bridges help everyone cross waterways, ravines and railway lines. Off-road routes are also important for recreation, and many communities are expanding their trails systems to boost tourism”4.

2.1.6 Trail Organizations
There are a number of trail organizations across Ontario that promote, manage and maintain trails, provide hiking information and, in some cases, also provide guided

4 Canada. Federation of Canadian Municipalities. Centre for Sustainable Community Development. Communities in Motion: Bringing Active Transportation to Life. Ottawa: Federation of Canadian Municipalities. Print
hikes. Trail organizations that have an influence locally include the TransCanada Trail Foundation, The Ontario Trails Council, The Grand Valley Trail Association and the Walter Bean Community Grand River Trails Foundation.

**Trans Canada Trail Foundation**

The Trans Canada Trail Foundation was a project initiated in 1992 with a mission of promoting and assisting in the development and use of trails in every province and territory throughout Canada. The Foundation provides funding to local trail builders to help with the developed and enhancement of trail routes and facilities. Their goal is to ultimately complete a trail exclusive to Canada linking 1000 communities through 22,500 km of trails. To date, more than 16,500 km of trail have been developed, 73.4% of the proposed route. Each section of the trail is developed, owned and managed locally by trail groups, conservation authorities and by municipal, provincial and federal governments.

Within the City of Kitchener, the Schneider Creek Trail and Iron Horse Trail make up approximately 20km of the Trans Canada Trail linking Kitchener to the City of Waterloo in the north through to the City of Cambridge to the south. The trail is managed and maintained by the City as well as the Grand River Conservation Authority and is monitored by local cycling advocacy groups and committees. The trail facilities currently in place boast a range of off-road facility types including rail trails and off-road multi-use pathways. Connections to the existing components of the Trans Canada Trail System will be a key goal for the Multi-Use Pathways and Trails Master Plan for increased connectivity. The possible involvement and partnership with the Trans Canada Trail Foundation will be a means of facilitating future trail development throughout the City.

**Ontario Trails Council (OTC)**

The Ontario Trails Council (OTC), a not for profit organization that promotes the development of trails in Ontario. The Trillium Trail Network (TTN) is an initiative of the OTC and represents an opportunity for trails to link together between regions and communities in Ontario. The TTN consists of OTC member trails registering their trail
as a network member. Trillium Trail Network (TTN) is designed to be a province-wide network of trails; overall, the TTN works to:

- Make Ontario a more attractive place to live and visit;
- Promote trail travel and tourism;
- Increase the number of trails available for use;

- Improve trail management as TTN trails will work to implement accepted trail standards;
- Promote ecological conservation;
- Provide access to local history and community culture; and
- Promote accessibility and use to disabled persons.

Grand Valley Trails Association

The Grand Valley Trails Association (GVTA) was founded in Kitchener in 1972 by a number of area groups interested in establishing hiking trails in Waterloo region. The GVTA is a non-profit, charitable organization with the following mission:

“The Grand Valley Trails Association is a volunteer organization committed to establishing footpaths within Ontario’s Grand River Watershed in order to promote the protection and public enjoyment of the natural environment and human history of this Canadian Heritage River.”

The mandate of the association is to build and maintain hiking trails in the Grand River Valley. Activities range from participating in work parties to adopting sections of the trail and, the promotion of outdoor activities such as hiking, snowshoeing, cross-country skiing, and canoeing.

“The Ontario Trails Council (OTC), a not for profit organization that promotes the development of trails in Ontario. The Trillium Trail Network (TTN) is an initiative of the OTC and represents an opportunity for trails to link together between regions and communities in Ontario.’

“The Walter Bean Grand River Community Trails Foundation and the Walter Bean Grand River Community Trails Corporation were non-profit organizations led by a volunteer board of area citizens dedicated to fund raising for implementation of the Walter Bean Grand River Trail.”
Walter Bean Grand River Community Trails Foundation and The Walter Bean Grand River Community Trails Corporation

The Walter Bean Grand River Community Trails Foundation and the Walter Bean Grand River Community Trails Corporation were non-profit organizations led by a volunteer board of area citizens dedicated to fund raising for implementation of the Walter Bean Grand River Trail. These organizations were originally created in 1996 and no longer exist. Today, the Grand River Conservation Foundation holds, and is the steward of these funds. Individual municipalities through which the trail travels are now responsible for the ownership, construction and maintenance of the trail. Once complete the Walter Bean Grand River Trail will be almost 80km in length, running along the Grand River from Fountain Street in Cambridge through Kitchener, Waterloo, and Woolwich to north of West Montrose. Many sections of the trail exist today through the urban areas of Kitchener and Waterloo, and the portion of the trail in Woolwich Township is currently under discussion.

2.2 INVENTORY OF KITCHENER’S EXISTING MULTI-USE PATHWAYS

Currently, the City of Kitchener offers over 125 kilometres of multi-use pathways throughout the city that support different levels of recreation for all members of the community. Off-road trails within Kitchener have been routed through parks, natural areas, hydro corridors, communities, and provide linkages through and between woodlands, surrounding communities, schools, community centres, parks, and significant roadways.

A detailed inventory and cataloguing of the existing multi-use pathway network within the City of Kitchener was undertaken from July 2010 through to October 2010. A total of over 1,475 individual waypoints and over 1,000 associated photos were taken and catalogued to better understand what trails have been developed and where amenities are located along trails. Amenities and characteristics were noted. These included:
• Benches;
• Trash receptacles;
• Signage;
• Washrooms;
• Plaques/sculpture;
  • Bridges;
• Trail surfaces;
• Widths;
• Slopes;
• Culverts;
• Crossings, and
• Maintenance hazards.

These were summarized into a database that can be used to monitor, and plan maintenance operations and improvements to existing trails in the future. Common elements between trails, such as areas requiring maintenance, slopes, surfaces, signage types, and connections to local destinations were also analyzed during the inventory.

The inventory served a number of purposes during the life of the master plan project and into the future. For example, the inventory helped to:

• Identify gaps in the existing system and inform the development of a hierarchy of trails on a city-wide basis;

• Inform the development of the implementation plan by identifying locations /segments that require modifications so they fit within the hierarchy;

• Recognize and document locations where major trail improvements and connections may be required;

• Inform the day-to-day operation and maintenance of the trail by identifying those areas that require more prompt attention than others; and

• Serve as the starting point for a trail asset management database and trail inspection/reporting program.

The City of Kitchener contains several main trail corridors including the Iron Horse Trail, Victoria Park, the Walter Bean Grand River Trail, the Dominic Cardillo

“Barriers to multi-use pathway and trail continuity result from natural and constructed features that create a physical impediment to the development of an interconnected trail system.”

“...A total of over 1,475 individual waypoints and over 1,000 associated photos were taken and catalogued to better understand what trails have been developed and where amenities are located along trails.”
Chapter 2

Trail, the Trans Canada Trail, Kiwanis Park Trails, McLennan Park Trails, and trails within the Huron Natural Area (HNA) in south Kitchener. Many of the natural areas in the City of Kitchener have at least a partial trail network. A large proportion of these trails are currently classified as ’woodland trails’; however some of the natural areas also have ’Community Trails’ connecting them with other natural areas, parks or other parts of the City. Existing woodland/informal trails within natural areas and parks were not inventoried as part of the scope of work within this study.

Barriers to multi-use pathway and trail continuity result from natural and constructed features that create a physical impediment to the development of an interconnected trail system. The following key issues noted during the inventory and expressed by the public as part of the consultation, will have to be overcome in the ongoing evolution of trails in Kitchener:

- **Lack of continuity in many locations.** This may be due to physical barriers, such as controlled access highways, some Regional roads, railway lines, privately owned land parcels, rivers, streams and steep valley walls. It may also be due to lack of a network plan, or lack of an implementation strategy for these locations. The network, implementation schedule and commitment to fund projects in a step-by-step manner will, over time result in a more continuous system.

- **Challenging or non-existent road or rail crossings.** The intersection of multi-use pathways and roads or rail lines is often one of the key contributors to trail discontinuity. This is especially the case with major arterial roads and provincial highways. The recommended network identifies these locations so that crossings can be designed and implemented at the appropriate time, often in conjunction with road improvement projects. Regarding crossing of local streets, design consistency is important so users know what to expect and how they should interact with motorists at these locations.

- **Inadequate signage.** Information and wayfinding is an important aspect of a successful network, it helps users understand where they are and plan their route for where they want to go. The design and layout of an effective signage program must be carefully thought out so that important information can be conveyed without creating unnecessary visual clutter.
• **Variation in width and surface from one location to the next.** This can be addressed with a classification system which relates location and, width and surface type.

Solutions to address each of these key issues are contained throughout the following chapters of the Multi-Use Pathways and Trails Master Plan.
3.0 MULTI-USE PATHWAY PLANNING POLICY

3.1 MULTI-USE PATHWAYS AND THE OFFICIAL PLAN

An Official Plan update was underway at the same time as the Multi-Use Pathways and Trails Master Plan was being developed. As part of this study, a detailed analysis of policies in the current Official Plan was undertaken and recommendations for additional/new policies were provided for consideration as part of the Official Plan review process.

The following provides draft rationale, objectives and policies that were forwarded to the staff and consulting team for consideration during the Official Plan update and the following suggestions will be modified as part of the Official Plan update process.

Preamble

A continuous and linked ‘off-road’ multi-use pathway network is a vital component of Kitchener’s fabric. The ‘Transportation and Recreation Multi-use Pathways’ are considered to the highest order pathway facilities and are complementary to local multi-use pathways in neighbourhood parks, multi-use pathways and footpaths in natural areas, and walkway blocks connecting sidewalks to the park and open space system. Not only does the multi-use pathway system provide access to quieter open spaces and natural areas within the city where residents can experience and appreciate natural heritage, a continuous and linked ‘off-road’ multi-use pathway network, provides for an efficient and sustainable means of Active Transportation.

Active transportation can generally be defined as:

- **Active Commuting** - which involves journeys to and from work;
- **Active Workplace Travel** - which includes trips during working hours such as the delivery of materials or attending meetings;
- **Active Destination Oriented Trips** - which includes trips to and from school, shops, visiting friends and running errands; and
- **Active Recreation** - which involves the use of an active transportation mode for fitness or recreational pursuits, such as hiking or cycling.
The implementation of a multi-use pathway system throughout the community also encourages an increase in physical activity which leads to an increased quality of life and a healthier community and environment.

Objectives

i) The City shall develop an active and attractive network of open spaces by ensuring mutually supportive relationships between those open spaces and the built forms which enclose them, and with the pathways, bikeways, recreation and transportation routes, or natural connections which link them.

ii) The City shall promote and facilitate a transportation and recreation multi-use pathway network that is efficient and inclusive in its planning, development and operation; and

iii) The City shall ensure an interconnected multi-use pathway network that accesses and/or links neighbourhoods, schools, commercial centres, transit and other key destinations within the City and Region.

General Policies

1. The Multi-use Pathway and Trails Master Plan for the City of Kitchener is the guiding document that provides the framework for the design, development and operation of a multi-use pathway network in the City. Map 9 in Part 5 of the Official Plan provides the location of existing and future Primary and Secondary multi-use pathway routes throughout the City. Changes to the location of individual routes may be made by the Director of Operations or the Director of Planning to accommodate the actual on-ground route, and to respond to new opportunities that arise from time-to-time without the need for an amendment to this Official Plan.
2. As part of day-to-day business practice the City shall recognize that multi-use pathways form part of a vital transportation system with subsequent environmental, health and economic benefits.

3. The City shall work collaboratively with other agencies and surrounding municipalities to plan for, and develop recreation and transportation multi-use pathways and related facilities.

4. The City shall routinely consider and wherever possible accommodate the needs of multi-use pathway users in the design and construction of all infrastructure undertakings.

5. All development applications, including, but not limited to, plan of subdivision, severances, plans of condominium, Official Plan Amendments, zoning by-law amendments, site plans shall be reviewed by staff to ensure that they are consistent with the Multi-Use Pathways and Trails Master Plan.

6. Utility corridors, abandoned rail lines unused / unopened road allowances and other rights-of-way shall be utilized for multi-use pathways where appropriate.

7. The City shall develop a user education and etiquette program related to multi-use pathways and multi-use pathways.

**Design and Construction**

8. Prior to the design and construction of multi-use pathways or related facilities, design issues including land use compatibility, safety integration with the on-road cycling network and operational matters will be considered as well as the cultural, scenic and other environmental attributes through which the designated routes pass.

9. When developed, the multi-use pathway system should include appropriate pathway amenities such as bicycle racks, benches, trash receptacles, signage, including way finding and information kiosks. These amenities should be developed to be sympathetic / in context with the multi-use pathway setting.

10. When designed, the multi-use pathway system should reflect considerations of sensitive areas, type of use, maintenance requirements, costs, safety and wildlife habitat protection. In addition,
design considerations for multi-use pathways should, where possible, apply universal design principles to encourage use by people of all levels of ability and mobility.

11. Linear parks and open space systems create a significant opportunity for the development of a linked multi-use pathway system. Wherever possible, the creation of a continuous multi-use pathway route shall be achieved utilizing linear parks in addition to more traditional block shaped parks and other open space.

Municipal Requirements

12. Appropriately designed and properly located facilities shall be required at all new municipal facilities and at key locations throughout the multi-use pathway system.

Developer Requirements

13. In accordance with the Multi-use Pathways and Trails Master Plan all proposed developments shall include Primary and Secondary multi-use pathways and ‘associated’ facilities which contribute to the city wide network and provide local neighbourhood connections to this network. The City shall require the implementation of such facilities as part of the Developer-Build portion of new developments, prior to registration of subdivision.

Land Stewardship and Ownership

14. It is recognized that multi-use pathway routes located on private property will only be established and / or remain open with the approval of the property owner. Where critical missing links are needed to complete sections of the network and no public land exists the City shall consider other means of securing access such as land purchases, leases,
easements, rights-of-way, dedications and any other applicable means.

15. The City shall support and assist in the protection of abandoned rail lines, unopened road allowances, and other linear corridors for multi-use pathways. The City shall carefully consider the value that these corridors have in the development of a well connected multi-use pathway network. On a case-by-case basis, the City shall research, document and publicize the opportunities and constraints related to each unused road allowance, abandoned rail line and other linear corridor prior to making the decision to dispose of these lands or declaration of “no interest” in retaining them for multi-use pathway or other future transportation use. The City shall consider various means to protect and / or acquire such corridors.

Urban Design

16. Urban design policies, standards and guidelines shall include the planning and design objectives and requirements for the implementation of the multi-use pathway network within all developments.

Land Use

17. The multi-use pathway system shall be permitted in all land use designations.

18. The city shall ensure that wherever possible new and infill development will be accessible by the multi-use pathway network regardless of land use designation. This also includes areas of the city that may be in transition from one land use to another (e.g. from light industrial to commercial or institutional).

19. All Secondary Plans and new community plans shall incorporate multi-use pathways reflecting the intent of the Multi-use Pathway and Trails Master Plan. This implies appropriate links to surrounding neighbourhoods and a multi-use pathway network of facilities in the new community plan area that is consistent the multi-use pathway network character throughout the remainder of the city.

“Urban design policies, standards and guidelines shall include the planning and design objectives and requirements for the implementation of the multi-use pathway network within all developments.”
Recommendation 3-1: Develop a comprehensive set of Official Plan policies related to multi-use pathways and trails using the themes identified in the Multi-use Pathways and Trails Master Plan as a guide and integrate these in the current Official Plan Update for review and approval. (Existing Resources, 2012)

Recommendation 3-2: The Official Plan shall include a Schedule map for the Primary and Secondary multi-use pathway network as the framework for a comprehensive city wide network. It shall be read in conjunction with the Transportation Schedule map in the Official Plan. (Existing Resources, 2012)

Recommendation 3-3: Adjustments to the location and alignment of the Primary and Secondary multi-use pathways are part of the evolution of the network, and these changes will not require an Official Plan Amendment where conditions of location and alignment can be met and changes are justified by staff and approved by the Deputy CAO of Infrastructure Services. (Existing Resources, Ongoing)

3.2 MULTI-USE PATHWAYS IN NEW DEVELOPMENT AREAS

Multi-use pathways are an integral part of the urban fabric and are a key recreation and transportation asset. Growth in Kitchener includes both the development of new land areas around the periphery of the urban areas as well as the redevelopment of under-utilized lands within existing urban areas. In both cases, the planning of the pathway system is a critical component of the land development process. Developers should be expected to work through an iterative process with City staff, beginning early in the planning stages to create an appropriate pathway network within their development area that reflects the intent of the Multi-use Pathways Master Plan.

Many developers recognize the value of integrating multi-use pathways into their projects and often use them as a selling feature for their neighbourhoods. Providing the development community with information about the network, desired connections and design
expectations will help to improve communication among all parties involved. It is expected that proposals for new development (both greenfield and infill) will contain a network of multi-use pathways that reflect the density, variety, hierarchy and character that is consistent with the Multi-Use Pathways And Trails Master Plan. Proposed networks should provide pathways that overcome physical barriers, make appropriate connections to important destinations and enhance connectivity with the existing or planned system of multi-use pathways surrounding the development area; and pathways that are both sensitive to, and take advantage of, inherent qualities of the natural and cultural landscape features within the development area.

“A careful examination of a variety of factors including topography and drainage, slopes, soil conditions, plant and animal communities, microclimate and human comfort, historic/cultural resources, public education opportunities, significant views and vistas should be part of the process to integrate multi-use pathways in new developments.”

Ideally, in new development areas pathways should be constructed prior to or concurrently with the construction of other infrastructure and homes. When pathway construction / implementation is deferred until homes are built there can be conflict when residents adjacent to a planned pathway corridor claim that they were not aware of plans for construction even if this intention has been clearly indicated in municipal planning documents. Developers should be encouraged to be very pro-active about notifying prospective buyers where pathways are to be located at the time they are selling lots. Providing information at sales offices, including information in sales packages and erecting signs in locations where pathways are to be constructed may help to alleviate difficulties at a later date.

<table>
<thead>
<tr>
<th>Recommendation 3-4:</th>
<th>The following amendments to the Subdivision and Site Plan Development and Approvals process are required to implement the multi-use pathway network:</th>
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<td>a.</td>
<td>Draft Plan of Subdivision submission requirements shall be amended to include the requirement for a trail corridor</td>
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plan which identifies the park, open space or trail corridor blocks required to permit implementation of the required Primary and/or Secondary Multi-use Pathways within the Plan of Subdivision as identified in the Multi-use Pathway and Trails Master Plan and the Official Plan schedule, as well as connecting links to this network within the Plan of Subdivision.

b. The Subdivision Agreement shall include all requirements for Primary and/or Secondary Multi-use Pathway planning, design, engineering, details, permits and construction, including timing of completion.

c. Detailed design drawings and grading plans for all park and trail corridor blocks within the Approved Plan of Subdivision shall be prepared, submitted, reviewed and approved as a component of the grading and engineering infrastructure drawings submissions to the Development Engineering division.

d. Construction of all Primary and Secondary Multi-use Pathways within the Approved Plan of Subdivision shall be generally at the same time as other engineering infrastructure such as roads and grading. This includes all grading and granular base courses for trails. Surfacing shall be completed prior to registration of the subdivision.

e. The developer is required to provide adequate notice to all home purchasers of the proposal to construct multi-use pathways, including identification of pathway plans and cross sections displayed in sales offices and shall be noted in all agreements of purchase and sale when the multi-use pathway is proposed on lands immediately adjacent to the purchased lot.

(Existing Resources, 2012)

| Recommendation 3-5 | The Site Plan Review and Approvals process shall include the requirement for the identification and acquisition of the lands, through parkland acquisition or other method, required to implement the Primary and Secondary Multi-use Pathways identified in the Multi-use Pathways Master Plan. |
3.3 ONGOING PUBLIC PARTICIPATION AND CONSULTATION

3.3.1 Pathways in New Communities

Where pathways are planned for new communities/new development areas, no additional consultation is anticipated above and beyond what is being undertaken as part of what has been specified for the subdivision planning and approvals process related to the subject lands. As noted in Section 3.2 it is expected that developers will work through planning and approvals with City staff and approval agencies and the details of the pathway route(s) and their construction will take place as part of that process.

3.3.2 New Pathways In Established Neighbourhoods

It can be very challenging to upgrade existing pathways and implement new multi-use pathways in established neighbourhoods, even if the intent to do so has been clearly documented in strategic plans like the Multi-Use Pathways and Trails Master Plan and the proposed link is on public land behind or beside private properties. Even with extensive consultation at the master plan stage it can be difficult to obtain public opinion related to specific trail segments until a project reaches the implementation stage when adjacent land owners who perceive themselves as being directly affected become more concerned and involved. Real and perceived concerns over increased pedestrian traffic, access to rear yards, invasion of privacy, and a perception that there may be an increased potential for vandalism and theft are often cited as key concerns.

“One aspect of a program to overcome this challenge is to engage residents in an open, public consultation process in the earliest possible stages of the project.”

One aspect of a program to overcome this challenge is to engage residents in an open, public consultation process in the earliest possible stages of the project. In some cases, the most vocal opponent can become the greatest supporter if the process provides an effective avenue to address concerns. Some keys to
success include:

- Notifying adjacent landowners early in the process and taking the time to understand and respond to their concerns;
- Encouraging their participation in the design process through events such as local design workshops to determine trail layout, design, materials and privacy features, as well as site meetings to examine and refine proposed layouts;
- Emphasizing the benefits of multi-use pathways for their neighbourhood and community, including themselves and their children; and
- Emphasizing successful examples and effective solutions where similar problems were overcome.

Where new pathways are being implemented or significant improvements are being made to existing pathways within or nearby existing communities, differing levels of consultation may be required to advance the project through the detail design and implementation stages. The level of consultation / public notification required for individual projects will depend on the project location, design approvals required, scope/complexity, and whether the project is identified in the Multi-Use Pathways And Trails Master Plan or other planning policies such as the Official Plan or Secondary Plans etc.). A brief explanation of the potential levels of consultation is outlined below:
1. Notification of Construction

It is recommended that for pathway and trail projects that are located entirely on City land, that do not abut residential or commercial properties, have all necessary planning and design approvals in place and the project has been tendered for construction, that a public notification of the City's intention to proceed with construction should first be published on the City's website and in the City's "public notice" section of the local newspaper(s). This notification should briefly explain the project; note it was approved by Council through the Multi-use Pathways Master Plan and Implementation Strategy. The notification should identify the expected construction start and end dates and provide a contact name and number for questions. Although not included in the notification, it is suggested that the City wait for 30 days from the time of notification to commencement of construction activities in case questions arise and so as to give time for the City's project manager to respond to them.

If a significant issue or concern is raised by residents or area property owners, City staff, in consultation with the Ward Councilor, may select to schedule a local neighbourhood meeting. This process would use existing in-house resources.

2. Local Neighbourhood Meeting

A Ward Councilor and/or City staff may select to host a neighbourhood information meeting for a pathway project that has been approved through the Multi-Use Pathways And Trails Master Plan and is in the final design and approvals stage (not yet tendered), if the Local Councilor or City staff are of the opinion that additional consultation with the public is warranted to address comments received and/or to present the recommended pathway alignment and draft design details. This meeting may also serve to present proposed changes or solutions to the alignment or design from that was previously presented to area residents. This process would typically use existing in-house resources.

Outcomes of the meeting may include a number of directions, such as:

- Finalize and/or revise detailed design based on direction agreed to at the meeting, secure
outstanding approvals, tender project, issue notification of construction and proceed to construction;

- Revise design and report to area residents at a second neighbourhood meeting (see item 3 below); or

- Defer the project until City staff can have time to consult further with the Ward Councillor, area residents and/or report back to Council with a recommended planning / design solution for the project.

3. Focused Consultation as Part of Design Process

One outcome of the neighbourhood meeting (as described above) may be significant revisions to the design concept or pathway alignment. In this situation The City may select to undertake this work internally or secure the assistance of outside consultants. With these types of projects it is expected that one or more working meetings may be scheduled with the Ward Councillor and/or neighbourhood residents/stakeholders to identify, review and refine design changes. If, in the opinion of the Ward Councillor and/or City staff, there is consensus to proceed, then the design should be finalized, any approvals secured, project tendered, notification of construction issued and then the project constructed. If consensus is not apparent, City staff should be asked to report back to Council with a recommended course of action and request direction from Council.

4. Broad Consultation as Part of a Class Environmental Assessment or Similar Study Process

The development of pathways and trails does not normally require a Class Environmental Assessment (EA), however there may be situations where the City elects to conduct an Environmental Assessment, or features along a pathway or trail whereby an Environmental Assessment should be considered. These typical situations are outlined in the following sections.

Where pathways and trails are identified in the Multi-Use Pathways And Trails Master Plan and are part of an Environmental Assessment for other city infrastructure projects such as stream realignments, bridges and new roadways etc., then the multi-use pathway alignment and...
preliminary design must form an integral component of the EA. As part of the consultation process for the EA, options for the multi-use pathway alignment and design can be reviewed and evaluated, so that an integrated solution can be developed and that the pathway can be implemented as part of the construction of the larger project. Integration of the pathway at this stage ensures that it will be properly connected to surrounding facilities. Furthermore, significant cost efficiencies can be realized by implementing the pathway as part of the construction of the larger project. The consultation program for the EA will be tailored to meet the scale, location and range of issues anticipated for the proposed project.

3.3.3 Pathways and Environmental Assessment

In Ontario, the Municipal Engineers Association (MEA) Class Environmental Assessment Document (October 2000, as amended 2007) applies to municipal infrastructure projects including roads, water and wastewater projects. Recognizing projects undertaken by municipalities can vary in their environmental impact, such projects are classified in this Class EA in terms of schedules:

**Schedule A or A+**

- Generally includes normal or emergency agency operational and maintenance activities; and
- The environmental effects of these activities are usually minimal and, therefore, these projects are pre-approved.

**Schedule B**

- Generally includes improvements and minor expansions to existing facilities; and
- There is the potential for some adverse environmental impacts and therefore the proponent is required to proceed through a screening process including consultation with those who may be affected.

“In Ontario, the Municipal Engineers Association (MEA) Class Environmental Assessment Document (October 2000, as amended 2007) applies to municipal infrastructure projects including roads, water and wastewater projects.”
Schedule C

- Generally includes the construction of new facilities and major expansions to existing facilities; and
- These projects proceed through the environmental assessment planning process outlined in the Class EA.

Appendix 1-Project Schedules of the MEA Document also provides a more detailed classification of Environmental Assessment (EA) requirements in relation to project type and cost.

Pathway development is not normally subject to the EA process however projects related to some aspects of pathway development may. The following is a list of those categories that may bear some relationship to the projects outlined in Multi-Use Pathways and Trails Master Plan.

- Construction of multi-use pathways within existing rights-of way (pre-approved, no lower or upper financial limit, no EA required).
- Culvert repair and replacement where the capacity of the culvert is not increased beyond the minimum municipal standard or the capacity to adequately drain the area, whichever is greater and where there is no change in the drainage area. If culvert replacement and repairs do not result in an increased capacity and there is no change in the drainage area, an EA is not likely required.
- New water crossings to accommodate a connection to an existing or new pathway 'may' require a Schedule B Class EA if the total estimated construction value of the crossings is less than $2.7M. The City should first consult with the MOE and the
GRCA for trail projects that involve minor ‘water crossings’ (e.g. a drainage ditch) to determine whether a Schedule B Class EA is warranted.

- Reconstruction of water crossing where the reconstructed facility will be for the same purpose, use, capacity and at the same location, where capacity refers to the hydraulic capacity (pre-approved, no upper or lower financial limit).
- Reconstruction of a water crossing where the reconstructed facility will not be for the same purpose, use, capacity and at the same location, where capacity refers to the hydraulic capacity (Schedule B where the construction cost is less than $2.7M).

**Recommendation 3-6:** Where Primary or Secondary multi-use pathways are identified in the Multi-use Pathway Network and are within the study area of an Environmental Assessment (EA) for other infrastructure projects such as roads or stream courses, then the multi-use pathway shall form an integral component of these projects for review and implementation as part of that project. (Existing Resources, 2013)

**Recommendation 3-7:** Staff will review the suggested strategies for ongoing public participation related to implementing different types of multi-use pathway and trail development and prepare a process that is appropriate for the City of Kitchener. (Existing Resources, 2013)

### 3.3.4 Pathways and Environmentally Sensitive Areas

The Grand River Conservation Authority (GRCA) has an agreement with Fisheries and Oceans Canada (DFO) allowing them to review projects on behalf of DFO at the detailed design stage. Any proposed works within the riparian zones of watercourses and seasonally flooded lands must be reviewed for potential Harmful Alteration, Disruption or Destruction (HADD) of fish habitat under the Federal Fisheries Act. Section 32(1) of the Fisheries Act, which prohibits the Harmful Alteration, Disruption or Destruction of fish habitat, unless authorized by DFO. If in-stream works are required, the project may need
authorization from DFO. If in-stream works are not required and physical impacts on fish habitat can be mitigated by specific project design and construction procedures, then authorization from DFO would not be required, and the GRCA would provide a “Letter of Advice” on behalf of DFO. The Letter of Advice would outline specific mitigating measures that would have to be implemented to minimize potential impacts to fish and fish habitat. Excavation or placement of fill near waterways is subject to Ontario Regulation 150/06 – Development, Interference with Wetlands and Alterations to Shorelines and Watercourses, and a permit may be required from the GRCA.

In addition, for any project that is proposed on property owned or regulated by the GRCA, their approval will be required, and approval by the Ministry of Natural Resources (MNR) and the Ministry of Culture (MOC) may also be required, depending on the project location and context. For projects proposed on property owned or regulated by the GRCA, in whole or in part, GRCA should be consulted during the early stages of design as the approval process can take a significant amount of time. Following the completion of an EA, or if the file is deemed a Schedule ‘A’ Environmental Assessment, an Ontario Regulation 150/06 – Development, Interference with Wetlands and Alterations to Shorelines and Watercourses permit may be required from GRCA. Examples of regulated lands include wetlands, steep and erosive river valley slopes and floodplains.

The GRCA generally recommends that multi-use pathways in natural hazard and natural heritage features such as wetlands be avoided where possible, and if a pathway is proposed in a GRCA regulated area, that additional studies such as an Environmental Impact Study may be required to identify the natural features and appropriate buffers to those features prior to consideration of multi-use pathway development in those areas.

In addition to environmental lands regulated by agencies such as the GRCA, there are also significant woodlands and valleylands that are not regulated by agencies other than the City. Additional studies such as ecological inventories, site sensitivity mapping, stakeholder
3.4 MULTI-USE PATHWAYS AND DEVELOPMENT CHARGES

3.4.1 Multi-use Pathways and the Development Charges By-law

The Development Charge by-law for the City of Kitchener enables the City to collect a fee from a development proponent, based on a set amount per new development unit. These fees are used by the City to offset the cost of providing public infrastructure to meet the needs of the community as it grows. The Development Charges By-law for the City of Kitchener is not “area specific”, meaning that a portion of Development Charges collected for projects in a new neighbourhood can be used elsewhere in the City under certain circumstances. Development Charge funds can be applied to projects in other parts of the city provided that it can be clearly demonstrated that the project(s) are for new public infrastructure that is growth related. In many instances the owner (City) requires or negotiates with the developer to provide some of the infrastructure in their subdivision that would otherwise be implemented in the future by the City using Development Charge funds. In these instances it is not uncommon for the developer to seek a Development Charge credit related to the infrastructure provided.

Within the Development Charges By-law, trails and trail related projects are referenced specifically within section B.4 “Outdoor Recreation”. Within the Outdoor Recreation component of the by-law, trails are referenced as their own entity as well as development associated with parks. The document provides a list of existing trail facilities within the City as well as the cost associated for the development of such facilities. It also provides future dollar amounts for the remediation and repair of existing trails and pathways as well as the development of new pathways and trails.
Recommendation 3-8: Staff will review the Development Charges (DC) Bylaw to ensure that it includes sufficient language/clauses to enable the use of DC funds to build new, and improve existing Primary and Secondary multi-use pathways and trail facilities in locations where it can be demonstrated that the need is the result of city growth. (Existing Resources, 2014)

3.5 LAND ACQUISITION & SECUREMENT FOR MULTI-USE PATHWAYS

Although much of the recommended network lies on lands that are currently in public ownership there are some areas of the City where a trail connection is desired, yet there is no public land available at the present time. Some of these connections are located along natural heritage corridors (i.e. creeks and valleys) in land that is presently rural / agricultural. At some time in the future it is anticipated that many of these natural heritage areas will become part of the urban fabric and at that time these corridors would be set aside along with a suitable buffer. These corridors could accommodate multi-use pathways at that time.

There are a number of other locations throughout the City where the land has already been urbanized, yet a future pathway connection is desired and no public land exists. To realize the full build out of the network and complete the connections across these lands may require permission for access or a strategy to secure ownership. Some of these parcels have been identified in other planning policy documents. A range of strategies are available to accomplish this, from “handshake” access agreements to purchase of these lands by the City.

Each technique has its advantages and disadvantages with respect to ease of achieving an agreement, cost, and level of control that the City can exert. Since the conditions associated with each different parcel are unique, the range of techniques should be considered at the early stages of the process for an individual parcel so that an appropriate and effective technique can be tailored to individual situations. Appendix E provides details regarding various techniques.
| **Recommendation 3-9:** | Develop an acquisition strategy for the lands or corridors required for multi-use pathway routes on privately owned land, as illustrated in the recommended Network map and schedule using techniques as described in the Multi-use Pathways and Trails Master Plan. (Existing Resources, 2014) |
4.0 THE RECOMMENDED MULTI-USE PATHWAY NETWORK

This chapter describes the network development process, the guiding principles for route selection, highlights of the opportunities and challenges for multi-use pathway development throughout the city, and the recommended trails network. In addition, the chapter also outlines the recommended multi-use pathway and trail classification system. This chapter should be read in conjunction with Appendix A, The Multi-use Pathways Design Guidelines, which provides guidance on the development of multi-use pathways. To accompany this section of the Master Plan, Chapter 5 outlines the implementation schedule for the proposed network plan which has been developed along with proposed phasing and cost estimates for the network.

4.1 THE NETWORK DEVELOPMENT PROCESS

The proposed multi-use pathway network presented in this chapter, along with the process undertaken to develop it, was guided by the vision created for pathways throughout the City, the route selection principles as well as the following network development process.

1. Inventory of Existing Conditions: Using the City’s Geographic Information System (GIS) database, this step included a compilation of digital mapping and background documents for existing or previously planned across the city.

2. Develop Network Guiding Principles: Guiding Principles were established, which helped to translate the vision into the multi-use pathway classification system, and the design guidelines for the various types of facilities in different locations.

3. Consultation with the Project Steering Committee, Stakeholders and the Public: Extensive consultation was undertaken in order to receive feedback on the network vision, guiding principles, existing resources, user needs and potential routes.
4. Undertake Network Inventory and Analysis:
To develop and assess the proposed multi-use pathway network, the city’s high resolution aerial imagery was studied and this was followed by an extensive inventory and database development associated with the main pathways (currently referred to as Community Trails) throughout the city.

5. Recommend a Draft Network and Apply the Pathway Classification: Based on the Guiding Principles, results of the field investigation and consultation, a draft network was proposed, and Primary and Secondary network routes were suggested. Section 4-4 provides a detailed description of the recommended multi-use pathway and trail classification system.

6. Review and Consult with the Steering Committee, Stakeholder and Public:
Stakeholders, members of the Steering Committee and the public were consulted to gauge feedback on the recommended network and classification.

7. Develop the Phasing Plan: A detailed phasing plan for short, medium and long term projects were developed for the staged implementation of the network.

4.2 GUIDING PRINCIPLES FOR ROUTE SELECTION
Guiding principles help to define the character of the multi-use pathway system. These principles were important for defining the network during the study and are also useful in the future if/when network changes are proposed, new opportunities are identified and when individual network segments are entering into the detailed planning and design stage. The principles have been grouped around the nine themes described below.

Connected and Linked
Multi-use pathways should be connected to form a continuous, linked network within the city and seamlessly connected with neighbouring municipalities. Multi-use pathways should be linked to other...
modes of transportation such as cycling and public transit and they should provide access to important destinations and provide crossings of key barriers.

Off-road
Primary and Secondary multi-use pathways are routed through parks and open space outside of the road rights of way. Connections are made within rights-of-way only where open space options are unavailable.

Visible
Multi-use pathways should be a visible component of the city’s recreation and transportation system.

Convenient
Multi-use pathways should be easily accessible from all neighbourhoods within the city.

Accessible
To the extent that it is possible and practical, multi-use pathways will be designed to be accessible for those who require mobility aids. Signs will communicate the level of accessibility so users can make informed decisions about their use of specific pathways.

Sustainable and Well Designed
Sustainability will be a key consideration in the alignment, design and selection of materials for Kitchener’s multi-use pathways. Supportive facilities such as benches, garbage receptacles, information signs and bicycle parking should be available at multi-use pathway nodes and key destinations.

Responsive to Natural and Cultural Heritage and Context Sensitive
Multi-use pathways routes should provide opportunities for users to experience and learn about natural and cultural heritage assets. Multi-use pathways should be appropriately located when associated with natural heritage features. Each site’s
characteristics will be carefully considered when the alignment and design details are being developed.

**Diverse**
The multi-use pathway system should appeal to a range of user abilities and interests. As such the network should consist of a hierarchy of route types in a variety of locations throughout the city.

**Responsive to Safety Concerns**
Reducing risks to users and providing comfortable facilities creates user confidence and acceptance of the network can be instilled in users by reducing real and perceived risk. Public safety will not be compromised in the interest of minimizing the cost to develop or maintain Multi-use pathway routes.

**Cost-Effective**
The cost to implement and maintain the proposed multi-use pathway network facilities and supporting programs will be affordable and appropriately scaled for the City. To assist in offsetting costs, opportunities for partnerships with other agencies and organizations will be considered.

### 4.3 THE RECOMMENDED MULTI-USE PATHWAY NETWORK

The Multi-use Pathway network is presented in Figure 4-1. Table 4-1 provides additional clarification regarding the pathway and trail types listed in the legend for Figure 4-1.
Table 4-1: Network Map, Description of Legend items.
Note: Refer to Chapter 5 for details regarding responsibility for implementation

<table>
<thead>
<tr>
<th><strong>Primary Routes (Type 1)</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Existing Multi-use Pathway-Primary (Type 1)</strong></td>
<td>Existing link currently part of the “Community Trail” network, and recommended to be included as a Primary Multi-use Pathway. Upgrades required.</td>
</tr>
<tr>
<td><strong>Proposed Multi-use Pathway – Primary (Type 1)</strong></td>
<td>Future Primary Multi-use Pathway on lands currently owned or managed by the city</td>
</tr>
<tr>
<td><strong>Proposed Connection within Road Right-of-Way-Primary (Type 1)</strong></td>
<td>Future Primary Multi-use Pathway within a road right-of-way under the jurisdiction of the City or Region, depending on location. Facility Type in City Right-of-way = Cycle Track with parallel adjacent pedestrian facility, or In-boulevard Multi-use Pathway (in locations where criteria can be met). Design and implementation to follow recommendations from Kitchener’s Cycling for the 21st Century report, and implementation to be coordinated with Engineering Services. Facility Type in Regional Right-of-Way= Cycle Track with parallel adjacent pedestrian facility or In boulevard Multi-use Pathway (in locations where criteria can be met). Recommendation from the City of Kitchener Multi-use Pathway Master Plan and Implementation Strategy to be forwarded to the Region of Waterloo for consideration.</td>
</tr>
<tr>
<td><strong>Proposed Connection via On-Street Network – Primary (Type 1)</strong></td>
<td>Future Primary route using “Signed route” connection on street network. Pedestrians are directed to use the sidewalks where they exist and cyclists are directed to share the road with automobiles. Where sidewalks do not currently exist, they should be added in future. Signs with directional mapping at each end of the on-street link will be erected to provide users with clear illustration of route to next off-road pathway connection.</td>
</tr>
<tr>
<td><strong>Desired Connection Across Lands Currently in Private Ownership- Primary (Type 1)</strong></td>
<td>Future Primary Multi-use Pathway on lands that are currently not under city management or ownership. In some locations these lands represent key acquisitions or access agreement, in other locations these routes would be provided by developers through the land development process.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Secondary Routes (Type 2)</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Existing Multi-use Pathway-Secondary (Type 2)</strong></td>
<td>Existing link currently part of the “Community Trail” network, and recommended to be included as a Secondary Multi-use Pathway. Upgrades required on some segments</td>
</tr>
<tr>
<td><strong>Proposed Multi-use Pathway-Secondary (Type 2)</strong></td>
<td>Future Secondary Multi-use Pathway on lands currently owned or managed by the city</td>
</tr>
<tr>
<td>Proposed Connection within Road Right-of-Way - Secondary (Type 2)</td>
<td>Future Secondary Multi-use Pathway within a road right-of-way under the jurisdiction of the City or Region, depending on location. Facility Type in City Right-of-way = Cycle Track with parallel adjacent pedestrian facility, or In-boulevard Multi-use Pathway (in locations where criteria can be met). Design and implementation to follow recommendations from Kitchener’s Cycling for the 21st Century report, and implementation to be coordinated with Engineering Services. Facility Type in Regional Right-of-Way= Cycle Track with parallel adjacent pedestrian facility or In-boulevard Multi-use Pathway (in locations where criteria can be met). Recommendation from the City of Kitchener Multi-use Pathway Master Plan and Implementation Strategy to be forwarded to the Region of Waterloo for consideration.</td>
</tr>
<tr>
<td>Proposed Connection via on Street Network - Secondary (Type 2)</td>
<td>Future Secondary route using “Signed route” connection on street network. Pedestrians are directed to use the sidewalks where they exist and cyclists are directed to share the road with automobiles. Where sidewalks do not currently exist, they should be added in future. Signs with directional mapping at each end of the on-street link will be erected to provide users with clear illustration of route to next off-road pathway connection.</td>
</tr>
<tr>
<td>Desired Connection Across Lands Currently in Private Ownership - Secondary (Type 2)</td>
<td>Future Secondary Multi-use Pathway on lands that are currently not under city management or ownership. In some locations these lands represent key acquisitions or access agreement, in other locations these routes would be provided by developers through the land development process.</td>
</tr>
</tbody>
</table>

**Local Routes**

| Existing Park Trails | Existing Park Access Trails, Internal Park Trails and Hiking/Foot Trails in lands currently owned or managed by the City |

**Pathway Features**

| Existing Bridge | Pathway bridge in existence at the time the Multi-use Pathways and Trails Master Plan was completed |
| Proposed Bridge | Future Multi-use Pathway bridge required to complete the pathway network connection. Scale and design of bridge to be determined at the detail design stage |
| Crossing of Major Road Required | Future at grade Multi-use Pathway crossing of major roadway or railway. Refer to Appendix A for further information regarding possible crossing types for consideration. |
| Trail Directional Mapping | Location for future directional mapping at each end of an on-street link to provide users with clear illustration of route to next off-road pathway connection |
| Major Trailhead | Major trailhead in existence at the time the Multi-use Pathways and Trails Master Plan was completed. Refer to Appendix A for further information regarding elements of typical trailheads. |
| Minor Trailhead | Major trailhead in existence at the time the Multi-use Pathways and Trails Master Plan was completed. Refer to Appendix A for further information regarding elements of typical trailheads |
| Possible Future Major Trailhead | Potential location for future trailhead. Refer to Appendix A for further information regarding typical trailhead design elements |
Some of the key features of the recommended multi-use pathway network include the following:

**Primary (Type 1)**
- A central north-south spine utilizing the Iron Horse Trail and pathway route along Schneider Creek and linking with the Trans Canada Trail
- Two north-south spines in the west central part of the city including one which follows a portion of the Borden Greenway and one that follows the majority of the hydro corridor in the west and south-west parts of the city, much of this being in lands that will be developed into new neighbourhoods in the future
- Two north-south spines in the east part of the city, one which follows Montgomery Creek and the Kolb Drain, and a corridor running south from Stanley Park, through Idlewood Park, past Chicopee Park, to the Grand River, then south to the Pioneer Tower area to the pedestrian/trail bridge over Highway 401
- An east-west spine north of Highland Rd. West, following the Henry Sturm Greenway and the hydro corridor along Victoria St
- An east-west spine in the central part of the city building upon sections of pathway that have been developed in the hydro corridor between Block Line Road and Ottawa Street between the Sunrise Centre near Highway 7/8 and Fischer Hallman Road, through McLennan Park and connecting to the future Trans Canada Trail just to the north of Balzer Road
- A new multi-use pathway bridge crossing of Highway 7/8 approximately 250m west of the Sunrise Centre
- An east-west spine near the southern city boundary in lands that will be developed into new neighbourhoods in the future, and a connection to the central north-south spine using the former Groh, Stauffer and Tilt Drive road rights-of-way and an on-street connection along Doon Village Drive

**Secondary (Type 2)** connections to the Primary network and to local multi-use pathways and trails such as:
- A portion of the Henry Sturm Greenway west of Westforest Trail and Monarch Woods
- A route along the Sandrock Greenway to the east of West Heights Drive
- A north-south link through McLennan Park Steckle Woods and Budd Park
- A connection from the proposed Primary path west of Bleams Road and Fischer Hallman Road through portions of the Huron Natural Area, along Strasburg Creek and through Doon Creek Natural Area and Topper Woods
- The Walter Bean Grand River Trail from the Waterloo boundary to south of Chicopee Park where it becomes part of the Primary network, and again south of Highway 8 where the Primary route departs and heads toward the Pioneer Tower area
• Routes in the Hidden Valley area
• A route along Trillium Drive linking the Huron Natural Area with McLennan Park
• An on-street route along Cedar and Krug connecting the central Primary spine (Iron Horse Trail) from the downtown core to the north end of Stanley Park
• A route through downtown along Water Street to the Waterloo Spurline Trail at Breithaupt Street and Ahrens Street West.

<table>
<thead>
<tr>
<th>Recommendation 4-1:</th>
<th>Adopt the Multi-use Pathway Network Plan as illustrated in the Multi-use Pathways and Trails Master Plan and Official Plan schedule as a blueprint for the development of a comprehensive multi-use pathway network in Kitchener. (Existing Resources, 2012)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommendation 4-2:</td>
<td>The route selection principles described in the Multi-use Pathways and Trails Master Plan shall be considered when future network changes are being explored, new network opportunities are identified, and when individual routes are entering into the detailed planning and design stage of implementation. (Existing Resources, 2012)</td>
</tr>
<tr>
<td>Recommendation 4-3</td>
<td>Recognize that adjustments to the approved Network Plan will occur from time to time and that this is consistent with the goal of ensuring the network plan is flexible and can respond to changes and new opportunities. Approval required as per Recommendation 3-3. (Existing Resources, 2012)</td>
</tr>
</tbody>
</table>
4.4 MULTI-USE PATHWAY AND TRAIL TYPES

There are five different types of multi-use pathway and trail types proposed in the network hierarchy.

Figure 4-2 Network Hierarchy Schematic

Figure 4-2 provides a schematic illustration of the hierarchy and relationship between the different types. Each of these has been developed based on existing industry standards, understanding of the existing conditions and geography of the city as well as opportunities and challenges identified to the study team.

In areas where environmental features are present special consideration will need to be made for consultation with various agencies during the design and approval process. This consultation may involve the evaluation of different route alignments, widths and surface types and may also require a longer design schedule to allow time for the exploration of alternatives. For example a narrower elevated boardwalk may be the most appropriate design solution in a moist meadow environment and this may involve the review of different footing alternatives including poured-in-place Sonotube footings versus helical piles.

ACCESSIBILITY

Section A.4 in Appendix A includes a detailed discussion about accessibility on pathways and trails and how this relates to the Accessibility for Ontarians with Disabilities Act (AODA, 2005). In addition to the process that is currently underway by
the Ministry of Community and Social Services, Section A-4 also summarizes a number of key criteria that need to be met in making pathways and trails accessible.

In Kitchener, not all pathways and trails will be designed to be accessible however Primary/Type 1 Pathways will be designed to meet minimum accessibility requirements for longitudinal and cross slope, and surface stability and Secondary/Type 2 Pathways and will be designed to meet accessibility requirements where it is possible and practical. It is important to ensure that signage and mapping/messaging clearly communicates which pathways are accessible so that users can make an informed personal decision about which pathways they will use.

**PRIMARY MULTI-USE PATHWAY-TYPE 1 (FIGURE 4-3)**

- Hard surface (asphalt or concrete)
- 4-season maintenance
- Example- Iron Horse/Trans Canada Trail

**Description and Connectivity**

Primary Multi-use Pathways perform a City-wide function and are important transportation / commuter routes connecting communities, neighbourhoods, parks, community facilities, commercial sites, institutions and residential areas. They provide a 4-season transportation corridor with opportunities for direct and continuous movement in east-west and north-south directions throughout the city, and provide access to major destinations throughout the city and connections to surrounding municipalities. These facilities include school routes and connections to transit hubs as well as transit related facilities.

**Location**

Primary Multi-use Pathways are located outside of the road right-of-way in continuous linear corridors. In some locations linear utility corridors create ideal opportunities, however where these opportunities are not present a continuous off-road linear corridor outside of the road right-of-way shall be created as part of the community planning process. To maintain route continuity, crossings of barriers such as major roadways, railways and waterways shall be considered in the early planning stages to identify locations where a minor realignment of the corridor is necessary to accommodate an appropriate crossing. Where alignment adjustments are required the off-road corridor outside of the road right-of-way shall be maintained wherever
It is possible, however it is acceptable to have short sections within a road right-of-way provided that the pathway is physically separated from motor vehicle traffic (i.e. boulevard multi-use pathway). It is recognized that in special circumstances, particularly in developed neighbourhoods it may be necessary to divert short segments of the Primary Multi-use Pathway onto the road with a cycle-track or bike lane accompanied by a sidewalk. Diversion onto the road will not be permitted in new development areas.

**Design Characteristics**

The Primary Multi-use Pathway is a minimum of 3.0m in width and hard-surfaced with asphalt or concrete. The Primary multi-use pathway shall be designed to meet or exceed minimum accessibility requirements and will be maintained for year-round walking, cycling, transportation and recreational use. Typically they are designed to the highest standards relative to other pathway and trail types in the hierarchy to accommodate high volumes of use, destination oriented traffic, widest range of use abilities and important links to major community facilities. Through the development of the Primary multi-use pathways, year-round connections are developed between areas of housing, employment, transit, commercial services, retail, community facilities and other destinations. In general, a Primary multi-use pathway supports pedestrian convenience and walkability and a range of active transportation opportunities. Lighting may be considered in the future for Primary Multi-use Pathways where use/demand is high, for example along frequently used commuter routes.
Figure 4-3: Primary Multi-use Pathway (Type 1)

**Pathway Clear Zone**
- Horizontal clear zone 0.6m where achievable
- All obstructions and obstacles to be located outside of horizontal clear zone
- Vertical clear zone 3.0m minimum where achievable

**Pathway Rest Area**
- At 500m intervals along pathway (approximately)
- Include bench/seat opportunity, resting space for wheelchair with rear curb stop
- May include trash receptacles and/or bicycle parking
- All amenities located outside of pathway clear zone

**Pathway Surface**
- 3.0m minimum
- Hard surface
- Meets or exceeds minimum accessibility requirements
- Supports maintenance vehicles
- 100mm wide painted yellow centre line (optional—consider for high use areas)
- Centre crown of cross slope (2% minimum, 5% maximum)
- Longitudinal slope 5% maximum
- Minimum curve radius 15.0m

**Primary Multi-Use Pathway (Type 1)**
- Hard Surface (eg: asphalt, concrete, boardwalk)
- 4-Season Maintenance
- City wide function/city pathway route
- Important transportation function
- Meets or exceeds minimum accessibility requirements
- Lighting in areas where use/demand is high
SECONDARY MULTI-USE PATHWAY – TYPE 2 (FIGURE 4-4)

- Variable surface (granular/gravel or hard surface/asphalt/concrete)
- 3-season maintenance
- Example- Walter Bean Grand River Trail

Description and Connectivity
The Secondary Multi-use Pathway performs a city wide function and is available as a transportation route during the spring, summer and fall seasons. They are also used to provide additional connections to local municipalities, neighbourhoods, parks, community facilities, natural areas, schools and conservation areas. Secondary Location
Secondary Multi-use Pathways are located outside of the road right-of-way in continuous linear corridors that are created as part of the community planning process. To maintain route continuity, crossings of barriers such as major roadways, railways and waterways shall be considered in the early planning stages to identify locations where a minor realignment of the corridor is necessary to accommodate an appropriate crossing. In some locations, particularly developed neighbourhoods it will be necessary to make short connections between off-road segments by utilizing on-road connections. On-road connections may be by way of bicycle lanes or cycle tracks with sidewalks for pedestrians or in-boulevard multi-use pathways where design criteria can be met. On lower volume roads such as residential streets these connections can be made with sidewalks for pedestrians and shared space for cyclists (i.e. signed route or signed route with Sharrow markings on the roadway). In new development areas diversion onto the road will only be permitted in exceptional circumstances.

Design Characteristics
The Secondary multi-use pathway is typically 3.0 m in width as a minimum and is constructed with a compacted granular surface (e.g. stonedust). In some locations it may be hard surfaced (e.g. asphalt or concrete) or boardwalk to respond to site conditions. These facilities are designed to meet minimum accessibility requirements where practical and feasible. Where this is not possible they are appropriately. Designed for a moderate to high volume of use and wide range of users, the Secondary Multi-use pathway serves a 3-season transportation function and year-round recreation function.
Figure 4-4: Secondary Multi-use Pathway (Type 2)

Pathway Clear Zone
- Horizontal clear zone 0.6m
- All obstructions and obstacles to be located outside of horizontal clear zone
- Vertical clear zone 3.6m minimum where achievable

Pathway Rest Area
- At 500m-1000m intervals along pathway (approximately), higher density in heavily used areas, near
  seniors' centres, day cares etc.
- Include bench/seating opportunity,
- Resting space for wheelchair with near curb stop where pathways have been designed to be
  accessible
- May include trash receptacle and/or bicycle parking
- All amenities located outside of pathway clear zone

Pathway Surface
- 3.0m minimum
- Hard surface or granular surface
- Meets minimum accessibility requirements wherever possible and practical
- Supports maintenance vehciles
- Centre crown of cross slope (0% minimum, 5% maximum)
- Longitudinal slope 5% maximum for accessible pathways, otherwise maximum 10% over short distances (i.e. 150m) with
  pathway hardening to control erosion, pathway structures required where longitudinal slopes exceed 10%
- Minimum curve radius 15.0m

Secondary Multi-Use Pathway (Type 2)
- Variable surface (eg. hard surface or firmly packed granular surface)
- 3-season maintenance (4-season maintenance for school routes)
- City-wide function/spine pathway route
- Connects to Primary Multi-use Pathway Network
- Meets minimum accessibility requirements whenever possible and practical
- Lighting may be considered where use/demand is high
PARK ACCESS TRAIL-TYPE 3 (FIGURE 4-5)

- Generally hard surface, may be compacted granular surface
- 3-season maintenance

Description and Connectivity

Park Access Trails are local routes within city-owned parkland between points of interest and facilities within neighbourhood parks. These trails can also function as a main route to features such as playgrounds and washrooms in local parks as well as maintenance access routes. In some cases Local Park Access Trails may include school routes, isolated loops or solitary pathway segments.

Design Characteristics

Park Access Trails are typically 3.0 m in width as a minimum and is constructed with a compacted granular surface (e.g. stonedust) or hard surface (asphalt, concrete, boardwalk). Where they are the main connection to the main features in a park (e.g. playground, splash pad etc.), they are designed to be universally accessible. Otherwise they are designed to be accessible where possible and they will be appropriately signed to enable users to make an informed decision about whether or not to use the pathway.

“Local Park Access Trails are local routes within city-owned parkland between points of interest and facilities within neighbourhood parks. These trails can also function as a main route to features such as playgrounds in local parks as well as maintenance access routes.”
Figure 4-5: Park Access Trail (Type 3)

- Typically hard surface, may also be firmly packed granular surface
- 3-Season Maintenance
- May or may not be connected to a Primary or Secondary Multi-Use Pathway. May also be an isolated loop or link
- Typically main entrance into a park or main access to park facilities (e.g., playground or splash pad), therefore meets or exceeds minimum accessibility requirements
- Lighting may be considered (as dictated by park design)
INTERNAL PARK TRAIL – TYPE 4 (FIGURE 4-6)
- Variable surface (granular/gravel or hard surface/asphalt/concrete)
- 3-season maintenance

Description and Connectivity

Local Park Trails are local routes within the City’s parkland system which include isolated loops or solitary pathway segments.

Design Characteristics

Internal Park Trails are typically 1.5 to 3.0 m in width depending on their location. Design standards that are appropriate for the location, volume of use and scale / context of the surrounding area are considered to determine the width of the pathway on a site specific basis to reduce unnecessary construction impacts.

Trails which may be hard surface or gravel which provide a variety of trails within parks and natural areas and serve as secondary or alternate routes not required for accessibility to specific recreational facilities.
Figure 4-6: Internal Park Trail (Type 4)

- **Pathway Clear Zone**
  - Horizontal clear zone 0.8m
  - All obstructions and obstacles to be located outside of horizontal clear zone
  - Vertical clear zone 3.0m minimum where achievable

- **Pathway Sign**
  - Edge of sign board outside of pathway clear zone

- **Pathway Surface**
  - 1.5 to 3.0m (typical)
  - Granular or hard surface
  - Meets minimum accessibility requirements where possible and practical
  - Centre crown of cross slope (2% minimum, 5% maximum)
  - Longitudinal slope 5% maximum
  - Curve radius as dictated by park design
  - Longitudinal slope 6% maximum for accessible pathways, otherwise maximum 10% over short distances (i.e. 100m) with pathway hardening to control erosion, pathway structures required where longitudinal slopes exceed 15%
  - May include lighting, as dictated by park design

**Internal Park Trail (Type 4)**
- Variable surface (e.g., may be hard surface or firmly packed granular surface)
- 3-season maintenance, may include 4-season maintenance for school routes
- May or may not be connected to a Primary or Secondary Multi-use Pathway, may also be an isolated loop or link
- Meets minimum accessibility requirements where possible and practical
- Lighting may be considered (as dictated by park design)
HIKING / FOOT TRAIL – TYPE 5 (FIGURE 4-7)

- Natural Or Granular Surface
- Minimal Maintenance

Description and Connectivity

Hiking / Foot Trails are routes that were not planned or designed by the City but have evolved from use (i.e. a desire line between two locations) or that have been created by a group such as a hiking club that has an established arrangement with the city where the trail is on public land, or with the land owner where the trail is located on private land.

Design Characteristics

Hiking/Foot Trails are typically 0.75 to 1.5 m in width and have a natural earth surface. In some locations, however, they may include a granular surface or a boardwalk. The trails provide limited access, with no special accommodations made for specific user groups (e.g. bicycles, strollers, mobility-assisted devices).

Trails which may have a gravel surface, other improvements or be simply worn paths through frequency of use by the public through parks and natural areas.

“Hiking/Foot Trails are typically 0.75 to 1.5 m in width and have a natural earth surface. In some locations, however, they may include a granular surface or a boardwalk.”
Figure 4-7: Hiking/Foot Trail (Type 5)

- **Pathway Clear Zone**
  - Horizontal clear zone 0.3m where achievable
  - All obstructions and obstacles to be located outside of horizontal clear zone
  - Vertical clear zone 3.0m minimum where achievable

- **Pathway Sign**
  - Edge of sign board outside of pathway clear zone

- **Pathway Surface**
  - 0.75 to 1.5m (typical)
  - Granular or natural earth surface
  - Cross slope 5% maximum where achievable, responds to topography
  - Longitudinal slope varies, generally closely following surrounding topography
  - Consider structures where longitudinal slopes exceed 15%, alternatively move trail route to another location

**Hiking/Foot Trail (Type 5)**
- Variable surface (eg. natural earth surface, granular surface, etc.)
- Minimal maintenance (as dictated by natural area management plan for the location)
- Local function, often in woodlots and natural areas, may or may not be connected to Primary or Secondary Multi-Use Pathways
- Typically does not meet minimum accessibility requirements
- Often has evolved through use (i.e. not initially planned or designed by the City)
In addition, the slope of the trail type can vary depending on the existing slopes of natural ground. In these cases, the topography is generally not altered and if minor alterations are required they are completed to accommodate the alignment. Uses are often limited by the nature of the trail alignment, width and surface type.

Even though they have not been planned or designed by the City, the City may be responsible for management and maintenance where these trails lie on public lands. In some locations such as Monarch Woods, Steckle Woods and The Huron Natural Area, a vast network of foot trails has developed over time. Although it may be desirable to keep some of the routes open for use, others should be closed and rehabilitated. This will be determined on a site by site basis based on site specific management plans undertaken by the City.

### 4.4.1 Pathway Lighting

Lighting the entire multi-use pathway network is not recommended, however there may be some locations along Primary Multi-use Pathways where lighting may be appropriate. The decision whether or not to light segments of the multi-use pathway network should be made on a location-specific basis.

Very few municipalities make the decision to light their entire trail system for a number of important reasons, including:

- The cost of initial installation can be prohibitive. General budget figures range from $130,000 to $160,000 per kilometer including cabling, transformers, power supply and fixtures;
- Staff time and material cost to properly monitor, maintain lamp fixtures and replace broken and burned out bulbs on an ongoing basis;
- A tendency for vandals to target light bulbs;
- Energy consumption;
- Excessive light pollution, especially in residential rear yards and adjacent to natural areas (though this can be controlled with proper shielding);
- Potential detrimental effects on flora and fauna, especially with light pollution in natural areas such as woodlands;
• The potentially false sense of personal security created by lighting in the nighttime environment and the inability of the human eye to adapt to the high contrast resulting from brightly lit and dark shadowed areas adjacent one another.

Some criteria for pathway lighting include:

• Main connections to important attractions such major parks;
• Heavily used commuter routes (anecdotal information on volume of use supported by user counts);
• Key school routes; and
• Numerous requests for lighting, supported by similar results through public consultation.

Where it has been determined that lighting is appropriate, the quality and intensity of lighting should be consistent with prevailing standards that fit the setting being considered.

| Recommendation 4-4: | Staff shall examine in detail, in consultation with the public, the requirements for lighting on Primary Multi-use Pathways and prepare a report detailing the criteria necessary to meet requirements for lighting on these routes and detailed recommendations and priorities for its implementation, including costing and proposed phasing. |}

(Existing Resources, 2013)

4.4.2 Relationship to the Cycling Master Plan

“Where there is no opportunity to complete pathway links outside of the road right-of-way, options to do so within the road right of way should be explored so that the connectivity of the network can be maintained.”

Where there is no opportunity to complete pathway links outside of the road right-of-way, options to do so within the road right of way should be explored so that the connectivity of the network can be maintained. As part of the study process the recommended cycling network in the City’s Cycling Master Plan for the 21st Century was overlaid with the proposed off-road routes being considered as part of the
Multi-Use Pathways and Trails Master Plan. Where on-road connecting links are proposed for the Multi-Use Pathways and Trails Master Plan, they are consistent with routes in the Cycling Master Plan for the 21st Century. Connecting links within the road-right of way may take a number of different forms depending on their location and the character of the right-of-way.

**Figure 4-8** provides an illustration of an Active Transportation Network for Kitchener. This illustration combines off-road Primary and Secondary Multi-use Pathways from the Multi-use Pathways and Trails Master Plan with cycling routes from the City Cycling Master Plan and Region of Waterloo Cycling Master Plan. This integrated and connected network is comprehensive, serving all neighbourhoods across the city and giving residents access to viable active transportation routes options depending on their destination and level of ability.

The Primary and Secondary pathways recommended in the Pathways and Trails Master Plan complement routes in the recommended network of the City’s Cycling Master Plan for the 21st Century. This complementarity is illustrated through the following:

- The City Cycling Plan has a strong focus on on-road routes but also includes off-road links that are deemed critical to an overall cycling network in Kitchener, whereas the main focus of the Multi-use Pathways and Trails Master Plan is an off-road network of pathways and trails located outside of road rights-of-way.

- All of the critical off-road links in the City Cycling Plan are included as Primary or Secondary pathways in the Multi-use Pathways and Trails Master Plan with the exception of some minor neighbourhood spurs identified in the Cycling Master Plan that are directly connected to Primary or Secondary routes.

- The “Priority Network” illustrated in the Cycling Master Plan is described as those routes intended to be implemented over the next few years, consisting of cycling improvements that are relatively easy to implement yet important in providing connections to key destinations, filling in important gaps in the cycling network.

- There are 5 locations in the city where the Cycling Master Plan’s Priority Network is off-street and outside of the road right-of-way. All 5 of these locations are part of the Pathways and Trails Master Plan and all 5 of these are Primary pathways.
Regarding implementation, all 5 of these locations are part of the 0-5 year or 6-10 year timeframe in the Pathways and Trails Master Plan.

- In all but 16 locations the recommended on-street connections in the Multi-use Pathways and Trails Master Plan are consistent with on-road cycling routes in the City Cycling Plan network.

- None of these 16 links are greater than 600m long and they all make important connections between sections of the Primary or Secondary Multi-use Pathway routes where no off-street options exist.

- All but one of these links are located on low volume streets therefore where pedestrians can use sidewalks and cyclists can share the road (i.e. no cycling infrastructure is required. The aggregate total of these links is just over 5km.

Further detail regarding these 16 links can be found in Figure 4-9 and Table 4-2. Implementation of on-street links would follow recommendations of the Cycling Master Plan, and these additional 16 links would be forwarded to the Transportation Planning Division for consideration as part of a future update of the Cycling Master Plan.
Figure 4-9: Proposed Links in the Multi-use Pathway Network not included in the Cycling Master Plan
Table 4-2: Proposed Links in the Multi-use Pathway Network not included in the Cycling Master Plan

<table>
<thead>
<tr>
<th>Location</th>
<th>Description</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pinnacle Drive from trail to New Dundee Road</td>
<td>570m</td>
</tr>
<tr>
<td>2</td>
<td>Robert Ferrie Drive from Topper Woods to New Dundee Road</td>
<td>500m</td>
</tr>
<tr>
<td>3</td>
<td>Appleridge Drive from Oakdale to Doon Village Rd</td>
<td>100m</td>
</tr>
<tr>
<td>4</td>
<td>Balzer Road from Railway to Courtland, Courtland from Balzer Road to Manitou Drive</td>
<td>480m</td>
</tr>
<tr>
<td>5</td>
<td>Mcbrine Drive from Trillium Drive to future Huron Natural Area trail entrance</td>
<td>350m</td>
</tr>
<tr>
<td>6</td>
<td>Dinison Cres and Williamsburg Road from trail to trail</td>
<td>450m</td>
</tr>
<tr>
<td>7</td>
<td>Westmount Road from Ottawa Street to trail</td>
<td>340m</td>
</tr>
<tr>
<td>8</td>
<td>Lorilee Crescent from Westheights Drive to trail</td>
<td>320m</td>
</tr>
<tr>
<td>9</td>
<td>Sleepy Hollow Court from trail to Westforest Trail</td>
<td>140m</td>
</tr>
<tr>
<td>10</td>
<td>Lang Crescent and Leander Place from open space to Expressway</td>
<td>480m</td>
</tr>
<tr>
<td>11</td>
<td>Shirk Place from Lancaster Street West to open space</td>
<td>180m</td>
</tr>
<tr>
<td>12</td>
<td>Otterbein Road from trail to trail</td>
<td>320m</td>
</tr>
<tr>
<td>13</td>
<td>Ebydale Drive from Lackner Blvd to trail</td>
<td>170m</td>
</tr>
<tr>
<td>14</td>
<td>Wilfred Avenue and Ross Avenue from Kenneth Avenue to trail</td>
<td>420m</td>
</tr>
<tr>
<td>15</td>
<td>Morgan Avenue from trail to park</td>
<td>420m</td>
</tr>
<tr>
<td>16</td>
<td>Bankside Drive from trail to Westforest Trail</td>
<td>60m</td>
</tr>
<tr>
<td></td>
<td><strong>Total Length</strong></td>
<td><strong>5300m</strong></td>
</tr>
</tbody>
</table>

Images of typical on-road facility types are illustrated in Figure 4-10. The application of these facility types is directly related to the character of the road right-of-way. For further reference regarding the selection of an appropriate facility type the design criteria and guidelines described in the City’s Cycling Master Plan for the 21st Century should be consulted.
Figure 4-10: Typical On-road Facility Types

Signed Bicycle Route
Cyclists share roadway space with motorist and pedestrian users (pedestrians, skateboarders, in-line skaters, wheelchair users etc.) are directed to use the sidewalk (Photo Location Ottawa, ON. MMM Group).

Bike Lane
Cyclists use a dedicated facility constructed below the curb and pedestrian users (pedestrians, skateboarders, in-line skaters, wheelchair users etc.) are directed to use the sidewalk. (Photo Location Guelph, ON. MMM Group)

In-boulevard Multi-use Pathway
All users are directed to use a dedicated multi-use pathway that is constructed in the boulevard, between the back side of the curb and the limit of the right-of-way. (Photo location Milton, ON. MMM Group)

Cycle Track
Cyclists use a dedicated facility constructed above or below the curb and pedestrian users (pedestrians, skateboarders, in-line skaters, wheelchair users etc.) are directed to use the sidewalk. (Photo Location Montreal QC)
`

As noted in the City’s Cycling Master Plan for the 21st Century, In-boulevard multi-use
pathways should only be applied under the following conditions;

a) on Primary or

Secondary roads where there is ample space between the edge of the road and limit of
the right-of –way so that an appropriate setback (i.e. grassed or landscape) can be
maintained along the length of the route; b) along corridors where there are limited
commercial or residential driveways and/or street intersections (i.e. spacing between
driveways/intersections of at least 300m).
Where proposed multi-use pathway routes intersect with on–road connecting links,
signs should be erected which clearly show the alignment of the connecting link and
the location of the corresponding off-road pathway at and opposite end of the
connecting link.
Recommendation 4-5:

The design standards and guidelines prepared as part of
the Multi-use Pathways and Trails Master Plan are the
guiding document regarding the construction of multi-use
pathways and trails in the City and are intended to inform
and support the details provided in other documents used
for implementation such as the Development Manual or
Urban Design Standards and Guidelines.
(Existing Resources, 2013)

Recommendation 4-6:

All new standard details and implementation process
revisions for the subdivision and site development process
shall be reviewed and updated through the Development
Manual review process at its next scheduled update.
(Existing Resources, 2015)

Recommendation 4-7:

Staff responsible for the design and construction of multiuse pathways and trails shall remain current with best
industry design practices.
(Existing Resources, Ongoing)

4.4.3 Relationship to the Parks Strategic Plan
The Parks Strategic Plan provided over-arching recommendations regarding trails
which have been clarified and detailed in this master plan. This includes the
development of a trail classification system which included ‘Transportation’ and
‘Recreation’ categories. The Primary and Secondary multi-use pathways included in

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the recommended network are consistent with recommendations in the Parks Strategic Plan and form the city-wide ‘Transportation’ network. Several categories of ‘Recreation’ trails have also been included.

Table 4-3: Relationship between the Parks Strategic Plan and the Multi-use Pathways Master Plan.

<table>
<thead>
<tr>
<th>Parks Strategic Plan</th>
<th>Multi-use Pathways Master Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parkland Classification Trails</td>
<td>Vision Multi-use Pathways</td>
</tr>
<tr>
<td>“Off road pedestrian corridors providing opportunities for a range of recreational activities and active transportation routes connecting various destinations.”</td>
<td>“Multiuse pathways form the primary, continuous off-road walking and cycling network that provides residents of all ages and abilities the means to travel easily and safely throughout their neighbourhood, across the city and to neighbouring municipalities and offer year-round opportunities for active recreation and active transportation.”</td>
</tr>
</tbody>
</table>

2.1 Trails Master Plan Update: Prepare a detailed strategy for the implementation of community trails

2.1.1 Update trails inventory and confirm trails classification system based on the “Type 1 – Transportation” and “Type 2 – Recreation” categories, defining subtypes, surfacing, width, locations, level of maintenance, uses and other parameters.

Type 1 – Transportation
1. Primary
2. Secondary

Type 2 – Recreation
3. Park Access Trails
4. Local Park Trails
5. Hiking/Foot Trails

2.1.2 Identify required linkages to resolve existing gaps in the trail system and for new trail development, including a land acquisition strategy aligned with the Natural Areas and Grand River corridor land acquisition.

Proposed network of Primary and Secondary multi-use pathways identified, including required links and on street connections.

Key corridors requiring land acquisition identified.

2.1.3 Recommend trail improvements (retrofit/upgrade of existing trails) and supports (staging areas/trail head locations, etc.).

Retrofit and upgrade to Primary and Secondary multi-use pathway standards for city-wide active transportation.
### Parks Strategic Plan

<table>
<thead>
<tr>
<th>2.1.4 Develop standard design details, signage/way-finding, accessibility requirements.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary and Secondary multi-use pathways are clearly detailed to meet specified accessibility requirements. Signage and way-finding identified as required elements of a useable pathway.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2.1.5 Develop a phasing plan and cost estimates for trail projects.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phasing plan clearly illustrated in mapping and suggested capital funding.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2.1.6 Assess partnership and funding opportunities for trail development, improvements and upkeep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master plan includes recommendations for further exploration of funding partnerships.</td>
</tr>
</tbody>
</table>

### Multi-use Pathways Master Plan

<table>
<thead>
<tr>
<th>2.2 Trail Inventory and Asset Management: Develop a Trail Asset Management Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master plan includes specific recommendations related to asset management. The Master Plan study includes a detailed inventory and GIS mapping of the trail network which will provide the basis for effective maintenance programs and tracking through the work order system. Specific resources for its implementation identified.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2.2.2 Develop and implement a tracking system for trail development and maintenance activities/events, comments and concerns from the public/trail users, safety and risk management methods, monitoring and enforcement data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master plan identifies the need to relate work in the field, public/user observations and concerns and ongoing GIS mapping of the network as it is expanded, improved, repaired and maintained.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2.2.3 Inventory route terrain, surface, length, difficulty and associated amenities (benches, trail markers, bridges, signposts, maps, etc).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventory completed for all existing main trail routes as part of master plan with all data recorded within accurate and upgraded GIS mapping including surface conditions, slopes over 5%, culverts, drainage issues, benches, signage and other features.</td>
</tr>
</tbody>
</table>
### Parks Strategic Plan vs. Multi-use Pathways Master Plan

<table>
<thead>
<tr>
<th>Parks Strategic Plan</th>
<th>Multi-use Pathways Master Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.2.4 Identify sufficient operating budget to carry out recommended management activities and required operational maintenance.</td>
<td>Required operations budgets identified including the need to address ‘life-cycle’ costs, reconstruction and increases required as the network expands. Resources identified to accurately track field work and ongoing GIS mapping inventory.</td>
</tr>
<tr>
<td><strong>2.3 Trails System Development:</strong></td>
<td><strong>Implementation and Phasing Plan</strong></td>
</tr>
<tr>
<td><em>Continue to implement the Trails Master Plan</em></td>
<td></td>
</tr>
<tr>
<td>2.3.1 Ensure required trail corridors are included in plans of subdivision and new trails are designed and developed to the standards of the updated Development Manual.</td>
<td>Master Plan includes specific recommendations to guide the implementation of Primary and Secondary multi-use pathways in all new plans of subdivision and the detailed requirements.</td>
</tr>
<tr>
<td>2.3.2 Develop transportation trails and primary recreational units to universal accessibility standards.</td>
<td>Accessibility standards detailed for Primary and Secondary multi-use pathways including the importance of information available to users about local conditions through signage and mapping.</td>
</tr>
<tr>
<td>2.3.3 Identify environmental constraints and regulations, routing and design measures for trails within or near natural areas, based on KNHS and Natural Area Management Plans.</td>
<td>The City-wide network in the master plan has considered environmental constraints at a broad level and recommends detailed process considerations for detailed routing and design.</td>
</tr>
<tr>
<td>2.3.4 Construct the recommended Walter Bean Pedestrian Bridge crossing of the Grand River and complete related trail development, signage and other improvements identified.</td>
<td><strong>Existing:</strong> $1.2 million. Bridge installed, trails constructed, final completion by summer 2012.</td>
</tr>
</tbody>
</table>
### Parks Strategic Plan

| 2.3.5 Implement specific trail construction and improvement projects and initiatives in accordance with the Community Trails Master Plan and Implementation Strategy. | **Existing:** $4.3 million  
**Proposed:** $1.0 million increase to Capital Forecast (Community Trails). |
|---|---|

<table>
<thead>
<tr>
<th>2.3.6 Complete the implementation of the long range plan for the Walter Bean Trail including the acquisition of land and/or access agreements.</th>
<th>Costs and funding to be determined.</th>
</tr>
</thead>
</table>

### Multi-use Pathways Master Plan

The Multi-use Pathways and Trails Master Plan recommends a funding level of $700,000 annually for the first 5 years and $1.5 million annually for the second 5 years of the ten year capital forecast.

Master Plan clearly identifies the trail corridor requirements and the land parcels needed to complete the Walter Bean Trail along with recommended land acquisition strategies.

### 4.4.4 Multi-use Pathway Network Statistics

Table 4-4 provides a summary of network facilities by type and length. The estimated costs of developing the network and other details related to implementation are discussed in Chapter 5 of this report.
### Table 4-4: The Multi-use Pathway Network

<table>
<thead>
<tr>
<th>Primary (Type 1)</th>
<th>Length (to the nearest 0.1km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Primary Multi-use Pathway (existing pathways proposed for upgrading to Primary standards)</td>
<td>38.3 km</td>
</tr>
<tr>
<td>Proposed Primary Multi-use Pathway on lands currently owned by the City</td>
<td>17.9 km</td>
</tr>
<tr>
<td>Proposed Primary Multi-use Pathway on lands currently in private ownership</td>
<td>5.1 km</td>
</tr>
<tr>
<td>Proposed Primary Multi-use Pathway within future subdivision development in private ownership</td>
<td>22.9 km</td>
</tr>
<tr>
<td>Proposed Connection - Road Right-of-Way (In-boulevard Multi-use path or Cycle Track)</td>
<td>8.8 km</td>
</tr>
<tr>
<td>Proposed Connection via on Street Network (bike lane or signed bicycle route and sidewalk)</td>
<td>10.6 km</td>
</tr>
<tr>
<td><strong>PRIMARY TOTAL</strong></td>
<td><strong>103.6 km</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Secondary (Type 2)</th>
<th>Length (to the nearest 0.1km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Primary Multi-use Pathway</td>
<td>66.6 km</td>
</tr>
<tr>
<td>Proposed Primary Multi-use Pathway on lands currently owned by the City</td>
<td>33.1 km</td>
</tr>
<tr>
<td>Proposed Primary Multi-use Pathway on lands currently in private ownership</td>
<td>14.2 km</td>
</tr>
<tr>
<td>Proposed Primary Multi-use Pathway within future subdivision development in private ownership</td>
<td>37.2 km</td>
</tr>
<tr>
<td>Proposed Connection - Road Right-of-Way (In-boulevard Multi-use path or Cycle Track)</td>
<td>18.6 km</td>
</tr>
<tr>
<td>Proposed Connection via on Street Network (bike lane or signed bicycle route and sidewalk)</td>
<td>30.5 km</td>
</tr>
<tr>
<td><strong>SECONDARY TOTAL</strong></td>
<td><strong>200.2 km</strong></td>
</tr>
<tr>
<td><strong>NETWORK TOTAL</strong></td>
<td><strong>303.8 km</strong></td>
</tr>
</tbody>
</table>
5.0 THE IMPLEMENTATION STRATEGY

5.1 INTRODUCTION: THE IMPORTANCE OF THE IMPLEMENTATION STRATEGY

The implementation of this master plan will be accomplished through both short and long-term actions. Short-term actions include Council adopting the master plan and incorporating key polices and network mapping into the update of the Official Plan. Other recommended actions include committing to ongoing annual funding to upgrade existing and construct new multi-use pathways (capital) and maintain existing multi-use pathways (operations) generally in keeping with the phasing illustrated in Figure 5-1, and developing and implementing education, promotion, and monitoring programs described this chapter.

This master plan is a long-term strategy that consists of three phases:

- Phase 1 (short term) which spans the initial 5 years of the plan;
- Phase 2 (medium term) is a 5 year period from years 6 to 10; and
- The third and final phase (long-term) beyond year 10.

5.2 NETWORK PHASING

Priorities illustrated in the network phasing strategy were based on a logical build-out of the network over time. Input from various stakeholder groups, staff and public as well as field observations by the project team and the following objectives were used to frame the network implementation strategy:

- Developing or enhancing the multi-use pathway network in locations where a greater number of users are anticipated;
- Focusing on the completion of Primary, east-west and north-south spine routes by making improvements to existing sections of multi-use pathways or establishing new links to make these connections;
- Establishing main corridors between important community destinations such as schools, community centres and recreation complexes, major sports fields, employment lands and key points of interest throughout Kitchener;
FIGURE 5 - 1
MULTI-USE PATHWAY PHASING

LEGEND

YEARS 0 - 5
- Existing Multi-Use Pathway to be Upgraded
- Proposed Multi-Use Pathway Outside of Road ROW
- Proposed Multi-use Pathway Within Road ROW
- Existing On-Street Connection to be Upgraded
- Proposed On-Street Connection

YEARS 6 - 10
- Existing Multi-Use Pathway to be Upgraded
- Proposed Multi-use Pathway Outside of Road ROW
- Proposed Multi-use Pathway Within Road ROW
- Existing On-Street Connection to be Upgraded
- Proposed On-Street Connection

YEARS 10+
- Existing Multi-Use Pathway to be Upgraded
- Proposed Multi-use Pathway Outside of Road ROW
- Proposed Multi-use Pathway Within Road ROW
- Existing On-Street Connection to be Upgraded
- Proposed On-Street Connection

PRIMARY NETWORK
- Primary Multi-Use Pathway (Type 1 Underlay)
- Primary On-Street Connection (Type 1 Underlay)

PATHWAY FEATURES
- Existing Park Trails
- Existing Bridge
- Proposed Bridge
- Crossing of Major Road Required
- Trail Directional Mapping (Connecting Off-Road MUP Segments)
- Major Trailhead (Signage, Benches, Washrooms etc.)
- Minor Trailhead (Signage, Benches, etc.) No washrooms. Takes at a major road or community centre
- Possible Future Major Trailhead

OTHER
- Hydro Corridor
- Railway
- Highway
- Major Road
- Minor / Local Road
- Watercourse
- Municipal Parks and/or Open Space
- Municipal Boundary

COUNCIL APPROVED - May 14, 2012

NOTES:
1. Existing multi-use pathways proposed for upgrading to Primary standards, where designated as a Primary Multi-Use Pathway
Making or completing key connections that form part of regional trail routes;

Making connections between existing facilities in locations where the completion of a small missing link results in the creation of a significantly longer continuous multi-use pathway;

Developing key multi-use pathway loops throughout the community;

Establishing, formalizing or improving links where not doing so in the short term could result in significant negative environmental impacts. For example, two existing links ending on either side of an environmental feature, creating a strong desire line through the environmental feature;

Establishing spine trail routes in new subdivisions in tandem with the subdivision planning and design approval process for each new subdivision; and

Scheduling implementation with other planned municipal capital projects where it may be possible to take advantage of potential cost savings.

The network includes both upgrades to existing pathways and development of new pathways. Each of the phases is distinguished according to colour and the ultimate build-out of the network is represented by the combination of all of the colours and lines. The Network Phasing Plan proposed in this master plan was also compared with the implementation priorities identified in both the Parks Strategic Plan and the Cycling Master Plan for the 21st Century, and priorities recommended in the Multi-Use Pathways and Trails Master Plan are generally consistent with those identified in these other two strategic plans. More specifically, the following are some of the key priorities identified in the Parks Strategic Plan:

- Close gaps and overcome barriers in the existing Pathway/Trail network;
- Link new and newly planned communities;
- Complete the Walter Bean Trail bridge over the Grand River and all related trail development.

The Cycling Master Plan for the 21st Century illustrates a recommended Priority Network (refer to Map 4 of the
Cycling Master Plan). The majority of the Priority Network consists of on-road routes geared towards creating several key continuous connections across the city including an east-west route north of Highway 7/8, a route through downtown, and a route east from downtown to connect with a north-south route along River Road. These high priority routes in the Cycling Master Plan are complemented by two off-road routes in the Multi-Use Pathways and Trails Master Plan originating in the west part of the city and connecting to the Iron Horse Trail/Trans Canada Trail. Both of these off-road routes are located primarily in hydro corridors and a number of the links already exist. Efforts over the mid-term to complete missing links and upgrade the existing links in these two off-road multi-use pathway routes will complement the Priority Network recommended in the Cycling Master Plan.

Both the Cycling Master Plan and the Multi-Use Pathways and Trails Master Plan place a high priority on the completion of a link south of Ottawa Street to the south end of the city. This route generally follows the Trans Canada Trail from Ottawa Street to the pedestrian/trail bridge over Highway 401 at Conestoga College, and also provides a connection to the City of Cambridge.

The success of the Multi-use Pathway and Trails Master Plan is dependent on the initial and on-going support of the City of Kitchener Council and staff members in all departments of the City. The master plan includes an implementation strategy to guide the City in improving its multi-use pathway and trail infrastructure over the next 10 years and beyond. The proposed implementation plan consists of three phases to be coordinated where possible with the City’s plans for capital projects.

Key Priorities

Short Term (0-5 years), which includes:

- Improved and upgraded surfacing on priority existing routes and Primary and Secondary routes which receive a high level of use and have been identified through the public process (e.g. Iron Horse Trail)
- Upgrades on key pathway sections where universal accessibility is a major concern;
- Improved standards for maintenance throughout the network;
• Improved signage and wayfinding aids including web-based mapping;
• Road crossing improvements;
• Completion of remaining segments of the Walter Bean Trail on lands that are currently owned by the City;
• Completion of key links to provide greater continuity;
• Expansion of the Iron Horse Trail/Trans Canada Trail as the primary north-south route for active transportation;
• Implementation of major open space loops and scenic road trails in southern Kitchener;
• Ensuring that all new neighbourhoods include the construction of multi-use pathways at the time neighbourhoods are developed;
• Improved connections with the “on-road” cycling network.

Medium Term (6-10 years), which includes:

• Improved and upgraded surfacing on priority existing routes;
• Improved signage and wayfinding aids;
• Road crossing improvements;
• Improved connections and the quality of the east-west routes for active transportation;
• Completion of the Iron Horse Trail/Trans Canada Trail as the primary north-south route for active transportation.

Long Term (10 plus years), which includes:

• Completion of the Walter Bean Trail including strategic major land acquisitions to establish these connections;
• Completion of primary east-west and north-south active transportation corridors;
• Ongoing expansion and completion of an interconnected system of routes to major destinations and looped recreational routes;

• Completion of trails in valley lands along Strasburg Creek; and

Lighting of those Primary routes that serve as key commuter routes

Figure 5-2 provides a graphic illustration of the build-out of the network in each of the phases and Table 5-1 provides a detailed breakdown of lengths by area of responsibility.
Figure 5-2: Network Phasing

Table 5-1 Implementation Phasing.
<table>
<thead>
<tr>
<th></th>
<th>Open Space</th>
<th>Road ROW</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PRIMAR Y (TYPE 1)</strong></td>
<td>Upgrade Existing to Primary Standards</td>
<td>Within road R.O.W- On-street connection (not included in Cycling Master Plan)</td>
</tr>
<tr>
<td></td>
<td>Distance (km)</td>
<td>Distance (km)</td>
</tr>
<tr>
<td></td>
<td>3.9</td>
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<td></td>
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<td>0</td>
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<td></td>
<td>3.1</td>
<td>0.5</td>
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<tr>
<td></td>
<td>14.3</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>Secondary (TYPE 2)</strong></td>
<td>Upgrade Existing</td>
<td>Within road R.O.W- On-street connection (not included in Cycling Master Plan)</td>
</tr>
<tr>
<td></td>
<td>Distance (km)</td>
<td>Distance (km)</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td>29.6</td>
<td>12.1</td>
</tr>
<tr>
<td><strong>Subtotal Primary</strong></td>
<td>30.7</td>
<td>31.3</td>
</tr>
<tr>
<td></td>
<td>41.6</td>
<td>41.6</td>
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<td>56.3</td>
</tr>
<tr>
<td></td>
<td>131.5</td>
<td>131.5</td>
</tr>
</tbody>
</table>

| **Total Length by Phase (km)** | 43.1 | 87.6 | 173.1 |
| **Network Total (km)**         | 303.8 |
Appendix B lists unit costs for the construction of various elements of the multi-use pathway network. These are based on averages obtained from recent local construction projects as well as others from across Ontario, and were used to develop an opinion of probable cost to construct the multi-use pathway network illustrated in Table 5-2 (refer to page 110). For reference purposes, Appendix B also includes guideline unit costs for individual items/amenities that may be required on a site specific basis. Unit costs (in 2012 dollars) are based on the following assumptions:

- The unit costs assume typical or normal/average conditions for construction. For example, unit prices assume good soil conditions, an average requirement for grading;
- Estimates do not include the cost of property acquisitions, utility relocations, driveway/entrance restorations, permits or approvals for construction;
- Costs associated with major site-specific projects such as bridges, railway crossings, retaining walls and stairways are not included;
- Annual inflation, which includes increased cost of labour, materials, fuel etc., is not included; and professional services and/or staff time for detailed design and applicable taxes are not included.

As each pathway segment becomes a priority for construction, a more detailed assessment as part of the design process will be required to determine site-specific conditions and design details. Detailed cost estimates can then be developed from the more detailed assessment.

Recommendation 5-1: Staff shall systematically implement the recommended Multi-use Pathway Network as illustrated in the Network Map and Schedule through the subdivision and site planning process as well as through Engineering, Transportation and Parks capital projects within existing city lands or corridors.

(Existing Resources, 2012)
Recommendation 5-2: Staff responsible for implementing the multi-use pathway network shall use the objectives for prioritization identified in the Multi-use Pathways and Trails Master Plan and Phasing Map to inform decision making related to setting priorities for implementation. Implementation priorities will be confirmed on an annual basis in concert with the Development and Capital Budget process. (Existing Resources, 2013)

Recommendation 5-3: Staff shall prepare a detailed annual update of the 10 Year Phasing Plan to identify specific multi-use pathway segments proposed and detailed costs estimates. (Existing Resources, 2012-2021)

Recommendation 5-4: The planning, design and development of multi-use pathways in the City shall be consistent with the Network Map and Official Plan Schedule, and master plan standards and guidelines. (Existing Resources, 2012)

5.3 HOW TO IMPLEMENT THE MULTI-USE PATHWAYS AND TRAILS MASTER PLAN

A successful Multi-use Pathways and Trails Master Plan requires champions and leadership to move from the plan and design stage to the funding and implementation stage. The formal relationships between individuals and organizations and their operational practices are important factors in determining whether pathway initiatives will proceed and be successful. Maximizing participation and removing obstacles to the flow of information between participants are two of the main objectives in managing implementation.

The Multi-Use Pathways and Trails Master Plan is more than a proposed network of off-road multi-use pathways and associated facilities. It is a plan that includes a set of recommendations to promote safe multi-use pathway use in Kitchener and to recognize, realize and share in the economic, health and quality of life benefits that an integrated multi-use pathway system can offer.

While City staff, led by the Parks Operations Division, will oversee the implementation of the Multi-Use Pathways and Trails Master Plan, they will also require ongoing communication with, and support from
other city departments, various Advisory Committees, the Region of Waterloo, adjacent municipalities, and other local organizations and advocacy groups.

Parks Operations staff also have a wide variety of other responsibilities related to parks and open space across the City. Managing all aspects of the multi-use pathway system today is a significant task. As the city continues to grow along with the demand for a quality multi-use pathway system serving both recreational and transportation needs, consideration should be given to creating a staff position to oversee the ongoing development of the pathway network and the promotional/encouragement programs. Recent research by the League of American Bicyclists on the “DNA of Bicycle and Pedestrian Friendly Communities” concluded that communities with a full time coordinator was one of about a dozen key qualities of the most successful/bicycle and pedestrian friendly communities across North America.

**Recommendation 5-5**

<table>
<thead>
<tr>
<th>Recommendation 5-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over the short term assign the responsibility of multi-use pathway coordinator to an existing staff position. This person shall be responsible for “championing” multi-use pathways, pathway initiatives and programming. In the mid-term and beyond consider creating to lead the implementation of the plan.</td>
</tr>
<tr>
<td>(Existing Resources Short Term -2012, 1 FTE, 2017)</td>
</tr>
</tbody>
</table>

### 5.3.1 An Interdepartmental Working Group

Multi-use pathways have an important recreation and transportation function in Kitchener, and the delivery of an effective system requires coordination among various departments to ensure that opportunities to implement and improve the system are considered in a timely manner and not missed.

“Multi-use pathways have an important recreation and transportation function in Kitchener, and the delivery of an effective system requires coordination among various departments to ensure that opportunities to implement and improve the system are considered in a timely manner and not missed.”
working group that monitors all aspects of the delivery of the multi-use pathways and on-road cycling routes will help to facilitate this. A small group of staff representing various departments, similar in composition to the Steering Committee that guided the development of the Multi-Use Pathways And Trails Master Plan, should engage in ongoing dialogue and meet on regular basis (i.e. quarterly) to review and discuss current and upcoming opportunities, initiatives and issues related to pathways and active transportation.

**Recommendation 5-6:**

Implementation of the multi-use pathway network shall be the responsibility of all departments engaged in the planning, design, engineering and implementation of municipal infrastructure and the Multi-use Pathway network requirements shall be considered within the Asset Management programs of the Engineering and Operations divisions and the Long Range Planning, Development Planning and Site Plan review processes.

Projects within road rights-of-way: Engineering Capital Projects in parks and open space: Operations Capital

(Existing Resources, 2012)

**Recommendation 5-7:**

All city departments and staff involved in long range planning, development planning, transportation planning, site plan and subdivision development review, urban design, infrastructure design and implementation shall include the planning and implementation of the approved Multi-use Pathway Network and related facilities into their standard processes and projects.

Where necessary, staff will revise their standard processes to include the planning and implementation of the approved Multi-use Pathway Network.

(Existing Resources, 2012)

**Recommendation 5-8:**

The coordination and implementation of multi-use pathways shall be included in all related capital infrastructure projects and funding shall be appropriately included as a portion of the project budget. (To Be Determined, 2013)
**Recommendation 5-9:** Establish an Interdepartmental Working Group consisting of representatives from key departments to ensure that the implementation of multi-use pathways is coordinated with the implementation of other active transportation and city infrastructure. This group may include representatives from Long Range Planning, Development Planning, Urban Design, Development Engineering, Engineering Design and Approvals, Infrastructure Asset Planning, Parks Planning and Development, Operations and Transportation Planning.
(Existing Resources, 2013)

### 5.3.2 An Advisory Committee

The Cycling Advisory Committee has had a critical role in advancing multi-use pathway initiatives to where they are today. Consideration should be given to broadening the role and composition of this advisory committee. In addition to areas where the advisory committee currently assists, an expanded role could include integrating active transportation into their mandate. Many urban municipalities have been finding that in recent years with the growth in active transportation and the role that a multi-use pathway network plays in active transportation, that it is most sensible and efficient to have one committee to deal with active transportation as well as trail and cycling network development. Combining these roles avoids duplication of effort and provides one committee voice to Council.

Locally, the Region of Waterloo has recently created an Active Transportation Advisory Committee to be the community sounding board for the multitude of issues and opportunities related to pedestrian and cycling modes throughout the region.

Active Transportation Advisory Committees often have representation from trails, cycling, transportation and public health. Within this structure various subcommittees could be created for different areas of work and special projects, as required. This model would require updating and expanding the mandate for the City’s current

“Active Transportation Advisory Committees often have representation from trails, cycling, transportation and public health. Advisory Committees can be designated for various areas of work such as off-road trails, on-road cycling, promotion and communication etc.”
Cycling Advisory Committee to include additional members with an interest in active transportation and trails. It is important to have a group of individuals and representatives who will champion the Multi-Use Pathways and Trails Master Plan and be responsible for providing input on the future of active transportation development throughout the city. An Active Transportation and Trails Advisory Committee with a broad base of user group and agency representation would also give it the ability to communicate effectively with the Regional Active Transportation Advisory Committee.

A potential structure identified in Figure 5-3 is intended as a suggestion. This committee would be led by a staff representative of Parks Operations and a representative from Transportation Planning and include community representatives with a broad interest base. It is recommended that staff and the Cycling Advisory Committee should examine the mandate of the current Cycling Advisory Committee with the goal of broadening their role to include active transportation. Following the review, staff should report back to Council with a recommended course of action for a new mandate.
Figure 5-3: A Potential Active Transportation and Trails Advisory Committee

**Recommendation 5-10:** Review the mandate of the current Cycling Advisory Committee through 2012, with the goal of broadening their role to include all aspects of active transportation, including the Multi-use Pathway network. Following the review, staff and the current Cycling Advisory Committee will report back to Council with a recommended course of action for the Committee’s new mandate starting in 2013.

*(Existing Resources, 2013)*
5.3.3 The Five-Phase Network Implementation Process

The Kitchener Multi-use Pathways and Trails Master Plan is not intended to be a static document. The timing and details related to implementation, particularly the location of recommended routes and facility types should and will evolve through community consultation and technical review during the implementation stage. At the same time, however, the extensive effort that established the overall direction for the network must be respected when network modifications are being contemplated.

The following 5-phase process is a step-by-step mechanism to confirm the feasibility of each network route at the time implementation is proposed. It will assist City staff from affected departments to work together, to share information and to facilitate the implementation of the Plan. This process also helps to establish an appropriate timeline and provides opportunities for the City to work with other key stakeholders, partners and approval agencies as dictated by project conditions.

**Phase I: Preliminary Review**

The first step in implementing segments of the network is to identify and communicate opportunities. One of the key tasks at this stage is monitoring the city’s infrastructure capital works forecast and identifying any projects where multi-use pathways should be included as part of the infrastructure work. When a project identified in the Multi-Use Pathways and Trails Master Plan is advanced to the planning stage or an opportunity to establish a new route not identified in the Multi-Use Pathways and Trails Master Plan comes forward (i.e. through another City or Regional infrastructure project) staff responsible for the infrastructure project should undertake a preliminary review. This review should:

- Compare the timing of the project to the short, mid and long term implementation priorities identified in the Multi-Use Pathways And Trails Master Plan;

- Assess whether the nature of the project should include a multi-use pathway (for those infrastructure projects where pathways may not have been previously contemplated); and
Inform the project lead and affected departments whether or not a feasibility assessment should be undertaken to confirm the feasibility and costs for implementing the proposed route as part of the subject project. The key aspect of this initial step is communication. Staff from various departments should report all upcoming projects that may involve or impact a multi-use pathway route identified in the Master Plan.

**Phase II: Feasibility Assessment**

If a network route is confirmed through the preliminary review process (Phase I) a brief feasibility assessment should be undertaken, which includes the following:

- Confirm the feasibility of the route based on a review of the Multi-Use Pathways And Trails Master Plan and supporting route selection and planning and design criteria, and conduct a field check for off-road multi-use pathway segments to identify any other issues that should be explored in the future;
- An assessment against the Kitchener Natural Heritage System to evaluate if any environmental features are present and in doing so, determine what types of Agency permits may be required (e.g. for watercourse crossings);
- Determine if further public consultation should be conducted and to what level it is required;
- Undertake a functional design for the segment and estimate implementation costs, including construction and signing;
- Identify any less costly alternatives and how they may fit within the intent of the overall network plan, and this may include alternative parallel routes that meet the intent of the Master Plan; and
- Provide a recommended course of action for approval.

**Phase III: Detail Design and Implementation**

Once a determination has been made to proceed the necessary detailed design should be completed. The final step involves tendering the project (if not undertaken in-house) followed by construction / implementation. It is also possible that following detailed design the decision is made not to proceed with the facility or preferred facility type because of the cost, other constraints that arise through the detailed design process or direction from Council.”
process or direction from Council. If this occurs, the network should be updated and an alternative route should be researched.

**Phase IV: Monitoring**

Once facilities have been constructed, their design and use should be monitored to ensure they function in the manner intended. When necessary, the facilities should also be modified (where necessary as indicated through monitoring) and maintained to ensure continued, safe use.

**Phase V: Plan Updates**

The fifth part of the implementation process includes updating the Multi-Use Pathways and Trails Master Plan network database on an annual basis, a general update/confirmation of the Multi-Use Pathways and Trails Master Plan network approximately every 5 years and updating the relevant schedule in the Official Plan as part of its next update.

### 5.4 OUTREACH & MULTI-USE PATHWAY PROMOTION

There are a number of ways to reach out to users and promote the multi-use pathway system and encourage its proper and safe use. The following are some examples which should be considered as part of the development of an outreach and promotion strategy for Kitchener's multi-use pathways.

*Community Based Social Marketing*

The use of Community Based Social Marketing techniques can lead to more awareness and use of the multi-use pathway system. More than just a marketing and advertising initiative, Community Based Social Marketing is directed at changing behaviours over a period of time through direct contact, prompts, pledges and changing social norms. It evolved from the social psychology and social marketing streams after it was determined that the social marketing concept was not enough to change behaviour. It has been applied to transportation in the form of Individual Travel Plans (or Marketing).
On a smaller scale it can be used to influence travel choice and can be applied to the increased use of multi-use pathways in Kitchener. A few possibilities include:

- Use community events to talk to residents one-on-one. Community groups and other partners can assist in this
- Having staff attending community events to promote pathways and/or develop a portable display system that can be set up at community events
- Using media such as Your Kitchener to provide updates on pathway implementation and to launch public information campaigns on education and stewardship (e.g. ‘Share the Trail’, keep dogs on leashes, speeds for cyclists, trail etiquette etc.)
- Creating a series of prompts to remind residents about the pathway system and its benefits. Prompts can include trail maps and brochures, waterbottles, car magnets, key chains etc., anything that will remind the public about the pathways will work. While some items will be giveaways at events, others could be used as a fundraiser for trail amenities.

The important aspect of this program is to instill in the community that pathways are beneficial and to remind residents and visitors about the network and its benefits and uniqueness.

**Signs and Brochures**

Interpretive programs and signs, brochures, either self-guided or as part of a wider natural and cultural heritage education program, offer endless opportunities to raise awareness about multi-use pathways, their importance in the city’s transportation and recreation system and to profile individual points of interest throughout the network. Providing positive guidance regarding responsible pathway use is an integral part of managing the network. Integrating key messages into signs is a useful way to get messages out to multi-use pathway users and can be a good tool for

“Interpretive programs and signs, brochures, either self-guided or as part of a wider natural and cultural heritage education program, offer endless opportunities to raise awareness about multi-use pathways, their importance in the city’s transportation and recreation system and to profile individual points of interest throughout the network.”
building positive relations where neighbours have raised concerns about particular sections of the multi-use pathway network, and communicate that city is aware of local neighbourhood concerns, that the situation is being monitored and actions are being taken.

<table>
<thead>
<tr>
<th>Recommendation 5-11</th>
<th>Staff shall prepare and implement a pilot signage and way-finding strategy for one key section of Primary multi-use pathway and one Secondary multi-use pathway in consultation with the Cities of Waterloo and Cambridge and the Region of Waterloo. ($50,000, 2013)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recommendation 5-12:</strong></td>
<td>Staff shall prepare a detailed city-wide way-finding signage strategy for all Primary and Secondary multi-use pathways throughout the city. ($50,000, 2014)</td>
</tr>
</tbody>
</table>

**Maps**

Multi-use pathway maps are one of the most overlooked opportunities to spread the word about pathways. Maps inform users where the routes are, plus they provide an opportunity to educate pathway users through messages such as “rules of the pathway” and pathway user etiquette. Though expensive to produce initially, maps can be updated with the release of new additions as the system grows, making the initial investment pay for itself over time.

The GIS Network Management Tool prepared as part of the Multi-Use Pathways And Trails Master Plan can be used as the base for a multi-use pathways map, and when complete it will become an excellent tool to communicate to residents and visitors about the location of multi-use pathways, provide educational information about pathway etiquette and to promote Kitchener as a destination and a place where healthy, active lifestyles can be enjoyed. To assist in offsetting the cost of producing multi-use pathway maps, many other municipalities have been very successful at selling advertising space on their map.

Other opportunities may also be available to produce a regionally based map. Grand River Transit includes cycling routes and key pathway/trail routes on their transit route
map as they recognize the relationship between pedestrian and cyclist travel modes and transit use.

In the fall of 2010, Google Maps launched a new product which includes cycling and trail/pathway routes in a number of urban centres across the country. This product relies on local municipalities to supply (and update) their own network information then provide it to Google for integration with their software. The Kitchener-Waterloo area was included in this initial launch.

Also several jurisdictions have developed their own on-line mapping software specific to pathway/trail and in particular cycling use. In Ontario, Niagara Region has developed an on-line route mapping system that enables cyclists to plan routes and interesting stops along the way (http://www.niagararegion.ca/exploring/cycle/Bicycle-Niagara.aspx). This mapping tool was developed through partnerships between the Region, the Regional Bicycling Committee and the local tourism industry.

<table>
<thead>
<tr>
<th>Recommendation 5-13:</th>
<th>In the short term-within 2 years staff will facilitate the development of a digital map of the existing pathway and trails network for publishing on the City web site for public use. The map shall be compatible with mobile device use. (To be Determined, 2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommendation 5-14:</td>
<td>Ongoing updating of the GIS database for both the existing and proposed Primary and Secondary multi-use pathways is essential to ensure that maps for use by the public and staff responsible for implementation and operations are current. Annual GIS updates and reviews for accuracy are required. (Existing Resources, 2013)</td>
</tr>
</tbody>
</table>

**Pathway Ambassadors**

Many municipalities have successfully implemented pathway/trail ambassador programs. These often involve teaming a staff leader with summer students who attend events and functions organized by private businesses and agencies, camps and related recreation programs, where they promote the use of the multi-use pathways and in some cases teach certain skills such as cycling. In addition, ambassadors ride the routes, hand out pathway brochures, provide assistance to users, and monitor the condition of facilities.
In Kitchener the By-Law Enforcement Trail Riders group regularly travels the entire pathway system by motorcycle to monitor conditions. Their role is one of security and by-law enforcement. As the network expands the By-Law Enforcement Trail Riders could work with other citizen groups established for the purpose of user education, promotion of upcoming multi-use pathway and trail events, and collection of data on pathway use and user satisfaction, all of which will help inform pathway design and operation into the future.

Partnering with Others

Opportunities exist for the City to develop partnerships with businesses and other agencies that provide services to a large sector of the population. In many municipalities there is a strong interest in partnering with other agencies to promote multi-use pathways and pathway use as a healthy lifestyle choice. Partnerships with agencies can include jointly produced promotional or educational literature. The Region of Waterloo Public Health Unit already works with area municipalities to develop and deliver important campaigns on healthy and active living and this partnership should be enhanced over time.

Partnerships with agencies can also include co-participation in annual events related to multi-use pathway use. Events such as the Terry Fox Run and other fundraisers, and events such as Ride to Work Week, the Clean Air Campaign and Earth Day are natural matches. Allowing time for key staff to contribute to the organization of these events that use the trails is a simple, cost effective way to spread the word about using the multi-use pathways system. Locally the Manulife Ride for Heart in Waterloo and the Tour de Grand in Cambridge for example, attract thousands of cyclists to one-day fundraisers that use trails extensively, providing visibility through extensive media coverage at essentially no cost. These events also offer excellent opportunities for the City to update pathway users and enthusiasts on current and upcoming city initiatives related to the system with a portable display (i.e. plans for upcoming network upgrades, new links etc.).
Recognizing Contributors

It is mutually beneficial to recognize the efforts of private businesses when they partner with the City on initiatives related to the development and use of the pathway system. Recognition through the media for efforts that encourage more pathway use is a positive way of showing partners that their contribution is appreciated. Furthermore, media recognition is a simple and cost-effective way to raise awareness and encourage use. Where contributions are made that improve conditions of the pathways, such as the provision of amenities, creation of links across private properties, the City should recognize the effort which has been displayed for these contributions.

**Recommendation 5-15:**
Explore community based social marketing techniques and opportunities to work with local partners and other public agencies to promote the health and recreational benefits of multi-use pathway and trail use.
(To be Determined, 2013)

**Recommendation 5-16:**
Staff shall explore and make recommendations regarding methods to recognize individuals, businesses and organizations that make exemplary contributions to the development of the multi-use pathways and trails in Kitchener.
(To be Determined, Ongoing)

5.5 THE FUNDING STRATEGY

The public and stakeholder input received during the preparation of the Multi-Use Pathways And Trails Master Plan indicates that both residents and visitors to Kitchener support improving multi-use pathways facilities and programs to promote pathway usage in the City.

Kitchener’s Multi-use Pathways and Trails Master Plan can only be successful if funding and staff resources are committed by Council on an annual basis. The annual implementation budget for implementing the Multi-Use Pathways and Trails Master Plan should be identified in an annual report prepared by City staff and based on implementation objectives and opportunities for the coming year. This report should
also comment on projects and multi-use pathway related initiatives completed that calendar year, and identify success stories along with challenges.

5.5.1 What is The Investment?

The Multi-use Pathways and Trails Master Plan is both an infrastructure and operations plan. Therefore, it requires infrastructure, program development and operations (maintenance) funding to ensure successful implementation and monitoring. These types of improvements should be included in the City’s capital budget and forecasts.

**Capital**

As described in Table 5-2 it is estimated that the total Parks Capital investment to implement the Primary and Secondary network is approximately $20M over the horizon of the plan, exclusive of maintenance, Life Cycle costs and Special Projects.

The estimated costs to implement major grade separated crossings as illustrated in the recommended multi-use pathways network (i.e. of Hwy 7/8) are not included with the estimated network costs for several reasons:

- Costs for these vary widely depending on the style and ultimate design of the structure(s);
- The design of, timing for and construction of major grade separated crossings can sometimes be linked to infrastructure improvements being made by other agencies such as the Region of Waterloo. In these cases the final design would be part of a larger infrastructure improvement project that would be subject to an Environmental Assessment process (where applicable) and subsequent detail design; and
- There may be an opportunities to partner/cost-share with agencies for these projects.
Table 5-2: Parks Capital Costs for Network Implementation of Primary and Secondary Multi-use Pathways.

<table>
<thead>
<tr>
<th></th>
<th>Year 0-5</th>
<th>Year 6-10</th>
<th>Year 10+</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Extended Cost</td>
<td>Extended Cost</td>
<td>Extended Cost</td>
</tr>
<tr>
<td>PRIMARY (TYPE 1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upgrade Existing MUP (Parks Capital Budget)</td>
<td>$390,000</td>
<td>$1,830,000</td>
<td>$1,610,000</td>
</tr>
<tr>
<td>New/Proposed Off Street MUP (Parks Capital Budget)</td>
<td>$2,350,000</td>
<td>$1,325,000</td>
<td>$2,075,000</td>
</tr>
<tr>
<td>New/Proposed Within Road R.O.W- On-street connection, not included in Cycling Master Plan Network</td>
<td>$5,400</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Subtotal Primary</td>
<td>$2,745,400</td>
<td>$3,155,000</td>
<td>$3,685,000</td>
</tr>
<tr>
<td>SECONDARY (TYPE 2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upgrade Existing MUP (Parks Capital Budget)</td>
<td>$28,000</td>
<td>$1,141,000</td>
<td>$3,493,000</td>
</tr>
<tr>
<td>New/Proposed Off Street MUP (Parks Capital Budget)</td>
<td>$868,000</td>
<td>$2,506,000</td>
<td>$3,248,000</td>
</tr>
<tr>
<td>New/Proposed Within Road R.O.W- On-street connection, not included in Cycling Master Plan Network</td>
<td>$1,200</td>
<td>$17,400</td>
<td>$25,200</td>
</tr>
<tr>
<td>Subtotal Secondary</td>
<td>$897,200</td>
<td>$3,664,400</td>
<td>$6,766,200</td>
</tr>
<tr>
<td>Total by Phase</td>
<td>$3,642,600</td>
<td>$6,819,400</td>
<td>$10,451,200</td>
</tr>
<tr>
<td>Total Annual Budget</td>
<td>$728,520</td>
<td>$1,363,880</td>
<td>$1,045,120</td>
</tr>
<tr>
<td>Grand Total all Phases</td>
<td>$20,913,200</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Special Projects and Life Cycle Costs

The estimated costs in Table 5-2 cover the implementation of new Primary and Secondary multi-use pathways and surface upgrading for existing pathways to bring them to the Primary and Secondary multi-use pathway standard. However, additional budget will be required to complete a number of multi-use pathway special projects. In addition the life cycle replacement of Multi-use Pathway hard surfaces and amenities will need to be budgeted for. Table 5-3 provides a list of Special Projects that will need to be considered and Table 5-4 describes Lifecycle Replacement cost items.
Table 5-3: Special Projects.

<table>
<thead>
<tr>
<th>Item</th>
<th>Estimated Costs</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wayfinding and Signage Strategy</td>
<td>$50,000 each</td>
<td>Development of a master signage and wayfinding strategy for the entire multi-use pathway and trail network throughout the city. Findings from the Wayfinding and Signage Pilot project would form the basis for the city-wide master strategy.</td>
</tr>
<tr>
<td>Wayfinding and Signage Pilot Project</td>
<td>$50,000 each</td>
<td>Cost for the design and implementation of a Pilot Project for multi-use pathway and trail signage in a priority location.</td>
</tr>
<tr>
<td>Pathway/Road Crossings</td>
<td>$750,000</td>
<td>$100,000/yr. over the next 10 years for a total of $1M. Costs include retro-fitting crossings with depressed curbs and asphalt aprons- Note that a $250,000 allocation is already set aside (transferred from Engineering Budget).</td>
</tr>
<tr>
<td></td>
<td>$300,000 to $500,000</td>
<td>An additional amount required for addition of gates at crossings.</td>
</tr>
<tr>
<td>Pathway Lighting</td>
<td>$320,000 to $400,000 lump sum</td>
<td>Lighting of key Primary multi-use pathways. Estimate cost is for a Pilot lighting project along 2.5km of Iron Horse Trail from Queen Street to the City of Waterloo boundary. Price is based on a range of $130,000/km for traditional lighting to $160,000/km for LED. Unit price includes cabling, transformers and fixtures.</td>
</tr>
<tr>
<td>Major Pedestrian Bridges</td>
<td>$1.2M to $1.8M each</td>
<td>(e.g. over Expressway/Hwy 7/8)</td>
</tr>
<tr>
<td>Benches/Seating Areas</td>
<td>$7,000-$10,000 each</td>
<td>Approximate cost for a seating node along a Primary/Type 1 as illustrated in Figure 4-3, Primary (Type 1) Multi-use Pathway.</td>
</tr>
<tr>
<td>Landscaping</td>
<td>$12,000-$15,000/km</td>
<td>Assumes 1 caliper tree every 100m on average plus a total of area of 100m2 of shrub planting beds over the 1km distance.</td>
</tr>
</tbody>
</table>
Table 5-4: Life Cycle Replacement Costs.

<table>
<thead>
<tr>
<th>Item</th>
<th>Estimated Costs</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boardwalks</td>
<td>$800/m</td>
<td>Replacement of decking, railings and understructure for 2.4-3.0m wide boardwalk. Assumes footings can be reused and do not require replacement.</td>
</tr>
<tr>
<td>Short Span Bridges</td>
<td>$2,500/m</td>
<td>Short span bridges less than 3m in length. Bridges with spans exceeding 3.0m are covered by the Multi-use Pathway Bridge Rehabilitation Program. Refer to DTS-09-074.</td>
</tr>
<tr>
<td>Asphalt Pathway Resurfacing</td>
<td>$75,000/km</td>
<td>Required approximately every 15 years.</td>
</tr>
<tr>
<td>Trailhead Kiosks</td>
<td>$25,000-$30,000 each</td>
<td>Approximate replacement cost for major Trailhead kiosks (e.g. Walter Bean Trail kiosks). Cost includes structure and graphic panel</td>
</tr>
</tbody>
</table>

Recommendation 5-17: During the first phase of implementation (2012-2017) staff will undertake a detailed analysis of lifecycle costs related multi-use pathways and trails, and prepare a report outlining findings and recommendations regarding the funding required to address these lifecycle costs for capital budget deliberations in 2017. (Existing Resources, 2017)

Within the capital cost identified it is assumed that in-boulevard right-of-way components of the network will typically be included as part of the same tender for a road resurfacing, reconstruction or widening project and therefore, through economies of scale, the construction cost charged to the City by a contractor may be lower. In addition, the costs to implement network routes on lands that are part of new community development will be paid for by developers as part of the creation of these new communities.

**Operations**

Operating costs include on-going funding related to implementing the Multi-use Pathways and Trails Master Plan, preparing the annual progress report, delivering safety, educational outreach and promotional programs, and performing network and
infrastructure maintenance to achieve a state of good repair and to ensure all season use. This also includes staff resources, as well as management and administration. Maintenance of the pathway network is discussed in more detail in Chapter 6 of this report.

5.5.2 Why Should the City Make the Investment?

There are numerous benefits that emphasize why the City of Kitchener’s commitment to implement the Multi-use Pathway Master Plan is so important. Appendix C of this report details the various benefits in terms of recreation, health and fitness, transportation, the environment and the economy. In addition the costs can be justified as part of the cost of providing a more sustainable, balanced and efficient recreation and transportation system in the City of Kitchener, and the cities of Waterloo and Cambridge collectively. Finally, as the consultations conducted as part of this study confirmed, City residents want a more walkable and bikeable Kitchener.

Currently, through the annual budget process Council commits just under $375,000 per year (2011 = $327,000 capital plus $45,000 Development Charges) for pathway and trail development and maintenance over the next 5 year period, and this budget is for the creation of new pathways, surface reconstruction of existing pathways as well as major operating costs.

How does this investment compare to that of other towns and cities in southern Ontario?

As part of the research related to the implementation plan, municipal officials from a number of other southern Ontario communities were contacted regarding their average level of investment in pathways/trails over the past five years. Information was collected regarding the investment through capital funds, Development Charges/developer-built, and operations/maintenance, where available (refer to Figure 5-4). Generally the findings indicate that investment through capital funds plus Development Charge funds varies from $2.12 to $10.49 per capita. If the highest value (Town of Oakville) is removed from this calculation, the average investment through
capital plus Development Charge funds is $2.91 per capita among the municipalities contacted. These municipalities also reported a separate budget for operations and maintenance of their trail system, though the annual contribution was not available from all at the time the data was collected.

The City of Kitchener budgeted $372,000 for 2011 which includes capital and Development Charges funding. Over the past 5 years the annual investment has averaged $340,800, which represents an investment of $1.56 per capita, based on a population of 219,153 (2011 Census, Statistics Canada).

The proposed capital forecast allocation for 2012 is $377,000. When combined with the $250,000 allocation from the Local Environment Action Fund (LEAF) for 2012, this amount increases to $627,000. The recommended funding level of $700,000 per year or $3.19 per capita brings Kitchener into the range of other municipalities investigated.

Council should continue to provide annual funding for the implementation of multi-use pathways, and this amount should be adjusted to reflect the recommended phasing plan identified in the Multi-use Pathways and Trails Master Plan and the list of project priorities identified through an annual staff report to Council.
Figure 5-4: Annual Capital Investment Per Capita in Pathways by Various Ontario Municipalities.

Notes:

1. **City of Ottawa** - Value reported includes only new trails considered as significant cycling infrastructure/routes. Funding for minor trails is not included. Investment in trails by the National Capital Commission is not included.
2. **City of Hamilton** – Value reported includes only new trails considered as significant cycling infrastructure/routes. Funding for minor trails is not included.
3. **City of Brampton** – In addition an average of $789,000 per year has been allocated over the last 5 years for pathway reconstruction. Also value of partnership projects with the Region of Peel for pathways in Regional rights-of-way is not included.
4. **City of London** – In addition approximately $300,000/year is allocated for miscellaneous small pathway repairs. The City also funds about 41km of natural trail creation and maintenance in City-owned natural areas.
5. **Town of Oakville** - Capital investment includes annual trail repair and replacement projects (stairs, bridges, granular and asphalt pathway rehabilitation).
6. **City of Waterloo** - Value of partnership projects with school boards and Region of Waterloo for small trail projects is not included.
7. **Town of Halton Hills** – Approximately $2,000/km/year is allocated for trail maintenance and operations.
8. **City of Kitchener** - The level of $3.19 per capita is based on a recommended annual contribution of $700,000/yr.
Recommendation 5-18: Multi-use Pathways and Trails Master plan implementation is based on a recommended annual capital funding level of $700,000 annually over the first 5 year period and $1.5M annually over the next 5 years, subject to Capital Budget and Capital Forecast review and approval. ($3.5M 2012-2016, $7.5M 2017-2021)

Recommendation 5-19: Allocate a portion of the annual capital funding to implement the recommendations of the signage and wayfinding strategy ($5% or 35,000/yr. 2012-2016, 2.5% or $35,000/yr. 2017-2021). Complete the implementation of signage and wayfinding elements for all existing multi-use pathways by the end of 2021. Signage and wayfinding elements for new pathways will be implemented as part of new pathways construction. ($350,000, 2012-2021)

5.5.3 Other Funding Sources

To assist in reducing taxpayer costs, the City of Kitchener should pursue outside funding opportunities. Over the last few years funding sources made available for active transportation, cycling, pedestrian and pathway/trail related projects has been quite generous, due in part to their increasing popularity and the growing importance of their relationship to multi-modal transportation systems and overall community health. It is expected that this trend will continue. Some outside funding opportunities may include:

- Federal / Provincial Gas Tax;
- Transport Canada’s MOST (Moving on Sustainable Transportation) and ecoMobility (TDM) grant programs;
- Federation of Canadian Municipalities Green Municipal Fund;
- Ontario Ministry of Health Promotion grant programs such as the Communities in Action Fund for programming and promotional initiatives related to health/active living/active transportation;
- Ontario Ministry of Environment Community Go Green Fund (CGGF);
- Ontario Ministry of Transportation Demand Management Municipal Grant program;
Various Federal and Provincial Infrastructure/Stimulus programs that are offered from time to time;

- The Ontario Trillium Foundation that was recently expanded in response to the money collected throughout the Province by casinos;

- The Trans Canada Trail Foundation (currently as part of the Foundation’s “Connection Plan”). Only for those sections of the network that are designated as part of the Trans Canada Trail in the city would be eligible);

- Human Resources Development Canada program that enables personnel positions to be made available to various groups and organizations;

- Corporate Environmental Funds such as Shell and Mountain Equipment Co-op that tend to fund small, labour-intensive projects where materials or logistical support is required;

- Corporate donations which may consist of money or services in-kind, and have been contributed by a number of large and small corporations over the years;

- Potential future funding that might emerge from the Province in rolling out the Ontario Trails Strategy;

- Service Clubs such as the Lions, Rotary and Optimists who often assist with high visibility projects at the community level; and

- Private citizen donations/bequeaths, and this can also include a tax receipt for the donor where appropriate.

**Recommendation 5-19:** In addition to capital funding, explore other outside partnership, cost-sharing and funding opportunities for the implementation of multi-use pathways and trails that are outside the responsibility of the City of Kitchener such as the successful Walter Bean Trail funding, Trans Canada Trail etc..

(Existing Resources, 2014)
6.0 OPERATIONS AND MAINTENANCE

6.1 THE MULTI-USE PATHWAY NETWORK MANAGEMENT TOOL

The proposed Multi-use Pathways Network was developed using the City’s Geographic Information System (GIS) base. This digital GIS based network map database provided to the City is also intended to be used as a pathway facility management tool and for the development of an asset management program. The database is associated with the map information and includes a number of different attributes related to both the existing conditions and recommendations regarding the proposed network.

Data associated with the proposed Primary and Secondary multi-use pathways network (refer to Figure 4-1 in Chapter 4 and Figure 5-1 in Chapter 5) specifies:

- Segment length;
- Pathway facility type proposed;
- Unit cost and extended cost based on unit prices; and

The phase in which the route and facility is proposed to be implemented.

Data associated with Existing Conditions Inventory includes over 1400 waypoints and 1000 photos of attributes including:

- Width;
- Surface type;
- Longitudinal slope over 5%;
- Location of bridges;
- Areas of pathway erosion
- Location and condition of culverts, benches, public art, signage and other amenities.
Figure 6-1 provides several screen capture images of the various interfaces for the Existing Conditions Inventory database. The database uses both Google Earth™ and Microsoft Access™ software.

During the implementation process, City staff can use this tool to assist in confirming the feasibility of pathway routes and facilities and the proposed schedule (Phases 1, 2 or 3) for implementation. This tool will be an important part of managing the city’s pathway and trail assets as it provides Operations staff with quick access to the location and existing conditions of features throughout the network, enabling more proactive planning of maintenance of the pathway network, tracking of work completed, and budgeting for maintenance actions. As pathway improvements are made the database should be regularly updated by staff so that the database remains current and so that it can be used to assist with asset planning and management. Updating the facilities component of the Multi-Use Pathways and Trails Master Plan on a regular basis will significantly reduce the effort and cost to update the entire Multi-Use Pathways and Trails Master Plan in the future. Also if the City chooses, this GIS information, with some programming, could also be posted on the City’s website in an interactive map format. This would be useful to the public and developers and would also serve as a ‘quick reference’.

Monitoring and updating the database for asset management purposes in addition to potential programming as part of the development of possible outreach products such as mapping requires a skill set that is outside of current staffs’ area of expertise and available time. Therefore, as part of an action plan to use the Network Management Tool, coordination with, and time provided by the City’s IT-GIS Division will be required along with regular reviewing and updating of the database. A new staff position should be established to manage the database. Duties associated with this role include:
• Regular monitoring of the database;

• Receiving comments from the public and trail rangers on pathway and trail locations that require attention (i.e. erosion and washouts, signs requiring repair, fallen branches, blocked culverts etc.), and entering this data into the inventory database;

• Coordination of Work Orders with the Operations crew leads and Operational Support and Analysis Divisions to ensure that areas of concern are rectified;

• Identifying and tracking of key locations of concern so that maintenance can become more pro-active rather than reactive as is currently the case;

• Tracking of Work Orders and updating the database when work is completed;

• Updating the Multi-use Pathways network as new segments are added;

• Tracking of actual costs for capital and maintenance work;

• Implementing a mobile computing system within the first 2 years for field staff to access and track Work Orders, and training field staff over the first 5 years so that field observations can be immediately added to the database and so work can be tracked in real time as it is completed;

• Fully integrating the GIS database system so it can be set up as an asset management tool that is fully connected to the Work Order system not only for pathways and trails but also for parks and playgrounds;

• Assisting Parks Design and Development and Transportation Planning with the identification of priorities and budgets for upcoming projects, and providing background materials for Staff Reports to Council;

• Communicating and coordinating with Communications and Marketing Division regarding the development of web-based Multi-use Pathway network mapping, and development of various components of the web-based mapping;

“Through the public consultation conducted as part of the Pathways and Trails Master Plan, repairs and upgrading of existing trails was identified as a high priority in addition to the ability for staff to respond knowledgeably to repair and upgrade requests. The Multi-use Pathway network management tool will make this type of customer service possible.”
Through the public consultation conducted as part of the Pathways and Trails Master Plan, repairs and upgrading of existing trails was identified as a high priority in addition to the ability for staff to respond knowledgeably to repair and upgrade requests. The Multi-use Pathway network management tool will make this type of customer service possible.

**Figure 6-1: Inventory Database-Screen Captures**

- Google Earth “.kmz” Interface for Inventory Database
- Microsoft Access Interface for Inventory Database-Main Menu
- Waypoint Search/Edit Screen for Individual Waypoints
- Waypoint Data by Feature Type: Culvert Feature Type Displayed

**Recommendation 6-1:**

Staff shall maintain and annually update the GIS based network management tool as part of the Operations Division asset management of multi-use pathways developed as part of the Multi-use Pathways and Trails Master Plan. A new position is required to develop and maintain this asset management tool and its correlation with the work order system.

(1/2 FTE, 2014)
6.2 MULTI-USE PATHWAY MAINTENANCE

Maintenance and monitoring of facilities once they are constructed is a critical aspect of service delivery that is often “short changed” or even overlooked. Pathways must be treated like any other municipal asset, and any plans to move forward with implementation of off-road pathways must accompanied by a parallel effort to maintain them in good condition. The general objectives of a trail maintenance and monitoring program are to:

- Provide safe, dependable and affordable levels of service;
- Reduce exposure to liability;
- Preserve infrastructure assets;
- Protect the natural environment;
- Enhance the appearance and health of the community;
- Provide a reference framework against which to measure performance;
- Periodically measure facility performance so that adjustments and improvements can be made in the delivery of pathways in the future;
- Provide the basis of a peer review that is comparable with other municipalities; and
- Provide citizens and Council with a reference for expectations.

Many jurisdictions have formalized programs to plan and construct trail systems, however the number that have formal programs for multi-use pathway maintenance is lower. Several years ago, telephone interviews were conducted with approximately a dozen southern Ontario municipalities to determine the overall scope of their pathway and trail maintenance, to learn about significant issues and priorities and to gain an understanding of basic costs maintenance costs. This information was supplemented by correspondence with a number of southern Ontario municipalities.

“Trail maintenance is generally handled under Parks Operations budgets, sometimes tracked as a separate trail maintenance budget, but most often grouped in with other parks maintenance budgets…”

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1 Municipal Trail Maintenance Survey. Telephone interviews conducted by Stantec Consulting Ltd., 2004, as part of the City of Guelph Trails Master Plan.
municipal representatives in 2011 on investments in multi-use pathway and trail construction and maintenance as previously discussed in Section 5.5.2 of this report.

The following are some highlights:

- Very few maintain their trails and pathways in winter. Of those that do, none reported maintaining all of their trails in winter. Generally winter maintained trails included only asphalt trails and those that are heavily used, or are main connections serving utilitarian purposes such as connections to schools and main bicycle/pedestrian commuter routes;

- Several reported having defined maintenance standards for trails, based on trail type. Many of those that did not currently have standards reported that they were working towards them;

- Most have a call in/hot line for areas requiring emergency repairs, or areas where garbage containers are heavily used. None of the hot lines were trail specific, most often they were included with a parks or even municipal-wide hotline for parks, roads, infrastructure etc.;

- In most cases, respondents felt that they could do a better job at trail maintenance, but were limited by resources (staff resources, budget and time);

- Most reported conducting an annual safety audit, in most cases this was included as part of their annual safety and security audit for parks, playgrounds and recreation facilities;

- Many noted that proactive or preventative maintenance, especially with regard to trail surface condition, signing, trash and vandalism was a key success factor;

- Most use trail patrols or supervisors who conducted a regular (i.e. as often as weekly) review to assess conditions, prioritize maintenance tasks and monitor known problem areas;

- Some use maintenance logbooks to set out a schedule of tasks, priorities, standards to be achieved and method of tracking that the work has been completed. This method of tracking was also noted as useful for being able to predict which locations would require the highest level of maintenance;

“Several years ago telephone interviews were conducted with approximately a dozen southern Ontario municipalities to determine the overall scope of their trail maintenance, to learn about significant issues and priorities and to gain an understanding of basic costs for trail maintenance.”

Several reported having defined maintenance standards for trails, based on trail type. Many of those that did not currently have standards reported that they were working towards them;

Most have a call in/hot line for areas requiring emergency repairs, or areas where garbage containers are heavily used. None of the hot lines were trail specific, most often they were included with a parks or even municipal-wide hotline for parks, roads, infrastructure etc.;
In most cases, parks crews performed trail maintenance as part of their regular park maintenance role. Where extensive maintenance programs were reported, additional seasonal labour was added to the workforce (often summer students). Volunteer “adopt-a-trail” programs were also identified as useful for basic trail clean up and monitoring;

- Trail maintenance is generally handled under Parks Operations budgets, sometimes tracked as a separate trail maintenance budget, but most often grouped in with other parks maintenance budgets;
- Trail maintenance costs range depending on the type of trail and location. Costs to maintain highly urbanized trails ranged from $2000-$10,000/km per year, whereas costs to maintain rural trails (including rail trails) were significantly lower, ranging from less than $100/km year to $350/km per year. Tasks covered as part of these estimates included maintenance of trail drainage, storm channel and culvert maintenance, grading and minor topping up of trail surfaces, minor pothole repair, sweeping and clearing of debris, trash removal, mowing of clear zones, minor surface repairs and repairs to trail fixtures/furnishings;
- Many respondents reported that asphalt surfaces on trails have a life span of approximately 15-20 years, and trails that were installed in 1980's and earlier now require reconstruction, and in the process are generally being widened to meet higher levels of use/demand experienced today.
- Wider trails are better for preventing damage to trail edges by municipal service vehicles, as vehicle wheels are less likely to roll over and break trail edges and less likely to create ruts in the soil beside the trail;
- Trails that were properly constructed at initial installation had the fewest maintenance issues. Proper subgrade excavation, adequate base and proper drainage were noted as keys to trail longevity;
- Many reported that erosion is a big challenge and that “trail hardening” with asphalt on sloped trails is the best way to prevent further erosion. Some reported trying other soil binding compounds for trails on slopes and reported only moderate success with these alternative materials;
- Mowing grass along edges of trails in park and open meadow areas is performed on a regular basis. Depending on trail location this may be weekly, biweekly, monthly or infrequently throughout the growing season. The width of the mown swath generally varies from 0.5m to 2.0m depending on the municipality and location. Mowing helps to

“Maintenance and monitoring of facilities once they are constructed is a critical aspect of any plans to move forward with implementation of the off-road pathways and on road routes.”
keep clear zone open and can also help with the invasion of weeds into granular trail surfaces;

- Several have trained their mower operators to be more observant while mowing and to take note of problem areas along the trails;

- Garbage pickup is performed on a regular basis (i.e. 10 day cycle), with receptacles located at the ends of trail segments and trailheads where they can be easily accessed for service vehicles;

- Tasks performed on a seasonal basis include culvert cleanout and pruning to maintain trail clear zones;

- Grading/grooming the surface of granular trails is generally performed once per year or as required after heavy storm events in areas prone to erosion;

- Tasks performed every 3 to 5 years include refurbishment of signs, cleaning and refurbishment site furnishings etc.;

- Tasks performed on an as-required basis include moving or marking obvious hazards within 24 hours of their identification, inspection/monitoring of trail areas prone to damage following heavy storms, repairs to vandalized items, minor repairs to structural elements such as bridges, trail surfaces, railings, benches, gates and signs; and

- Major renovation or replacement of large items such as bridges, kiosks, gates, parking lots, and asphalt trail surfaces was generally described as a 10-20 year replacement item and handled as a capital improvement cost rather than an operating/regular maintenance cost.

6.2.1 Winter Maintenance of Off-Road Multi-use Pathways

As previously noted very few municipalities in Ontario maintain their off-road multi-use pathways during winter months. For those municipalities that do offer winter maintenance services on multi-use pathways, only certain routes are maintained and these tend to be primary routes that serve a commuter function to key destinations such as schools and community centres. The following are some general criteria that are being used in other jurisdictions to identify candidates for winter multi-use pathway maintenance and to develop priorities among those candidate routes.

“Trails that were properly constructed at initial installation had the fewest maintenance issues. Proper subgrade excavation, adequate base and proper drainage were noted as keys to trail longevity...”
a. Multi-use Pathway Function and Location

- The multi-use pathways’ role in the overall transportation network and community connectivity (primary vs. secondary function) to schools, public facilities such as recreational centres and to other pedestrian generators such as senior’s homes, shopping and commercial establishments;
- The multi-use pathway is not an alternate route to a nearby sidewalk or trail that is already being maintained in winter;
- The pathway is not merely a convenient short cut. If the multi-use pathway is not available for winter use, the length of the detour required should be explored further. Although these should be explored further on a case-by-case individual basis, 500m could be used as a threshold guideline;
- Multi-use pathways that connect 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 multi-use pathways that have historically/informally received winter maintenance, but winter maintenance has not been formally adopted.

“For those municipalities that do offer winter maintenance services on multi-use pathways, only certain routes are maintained and these tend to be primary routes that serve a commuter function to key destinations such as schools and community centres.”

b. Multi-use Pathway Design and Condition

Multi-use pathways that are candidates for winter maintenance should be constructed to a minimum standard including:
- Adequate surface drainage to prevent ponding of water on the multi-use pathway surface;
- Minimum width (e.g. no less than 3.0m), adequate access for maintenance equipment;
- The multi-use pathways have an asphalt surface (this factor may not apply if a snow blower is used instead of a plow); and
- There should be no danger adjacent to the pathway, such as a steep drop off that could be a hazard for equipment operators.
Recommendation 6-2:

Consideration shall be given to winter maintenance of hard surfaced (e.g. asphalt, concrete etc.) Primary multi-use pathways so they can function as 4-season routes where identified as priorities through public consultation.

Staff shall review the Multi-use Pathway Network and develop a clear understanding of the benefits and costs of winter maintenance on these key pathway corridors, and develop a strategy for an incremental increase in winter maintenance of these routes over time. (To be Determined, 2014)

6.2.2 Multi-use Pathway Access Through Active Construction Zones

Planning for the safety and movement of pathway users through construction zones is as important as planning for vehicular movement, and should be considered an integral part of the construction staging and traffic management plan for any project. The Ontario Traffic Manual Book 7: Temporary Conditions provides guidelines and requirements in the Ontario context for pedestrian and cyclist access through road construction sites. These guidelines should be applied to pathway construction zones and pathways through active construction zones in areas outside road rights-of-way as well.

Planning for the safe passage of pathway users through or beside active construction zones may vary depending on the proximity of the route to the active construction zone, the type and duration of construction and the volume of pathway traffic expected. The following are some general considerations for the development of a management plan for pathways through active construction zones:

- The designated route must not be used for storage of construction equipment, materials, or vehicles;
- Stopping or parking of work vehicles beside the temporary route should be discouraged as this may indirectly encourage the movement of workers, materials and equipment across the pedestrian path of travel;
- Crossings of the temporary route should be minimized. Where construction access routes must cross the path of travel, signals, flag persons or police officers should
be considered as a means to control movements. This is most important in high volume trail zones and near locations that children and seniors frequent.

- Daily inspection of the temporary route is required. Modifications should be made to adapt to changes in the nature of the construction site, to further direct trail user movement where the route is not functioning as planned or where unanticipated conflict points are observed.

**Recommendation 6-3:**

Review and develop standards for the management of multi-use pathways in active construction zones, and ensure that standards are employed for all construction projects where pathway circulation is potentially affected. (Existing Resources, 2013)

### 6.2.3 Multi-use Pathway Bridge Rehabilitation Program

An important element of the economic and social well-being of the City is the continued provision of reliable and safe public infrastructure. As mandated by provincial legislation, all bridges (defined as any span greater than 3m in length, including culverts) under the ownership and responsibility of the City are to be inspected every two years, and all maintenance/repairs as identified are to be carried out. As detailed in Staff Report: DTS-09-074, April 24, 2009, an initial city-wide inventory of all bridges under City responsibility was conducted in 2004 in support of the first provincially mandated inspection program of that year. That inventory revealed a count of 108 bridge-like structures, of which 85 structures met the criteria as defined by Ontario Regulation 104/97. Of these 85 structures, 44 are located on the pathway system, and the condition assessment program recommended a number of initiatives that needed to be undertaken as part of the City’s commitment to keeping these structures in a safe and functional operating condition. The City will adhere to the provincial regulation that governs bridge safety (Ont. Regulation 104/97), and
appropriately budget for the inspection and any required remediation to ensure compliance and public safety.

The bridge inspection program is currently funded bi-annually, and has been incorporated into the City’s 10-year operating budget since 2004 through the Engineering Asset Management Division. The 2012 estimated costs for maintenance of pathway bridges is $194,000. This amount has been identified in 2012 Operations Capital as a separate item and not included in the Multi-use Pathways capital budget identified in the Multi-use Pathways and Trails Master Plan, and this amount will need to be updated every two years as part of the regular inspection cycle.

<table>
<thead>
<tr>
<th>Recommendation 6-4:</th>
<th>As part of its commitment to the provision of reliable and safe public infrastructure the City will continue with inspections and all necessary works related to providing safe pathway bridge infrastructure as outlined in staff report DTS-09-074. (Existing Resources, Ongoing)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommendation 6-5</td>
<td>The Operations Capital Budget should include funding to meet the required repairs as detailed in the recommendations of the bridge inspection program and this amount should be revised every 2 years to follow the inspection cycle to ensure adequate funding to make required repairs. (To be Determined, Ongoing)</td>
</tr>
<tr>
<td>Recommendation 6-6:</td>
<td>Staff shall prepare an issue paper to identify a capital budget program for the long term maintenance and replacement of pathway bridges. (Existing Resources, 2013)</td>
</tr>
</tbody>
</table>

6.2.4 Key Principles of Multi-use Pathway Maintenance Program for Kitchener

Table 6-1 describes typical multi-use pathway maintenance activities that Kitchener should include as part of the development of a multi-use pathway maintenance
program that is tailored to suit the City’s needs. Tasks have been grouped according to the frequency with which they would typically be performed, namely:

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

**Table 6-1 Multi-use Pathway Maintenance Best Practices**

<table>
<thead>
<tr>
<th>Immediate (within 24 hours of becoming aware of the situation through a “hotline”, email, other notification or observation)</th>
<th>As a minimum, mark, barricade and sign the subject area to warn pathway users, or close the pathway completely until the problem can be corrected.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Remove vegetation and/or windfalls, downed branches etc., where traffic flow on the pathway is being impaired or the obstruction is resulting in a sight line issue. Remove hazard trees that have been identified.</td>
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<td></td>
<td>Repair or replace items that have been vandalized or stolen/removed. This is especially important for regulatory signs that provide important information about hazards such as road crossings, steep grades, and sharp curves.</td>
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<td></td>
<td>Removal of trash in overflowing containers or material that has been illegally dumped.</td>
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<td></td>
<td>Repair of obstructed drainage systems causing flooding that poses a hazard to pathway users or that is resulting in deterioration that poses an immediate safety hazard.</td>
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<td></td>
<td>Monitor pathway areas and structures that are prone to erosion after severe summer storms and repair as required.</td>
</tr>
<tr>
<td></td>
<td>Repairs to structural elements on bridges such as beams, railings, access barriers and signs.</td>
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</tbody>
</table>
- Pathway patrols/inspections should review the pathway 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 multi-use pathways (in open settings only). Depending on pathway location this will be done a minimum of 2 times during the growing season, and in some locations this may be done biweekly or monthly. The width of the verge will vary according to the location (typically 0.5 to 1.0m wide verge). This helps to keep the clear zone open and can slow the invasion of weeds into granular pathways surfaces. Not all pathways will have mown edges. In woodland and wetland areas, occasional pruning and brushing is typically the only vegetation maintenance to be undertaken.

- Regular garbage pickup (10 day cycle or more frequent for heavily used areas). Note that receptacles will be located at trail heads and trail intersections with major roadways and that litter removal along pathways and trails is not an operations program, however this can be addressed in a coordinated manner through community based programs such as ‘Adopt-a-Trail’, EarthDay etc..

- Repair within 30 days or less, partially obstructed drainage systems causing intermittent water backups that do not pose an immediate safety hazard, but that if left unchecked over time will adversely affect the integrity of the pathway and/or any other pathway related infrastructure or the surrounding area.

<table>
<thead>
<tr>
<th>Regularly (weekly / biweekly / monthly)</th>
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<tbody>
<tr>
<td>Patching/minor regarding of multi-use pathway surfaces and removal of loose rocks from the pathway bed.</td>
</tr>
<tr>
<td>Culvert cleanout where required.</td>
</tr>
<tr>
<td>Top up approaches to bridges.</td>
</tr>
<tr>
<td>Planting, landscape rehabilitation, pruning/beautification.</td>
</tr>
<tr>
<td>Installation/removal of seasonal signage.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Seasonally</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patching/minor regarding of multi-use pathway surfaces and removal of loose rocks from the pathway bed.</td>
</tr>
<tr>
<td>Culvert cleanout where required.</td>
</tr>
<tr>
<td>Top up approaches to bridges.</td>
</tr>
<tr>
<td>Planting, landscape rehabilitation, pruning/beautification.</td>
</tr>
<tr>
<td>Installation/removal of seasonal signage.</td>
</tr>
</tbody>
</table>
Annually

- Conduct an annual safety audit. This task is not necessarily specific to multi-use pathways and may be included with general annual safety audits for parks, playgrounds and recreation facilities.
- Evaluate support facilities / pathway amenities to determine repair and/or replacement needs.
- Examine pathway surface to determine the need for patching and grading.
- Grading/grooming/ “topping up” and crowning the surface of granular pathways.
- Pruning / vegetation management along multi-use pathways and areas where branches may be encroaching into the clear zone a minimum of 1 time per year as a preventative measure (currently this is done on a complaint basis). 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 woodland setting), or used as part of the rehabilitation of closed pathways. Where invasive species are being pruned and/or removed, branches and cuttings should be disposed of in an appropriate manner.
- Inspect and secure all loose side rails, bridge supports, decking (ensure any structural repairs meet the original structural design criteria).
- Aerate soils in severely compacted areas.

Every 3 to 5 Years

- Cleaning and refurbishment of signs, benches and other pathway amenities.

Every 10 to 20 Years

- Resurface asphalt pathways (assume approximately every 15 years).
- Replace or reconstruct granular pathways (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.

A multi-use pathway maintenance log should be used to document maintenance activities, and this data should be transferred into the Multi-use Pathway Network Management tool described earlier in this Chapter. The log should be updated when features are repaired, modified, replaced, removed, or when new features are added.
Accurate multi-use pathway logs also become a useful resource for determining maintenance budgets for individual items and tasks, and in determining total maintenance costs for the entire multi-use pathways. In addition, they are a useful source of information during the preparation of tender documents for pathway contracts, and to show the location of structures and other features that require maintenance.

Annual maintenance of mature off-road multi-use trails, particularly in open spaces, greenways and parks can cost from $2,000 to $10,000 per linear kilometre of trail (3.0 to 3.5 m wide), depending on the level of service standard of a municipality. New asphalt off-road multi-use pathways also typically have lower maintenance costs in the first 10 years of their life span.

As previously noted in Section 5.5.2 and summarized in Table 5-3, the recommended funding level for the development of the multi-use pathways network is $700,000 per year. This represents an investment of $3.19 per capita (based on a population of 219,153 from the 2011 Census, Statistics Canada). This budget is for the creation of new pathways, surface reconstruction of existing pathways as well as major operating costs. This compares to an average investment of $2.91 per capita per year based on current information provided by a number of other southern Ontario municipalities.

However these municipalities also reported a separate budget for operations and maintenance of their trail system, though the annual contribution was not available from all at the time the data was collected.

An absolute dollar value for maintenance costs was not calculated for each of the multi-use pathway segments in the network since this cost will change as the total length of facilities increases. Given the range of costs of $2,000-$10,000/km/year reported by other municipalities for annual maintenance, the City should carefully examine the portion of funds currently allocated to pathway maintenance within the recommended $700,000 “pool” to determine if this amount is sufficient to cover the creation of
new pathways, surface reconstruction of existing pathways as well as major operating costs.

Assuming a cost of $4,000/km/year, a minimum of $420,000 would be required to maintain the existing 105km designated as Primary and Secondary pathway in the network alone.

Pathway maintenance of the entire network in the City is currently handled by 2 full-time equivalent staff, supplemented by seasonal staff that is hired to maintain all parks and open space assets.

Staff is challenged today in terms of their ability to effectively maintain the pathway system, much of their effort is directed towards remedial measures and repairs of emergency situations. Improved pathway maintenance was a common theme among the many comments received from the public and stakeholders during the course of the study. Some stakeholders, including representatives of the development community cited displeasure with the fact that they are required to pay for/construct pathways, whereas, in their opinion, there are insufficient resources allocated to their ongoing care and maintenance.

Table 6-2: 2012 Operations Budget for Pathway and Trail Maintenance

<table>
<thead>
<tr>
<th>Staff</th>
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</thead>
<tbody>
<tr>
<td>2 FTE (Full time staff)</td>
<td>$130,000/yr.</td>
<td></td>
</tr>
<tr>
<td>3 FTE (Seasonal staff)</td>
<td>$90,000/yr.</td>
<td></td>
</tr>
<tr>
<td>Equipment/Fleet Charges</td>
<td>$100,000/yr.</td>
<td></td>
</tr>
<tr>
<td>Materials</td>
<td>$80,000/yr.</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>$400,000/yr.</td>
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</table>

Along with plans to increase the size of the network to meet demand and the increase in the population as the city grows, the City must carefully consider the staffing requirements and material costs to maintain the network. Maintenance budgets should increase in an incremental fashion along with the incremental growth of the network of facilities over time. Therefore, as each new network segment is added the impact to the operations budget should be calculated by City staff so that it can be added into the annual maintenance budget request.
should be calculated by City staff so that it can be added into the annual maintenance budget request.

**Recommendation 6-7:** Using the strategies outlined in the master plan as a starting point, staff shall develop a multi-use pathway and trail maintenance plan that is tailored to meet the City’s needs, and is supported by appropriate staff and appropriate budget. Increase Operations staffing from the current 2-1/2 FTE to 4-1/2 FTE (i.e. the addition of 4-1/2 temporary staff for the spring, summer and fall months. Council will consider annual Operating Budget submissions which reflect the actual costs of operating and maintaining the multi-use pathway network. (2-1/2 FTE, 2012)

**Recommendation 6-8:** Staffing needs and the annual maintenance budget requirements for multi-use pathways and trails shall be increased in concert with the number of additional kilometres of multi-use pathway and trails that are added to the network each year and based on the per kilometer costs as identified in the Multi-use Pathways and Trails Master Plan. (Existing Resources, 2014-2023)

### 6.3 Monitoring Implementation and Performance Measures

It is proposed that the City implement the City-wide Multi-use Pathways network infrastructure plan on an annual basis in accordance with the proposed phasing and available capital funding, and as authorized by City Council.

Collecting data to evaluate the different and changing aspects of multi-use pathway users’ behaviour will assist in evaluating the effectiveness and overall contribution of various activities to achieve the stated vision and goals of this Plan. This data collection should begin in 2012 and build upon the various Multi-Use Pathways and Trails Master Plan initiatives, and may include public attitude surveys. The data will establish a benchmark with which to compare later data as the Plan is implemented.

“It is proposed that the City implement the City-wide Multi-use Pathways network infrastructure plan on an annual basis in accordance with the proposed phasing and available capital funding, and as authorized by City Council.”
The data collection will be used to:

- Confirm the overall direction and implementation of the Multi-Use Pathways and Trails Master Plan;
- Confirm statistics on the number and type of pathway users; and
- Verify the route selection process.

Over time, the evaluation system should identify changes in route preference to assist in determining where to implement changes to “hard and soft” multi-use pathway infrastructure. The results of this assessment may be used to determine the success of implementing various types of multi-use pathway facilities. However, caution must be used in relying on an immediate response to a given improvement. An extended timeframe should be established to ensure that pathway use awareness initiatives are in place to assist in changing travel patterns and habits.

Assessing the benefits and costs of the implementation program might be based on information such as:

- Origin/destination counts;
- Screen line counts on a finer scale that are appropriate to pathway use patterns;
- Intersection counts to coincide with routes on which improvements are proposed, and also on parallel routes; and
- User counts on major pathway systems.

This information should be collected every two years and during the peak multi-use pathway use season and “off-season” so that comparisons can also be made regarding 4-season use of the system for transportation purposes. Data collected through evaluation/monitoring programs along with information collected through ongoing public consultation exercises, such as user surveys and public attitude surveys conducted every five years, will inform and assist in preparing the list of annual priorities and measuring the performance of the Plan. The proposed Active Transportation and Trails Advisory Committee could play a significant role in the collection, analysis and communication of data collected.

A component of measuring the implementation of the Plan and its success in meeting objectives is to establish performance measures and targets. Performance measures could include a number of characteristics such as the length of facilities added to the network on an annual basis, measurement of user-satisfaction with the system through user-surveys, increase in use for recreation, increase in use for transportation, overall awareness of the pathway network, the amount of media coverage regarding multi-use pathways and active transportation participation etc.. The results from monitoring and
performance measurement should be communicated to Council as part of the annual staff report.

<table>
<thead>
<tr>
<th>Recommendation 6-9:</th>
<th>Staff will develop performance measures to evaluate and monitor the implementation of the Multi-use Pathway Network and master plan recommendations. (To be Determined, 2014)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommendation 6-10:</td>
<td>Operations staff will make an annual presentation to the Infrastructure Services Committee to provide an annual update, for the first 5 years on the progress of the Implementation Strategy. A review of the Network and Implementation Strategy and details of implementation priorities will be completed at the end to the 5th year. Annual priorities for implementation shall be confirmed during Capital and/or Operating Budget deliberations. (Existing Resources, 2012-2017)</td>
</tr>
</tbody>
</table>

6.4 UPDATING THE MASTER PLAN
The Multi-Use Pathways and Trails Master Plan is intended to be a flexible, “living” master plan document that can be adapted to changes in priorities and opportunities arising that were not apparent at the time the plan was developed. In order for the Plan to remain current, and be consistent with other City strategic plans, it will need to be updated on a regular basis.

Updates should include:

- Regular/semi annual or annual updates of the multi-use pathway network management tool;
- An annual staff report to Council on the status of the implementation of the Multi-Use Pathways and Trails Master Plan;
- A complete update of the network portion of the Multi-Use Pathways and Trails Master Plan in 5 years; which should include the addition of this network update into the Official Plan; and
- A comprehensive update of the entire Multi-Use Pathways and Trails Master Plan through a public process at least every 10 years.
Recommendation 6-11: The Multi-use Pathways Master Plan will be reviewed and updated through a broad public process at least every 10 years. (To be Determined, 2022)
7.0 SUMMARY OF RECOMMENDATIONS AND NEXT STEPS

7.1 SUMMARY OF RECOMMENDATIONS

This section contains a consolidation of all the strategic recommendations contained in the Multi-use Pathways and Trails Master Plan. The recommendations are organized into categories based on the chapter in which they appear in the main report. The recommendations are presented in a table format under the following headings:

**Number:** Each recommendation is numbered sequentially for reference purposes and this corresponds with the numbered recommendation found in the main report.

**Recommended Action:** The recommended action or strategy presented in the main body of the report.

**Funding:** Identifies a cost for each recommended action.

**Timing:** Identifies the proposed timing for the recommended action to be completed. Those that are noted as 'ongoing' should begin immediately and will be continued throughout the life of the Master Plan.

**Responsibility:** Identifies the key City staff department(s) impacted by or that should contribute to each recommended action. The lead staff department responsibility is generally identified first.

<table>
<thead>
<tr>
<th>Department</th>
<th>Divisions</th>
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<tbody>
<tr>
<td>CAO-CAO’s Office</td>
<td>CM – Communications and Marketing</td>
</tr>
<tr>
<td></td>
<td>CS – Customer Service</td>
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<tr>
<td></td>
<td>ED – Economic Development (Business, Art, Special Events)</td>
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<td>CS – Community Services</td>
<td>CPS – Community Programs and Services</td>
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<td></td>
<td>IS – Inclusion Services</td>
</tr>
<tr>
<td></td>
<td>DR – Development Review (Planning)</td>
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<td></td>
<td>LRPP – Long Range Policy Planning (Planning)</td>
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<td>SD – Site Development (Planning)</td>
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<tr>
<td>FCS- Finance and Corporate Services</td>
<td>FP- Financial Planning</td>
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<td></td>
<td>HR – Human Resources</td>
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<td></td>
<td>IT – Information Technology (GIS)</td>
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<td>INS – Infrastructure Services</td>
<td>SSBS-Support Services and Business Systems</td>
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<td></td>
<td>DE- Development Engineering</td>
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<td>EDA-Engineering Design and Approvals</td>
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<td>CE-Construction Engineering</td>
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<td>IAP-Infrastructure Asset Planning</td>
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<td>TP-Transportation Planning</td>
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<td>OP- Operations</td>
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<td></td>
<td>OSA- Operational Support and Analysis (Trail maintenance)</td>
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<td></td>
<td>DD-Parks Design and Development</td>
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<tr>
<td>RECOMMENDED ACTIONS</td>
<td>DETAILS</td>
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<td>---------------------</td>
<td>---------</td>
</tr>
<tr>
<td></td>
<td>Funding</td>
</tr>
<tr>
<td><strong>Chapter 3 – Multi-use Pathway Planning Policy</strong></td>
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</tr>
<tr>
<td>3-1 Develop a comprehensive set of Official Plan policies related to multi-use pathways and trails using the themes identified in the Multi-use Pathways and Trails Master Plan as a guide and integrate these in the current Official Plan Update for review and approval.</td>
<td>Existing Resources</td>
</tr>
<tr>
<td>3-2 The Official Plan shall include a Schedule map for the Primary and Secondary multi-use pathway network as the framework for a comprehensive city wide network. It shall be read in conjunction with the Transportation Schedule map in the Official Plan.</td>
<td>Existing Resources</td>
</tr>
<tr>
<td>3-3 Adjustments to the location and alignment of the Primary and Secondary multi-use pathways are part of the evolution of the network, and these changes will not require an Official Plan Amendment where conditions of location and alignment can be met and changes are justified by staff and approved by the Deputy CAO of Infrastructure Services.</td>
<td>Existing Resources</td>
</tr>
</tbody>
</table>
The following amendments to the Subdivision and Site Plan Development and Approvals process are required to implement the multi-use pathway network:

a. Draft Plan of Subdivision submission requirements shall be amended to include the requirement for a trail corridor plan which identifies the park, open space or trail corridor blocks required to permit implementation of the required Primary and/or Secondary Multi-use Pathways within the Plan of Subdivision as identified in the Multi-use Pathway and Trails Master Plan and the Official Plan schedule, as well as connecting links to this network within the Plan of Subdivision.

b. The Subdivision Agreement shall include all requirements for Primary and/or Secondary Multi-use Pathway planning, design, engineering, details, permits and construction, including timing of completion.

c. Detailed design drawings and grading plans for all park and trail corridor blocks within the Approved Plan of Subdivision shall be prepared, submitted, reviewed and approved as a component of the grading and engineering infrastructure drawings submissions to the Development Engineering division.

d. Construction of all Primary and Secondary Multi-use Pathways within the Approved Plan of Subdivision shall be generally at the same time as other engineering infrastructure such as roads and grading. This includes all grading and granular base courses for trails. Surfacing shall be completed prior to registration of the subdivision.

e. The developer is required to provide adequate notice to all home purchasers of the proposal to construct multi-use pathways, including identification of pathway plans and cross sections displayed in sales offices and shall be noted in all agreements of purchase and sale when the multi-use pathway is proposed on lands immediately adjacent to the purchased lot.

<table>
<thead>
<tr>
<th>3-4</th>
<th>The Site Plan Review and Approvals process shall include the requirement for the identification and acquisition of the lands, through parkland acquisition or other method, required to implement the Primary and Secondary Multi-use Pathways identified in the Multi-use Pathways Master Plan.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-5</td>
<td>The Site Plan Review and Approvals process shall include the requirement for the identification and acquisition of the lands, through parkland acquisition or other method, required to implement the Primary and Secondary Multi-use Pathways identified in the Multi-use Pathways Master Plan.</td>
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</table>
### Chapter 7 – The Recommended Multi-use Pathway Network

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Description</th>
<th>Resources</th>
<th>Year</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-6</td>
<td>Where Primary or Secondary multi-use pathways are identified in the Multi-use Pathway Network and are within the study area of an Environmental Assessment (EA) for other infrastructure projects such as roads or stream courses, then the multi-use pathway shall form an integral component of these projects for review and implementation as part of that project.</td>
<td>Existing Resources</td>
<td>2013</td>
<td>INS- EDA, IAP, TP, DD</td>
</tr>
<tr>
<td>3-7</td>
<td>Staff will review the suggested strategies for ongoing public participation related to implementing different types of multi-use pathway and trail development and prepare a process that is appropriate for the City of Kitchener.</td>
<td>Existing Resources</td>
<td>2013</td>
<td>INS- TP, DD</td>
</tr>
<tr>
<td>3-8</td>
<td>Staff will review the Development Charges (DC) Bylaw to ensure that it includes sufficient language/ clauses to enable the use of DC funds to build new, and improve existing Primary and Secondary multi-use pathways and trail facilities in locations where it can be demonstrated that the need is the result of city growth.</td>
<td>Existing Resources</td>
<td>2014</td>
<td>CS-LRPP INS- DE, IAP, DD</td>
</tr>
<tr>
<td>3-9</td>
<td>Develop an acquisition strategy for the lands or corridors required for multi-use pathway routes on privately owned land, as illustrated in the recommended Network map and schedule using techniques as described in the Multi-use Pathways and Trails Master Plan.</td>
<td>Existing Resources</td>
<td>2014</td>
<td>CS-DR, LRPP, SD INS- TP, DD</td>
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</tbody>
</table>

### Chapter 4 – The Recommended Multi-use Pathway Network

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Description</th>
<th>Resources</th>
<th>Year</th>
<th>Notes</th>
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<tbody>
<tr>
<td>4-1</td>
<td>Adopt the Multi-use Pathway Network Plan as illustrated in the Multi-use Pathways and Trails Master Plan and Official Plan schedule as a blueprint for the development of a comprehensive multi-use pathway network in Kitchener.</td>
<td>Existing Resources</td>
<td>2012</td>
<td>CS-DR, LRPP, SD INS- DE, EDA, IAP, TP, DD</td>
</tr>
<tr>
<td>4-2</td>
<td>The route selection principles described in the Multi-use Pathways and Trails Master Plan shall be considered when future network changes are being explored, new network opportunities are identified, and when individual routes are entering into the detailed planning and design stage of implementation.</td>
<td>Existing Resources</td>
<td>2012</td>
<td>CS-DR, LRPP, SD INS- DE, EDA, TP, DD</td>
</tr>
<tr>
<td>4-3</td>
<td>Recognize that adjustments to the approved Network Plan will occur from time to time and that this is consistent with the goal of ensuring the network plan is flexible and can respond to changes and new opportunities. Approval required as per Recommendation 3-3.</td>
<td>Existing Resources</td>
<td>2012</td>
<td>CS-DR, LRPP, SD INS- DE, EDA, TP, OP, DD</td>
</tr>
<tr>
<td>4-4</td>
<td>Staff shall examine in detail, in consultation with the public, the requirements for lighting on Primary Multi-use Pathways and prepare a report detailing the criteria necessary to meet requirements for lighting on these routes and detailed recommendations and priorities for its implementation, including costing and proposed phasing.</td>
<td>Existing Resources</td>
<td>2014</td>
<td>INS- TP, OP, OSA, DD</td>
</tr>
<tr>
<td>4-5</td>
<td>The design standards and guidelines prepared as part of the Multi-use Pathways and Trails Master Plan are the guiding document regarding the construction of multi-use pathways and trails in the City and are intended to inform and support the details provided in other documents used for implementation such as the Development Manual or Urban Design Standards and Guidelines.</td>
<td>Existing Resources</td>
<td>2013</td>
<td>CS-IS, DR, SD INS- DE, EDA, CE, IAP, TP, DD</td>
</tr>
<tr>
<td>4-6</td>
<td>All new standard details and implementation process revisions for the subdivision and site development process shall be reviewed and updated through the Development Manual review process at its next scheduled update.</td>
<td>Existing Resources</td>
<td>2015</td>
<td>INS-DE, TP, OP, DD</td>
</tr>
<tr>
<td>4-7</td>
<td>Staff responsible for the design and construction of multi-use pathways and trails shall remain current with best industry design practices.</td>
<td>Existing Resources</td>
<td>Ongoing</td>
<td></td>
</tr>
</tbody>
</table>

**Chapter 5 – The Implementation Strategy**

| 5-1 | Staff shall systematically implement the recommended Multi-use Pathway Network as illustrated in the Network Map and Schedule through the subdivision and site planning process as well as through Engineering, Transportation and Parks capital projects within existing city lands or corridors. | Existing Resources | 2012 | CS- DR, LRPP, SD INS- DE, EDA, CE, IAP, TP, OP |
| 5-2 | Staff responsible for implementing the multi-use pathway network shall use the objectives for prioritization identified in the Multi-use Pathways and Trails Master Plan and Phasing Map to inform decision-making related to setting priorities for implementation. Implementation priorities will be confirmed on an annual basis in concert with the Development and Capital Budget process. | Existing Resources | 2013 | CS-IS, DR, LRPP, SD INS- DE, EDA, IAP, TP, OP, OSA, DD |
| 5-3 | Staff shall prepare a detailed annual update of the 10 Year Phasing Plan to identify specific multi-use pathway segments proposed and detailed costs estimates. | Existing Resources | 2012-2021 | INS-DD |
The planning, design and development of multi-use pathways in the City shall be consistent with the Network Map and Official Plan Schedule, and master plan standards and guidelines. 

<table>
<thead>
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<th>Year</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>5-4</td>
<td>The planning, design and development of multi-use pathways in the City shall be consistent with the Network Map and Official Plan Schedule, and master plan standards and guidelines.</td>
<td>Existing Resources</td>
<td>2012</td>
<td>CS-DR, LRPP, SD INS- DE, EDA, CE, IAP, TP, OP, OSA, DD</td>
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<tr>
<td>5-5</td>
<td>Over the short term assign the responsibility of multi-use pathway coordinator to an existing staff position. This person shall be responsible for “championing” multi-use pathways, pathway initiatives and programming. In the mid-term and beyond consider creating a new position to lead the implementation of the Plan.</td>
<td>Existing Resources – Short Term</td>
<td>2012</td>
<td>INS- IAP, TP, OP, DD</td>
</tr>
<tr>
<td>5-5</td>
<td>Implementation of the multi-use pathway network shall be the responsibility of all departments engaged in the planning, design, engineering and implementation of municipal infrastructure and the Multi-use Pathway network requirements shall be considered within the Asset Management programs of the Engineering and Operations divisions and the Long Range Planning, Development Planning and Site Plan review processes. Projects within road rights-of-way: Engineering Capital Projects within parks and open space: Operations Capital</td>
<td>Existing Resources</td>
<td>2012</td>
<td>CS- CPS, IS, DR, LRPP, SD INS- SSBS, DE, EDA, CE, IAP, TP, OP, OSA</td>
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<tr>
<td>5-7</td>
<td>All city departments and staff involved in long range planning, development planning, transportation planning, site plan and subdivision development review, urban design, infrastructure design and implementation shall include the planning and implementation of the approved Multi-use Pathway Network and related facilities into their standard processes and projects. Where necessary, staff will revise their standard processes to include the planning and implementation of the approved Multi-use Pathway Network.</td>
<td>Existing Resources</td>
<td>2012</td>
<td>CS-DR, LRPP, SD INS- DE, EDA, CE, IAP, TP, OP, OSA, DD</td>
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<tr>
<td>5-8</td>
<td>The coordination and implementation of multi-use pathways shall be included in all related capital infrastructure projects and funding shall be appropriately included as a portion of the project budget.</td>
<td>To be Determined</td>
<td>2013</td>
<td>CS-CPS, IS INS- SSBS, DE, EDA, CE, IAP, TP, OP, OSA</td>
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<td><strong>5-9</strong></td>
<td>Establish an Interdepartmental Working Group consisting of representatives from key departments to ensure that the implementation of multi-use pathways is coordinated with the implementation of other active transportation and city infrastructure. This group may include representatives from Long Range Planning, Development Planning, Urban Design, Development Engineering, Engineering Design and Approvals, Infrastructure Asset Planning, Parks Planning and Development, Operations and Transportation Planning.</td>
<td><strong>Existing Resources</strong></td>
<td>2013</td>
<td></td>
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<td><strong>5-10</strong></td>
<td>Review the mandate of the current Cycling Advisory Committee through 2012, with the goal of broadening their role to include all aspects of active transportation, including the Multi-use Pathway network. Following the review, staff and the current Cycling Advisory Committee will report back to Council with a recommended course of action for the Committee’s new mandate starting in 2013.</td>
<td><strong>Existing Resources</strong></td>
<td>2013</td>
<td></td>
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<td><strong>5-11</strong></td>
<td>Staff shall prepare and implement a pilot signage and way-finding strategy for one key section of Primary multi-use pathway and one Secondary multi-use pathway in consultation with the Cities of Waterloo and Cambridge and the Region of Waterloo.</td>
<td><strong>$50,000</strong></td>
<td>2013</td>
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<tr>
<td><strong>5-12</strong></td>
<td>Staff shall prepare a detailed city-wide way-finding signage strategy for all Primary and Secondary multi-use pathways throughout the city.</td>
<td><strong>$50,000</strong></td>
<td>2014</td>
<td></td>
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<tr>
<td><strong>5-13</strong></td>
<td>In the short term—within 2 years staff will facilitate the development of a digital map of the existing pathway and trails network for publishing on the City web site for public use. The map shall be compatible with mobile device use.</td>
<td><strong>To be Determined</strong></td>
<td>2014</td>
<td></td>
</tr>
<tr>
<td><strong>5-14</strong></td>
<td>Ongoing updating of the GIS database for both the existing and proposed Primary and Secondary multi-use pathways is essential to ensure that maps for use by the public and staff responsible for implementation and operations are current. Annual GIS updates and reviews for accuracy are required.</td>
<td><strong>Existing Resources</strong></td>
<td>2013</td>
<td></td>
</tr>
<tr>
<td><strong>5-15</strong></td>
<td>Explore community based social marketing techniques and opportunities to work with local partners and other public agencies to promote the health and recreational benefits of multi-use pathway and trail use.</td>
<td><strong>To be Determined</strong></td>
<td>2013</td>
<td></td>
</tr>
<tr>
<td>5-16</td>
<td>Staff shall explore and make recommendations regarding methods to recognize individuals, businesses and organizations that make exemplary contributions to the development of the multi-use pathways and trails in Kitchener.</td>
<td>To be Determined</td>
<td>2014</td>
<td>CAO-CM CS-DR INS- TP, DD</td>
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<td>5-17</td>
<td>During the first phase of implementation (2012-2017) staff will undertake a detailed analysis of lifecycle costs related multi-use pathways and trails, and prepare a report outlining findings and recommendations regarding the funding required to address these lifecycle costs for capital budget deliberations in 2017.</td>
<td>Existing Resources</td>
<td>2017</td>
<td>INS-IAP, OP, OSA, DD</td>
</tr>
<tr>
<td>5-18</td>
<td>Multi-use Pathways and Trails Master plan implementation is based on a recommended annual capital funding level of $700,000 annually over the first 5 year period and $1.5M annually over the next 5 years, subject to Capital Budget and Capital Forecast review and approval.</td>
<td>$3.5M 2012-2016 $7.5M 2017-2021</td>
<td>INS-TP, OP, OSA, DD</td>
<td></td>
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<tr>
<td>5-19</td>
<td>Allocate a portion of the annual capital funding to implement the recommendations of the signage and wayfinding strategy ($5% or 35,000/yr. 2012-2016, 2.5% or $35,000/yr. 2017-2021). Complete the implementation of signage and wayfinding elements for all existing multi-use pathways by the end of 2021. Signage and wayfinding elements for new pathways will be implemented as part of new pathways construction.</td>
<td>$175,000 2012-2016 $175,000 2017-2021</td>
<td>INS-TP, DD, OP</td>
<td></td>
</tr>
<tr>
<td>5-20</td>
<td>In addition to capital funding, explore other outside partnership, cost-sharing and funding opportunities for the implementation of multi-use pathways and trails that are outside the responsibility of the City of Kitchener such as the successful Walter Bean Trail funding, Trans Canada Trail etc..</td>
<td>Existing Resources</td>
<td>2014</td>
<td>INS- TP, DD</td>
</tr>
</tbody>
</table>

**Chapter 6 – Operations and Maintenance**

<p>| 6-1 | Staff shall maintain and annually update the GIS based network management tool as part of the Operations Division asset management of multi-use pathways developed as part of the Multi-use Pathways and Trails Master Plan. A new position is required to develop and maintain this asset management tool and its correlation with the work order system. | 1/2 FTE | 2014 | FCS- IT (GIS) INS- SSBS, IAP, TP, OP, OSA, DD |</p>
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Status</th>
<th>Year</th>
<th>Responsible Parties</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-2</td>
<td>Consideration shall be given to winter maintenance of hard surfaced (e.g. asphalt, concrete etc.) Primary multi-use pathways so they can function as 4-season routes where identified as priorities through public consultation. Staff shall review the Multi-use Pathway Network and develop a clear understanding of the benefits and costs of winter maintenance on these key pathway corridors, and develop a strategy for an incremental increase in winter maintenance of these routes over time.</td>
<td>To be Determined</td>
<td>2014</td>
<td>INS- SSBS, IAP, TP, OP, OSA, DD</td>
</tr>
<tr>
<td>6-3</td>
<td>Review and develop standards for the management of multi-use pathways in active construction zones, and ensure that standards are employed for all construction projects where pathway circulation is potentially affected.</td>
<td>Existing Resources</td>
<td>2013</td>
<td>INS-EDA, CE, TP, OP, OSA, DD</td>
</tr>
<tr>
<td>6-4</td>
<td>As part of its commitment to the provision of reliable and safe public infrastructure the City will continue with inspections and all necessary works related to providing safe pathway bridge infrastructure as outlined in staff report DTS-09-074.</td>
<td>Existing Resources</td>
<td>Ongoing</td>
<td>INS-IAP, OP, OSA, DD</td>
</tr>
<tr>
<td>6-5</td>
<td>The Operations Capital Budget should include funding to meet the required repairs as detailed in the recommendations of the bridge inspection program and this amount should be revised every 2 years to follow the inspection cycle to ensure adequate funding to make required repairs.</td>
<td>To be Determined</td>
<td>Ongoing</td>
<td>INS-IAP, OP, OSA, DD</td>
</tr>
<tr>
<td>6-6</td>
<td>Staff shall prepare an issue paper to identify a capital budget program for the long term maintenance and replacement of pathway bridges.</td>
<td>Existing Resources</td>
<td>2013</td>
<td>INS-DD, OP, OSA</td>
</tr>
<tr>
<td>6-7</td>
<td>Using the strategies outlined in the master plan as a starting point, staff shall develop a multi-use pathway and trail maintenance plan that is tailored to meet the City’s needs, and is supported by appropriate staff and appropriate budget. Increase Operations staffing from the current 2-1/2 FTE to 4-1/2 FTE (i.e. the addition of 4-1/2 temporary staff for the spring, summer and fall months). Council will consider annual Operating Budget submissions which reflect the actual costs of operating and maintaining the multi-use pathway network.</td>
<td>2 FTE</td>
<td>2012</td>
<td>INS- SSBS, TP, OP, OSA, DD</td>
</tr>
</tbody>
</table>
6-8 | Staffing needs and the annual maintenance budget requirements for multi-use pathways and trails shall be increased in concert with the number of additional kilometres of multi-use pathway and trails that are added to the network each year and based on the per kilometer costs as identified in the Multi-use Pathways and Trails Master Plan. | Existing Resources | 2014-2023 | INS- SSBS, IAP, TP, OP, OSA, DD |

6-9 | Staff will develop performance measures to evaluate and monitor the implementation of the Multi-use Pathway Network and master plan recommendations. | To be Determined | 2014 | INS- SSBS, TP, OP, OSA, DD |

6-10 | Operations staff will make an annual presentation to the Infrastructure Services Committee to provide an annual update, for the first 5 years on the progress of the Implementation Strategy. A review of the Network and Implementation Strategy and details of implementation priorities will be completed at the end to the 5th year. Annual priorities for implementation shall be confirmed during Capital and/or Operating Budget deliberations. | Existing Resources | 2012-2017 | CAO-CM, CS- CPS, IS, FCS- FP INS- SSBS, IAP, TP, OP, OSA, DD |

6-11 | The Multi-use Pathways Master Plan will be reviewed and updated through a broad public process at least every 10 years. | To be Determined | 2022 | INS-TP, OP, OSA, DD |

### 7.2 NEXT STEPS

There are a number of recommended steps that the City of Kitchener should take in 2012 to advance the Kitchener Multi-use Pathways Master Plan and Implementation Strategy:

- Following Council’s adoption of the Draft Final Report, issue a media release and public notice announcing the completion of the Multi-use Pathways Master Plan and note that the report is available.
- The report should be posted in digital format on the City’s website so that it can be viewed and downloaded by the public, and copies made available at the City’s offices; and
- Provide copies of the Multi-use Pathways Master Plan to all City Departments, Waterloo Region, adjacent municipalities, the Grand River Conservation Authority, and the Ontario Ministry of Natural Resources.

Since the 1970’s with the development of the City of Kitchener’s “Linked Open Spaces” report, published by the former Department of Planning, the City of Kitchener has embraced the importance of developing and providing pedestrian and cycling routes and facilities throughout the city. This original master plan created a vision and recognized of the concept of linked open spaces in the Official Plan. The original vision placed Kitchener among the leaders for the development of municipal multi-use trails in the 1970’s and 1980’s, however, since that time many municipalities have surpassed Kitchener in terms of the extent, quality and funding of their “off-road” walking and cycling networks.
The implementation of recommendations in this master plan over the next 10-15 years will see Kitchener “catch up” and keep pace with the growing public demand for a high quality, connected system of multi-use pathways that connect neighbourhoods with places of recreation, shopping and employment. In addition, well developed multi-use pathway and trail systems provide a variety of other transportation, economic, environmental and community health benefits.
APPENDICES
APPENDIX A: MULTI-USE PATHWAY DESIGN GUIDELINES

A.1 INTRODUCTION

A well-designed and properly maintained Multi-use pathway and trail system is a critical part of the users’ experience and enjoyment. For some users, the way a facility has been designed and maintained will significantly influence their decision to return and use that trail at a later date. Multi-use pathways and trails that have been thoughtfully designed and constructed also perform better over their lifespan, provide minimal impacts to the surrounding environment, are easier to maintain and may result in fewer concerns or issues of liability. The better the quality of the design and construction, the more attractive it will be to users, the more it will be used, and the longer it will be before requiring upgrades.

Multi-use pathway and trail users vary widely in terms of age and physical ability, and have a their own sense of what the experience should be, depending on the type of use they are interested in or what user group they consider themselves to be a part of. A “one size fits all” design approach does not apply to multi-use pathways, and it is important to try and match the multi-use pathway or trail type and design with the type of experience that is desired. A recognizable and consistent high quality design will create a community asset where user experience, enjoyment and safety are maximized.

A.1.1 How to Use These Guidelines

The purpose of these guidelines is to assist multi-use pathway and trail planners, designers and managers in making informed decisions about the design of these facilities. The guidelines provide general information about users and their needs. Where appropriate, summary tables are provided to highlight recommended design treatments and/or considerations in addressing key features associated with various multi-use pathway and trail types.

A number of the individual guidelines contained in the Multi-use Pathway Design Guidelines provide an indication of “minimum” and “preferred” conditions or dimensions for proposed multi-use pathway and trail alignments and facilities.

“Minimum recommended” conditions typically reflect a situation that is at the lower end of the spectrum in terms of user level of service and an in some cases user safety. The minimum recommended condition may be considered a threshold that the design or condition should not fall below, and the minimum recommended condition may be
considered in locations where anticipated use is very low, and/or significant constraints do not enable the provision of the preferred condition.

“Preferred” conditions or treatments reflect conditions that typically serve a broader range of uses and a greater number of trail users. Achieving the preferred condition or treatment may also provide a longer service life span.

The application of these guidelines in the development, implementation, and operation of individual sites will require specific consideration of a number of factors including public safety, local, regional and/or provincial jurisdiction requirements, building codes and by-laws.

Where existing on and off-road community trails and facilities are to be incorporated as part of the Kitchener Multi-use Pathways system but do not meet the minimum recommended conditions described in these Guidelines, the following approach should be considered:

- Examine the community trail or route to identify any design issues, or areas that may be seen as a potential risk to users.
- Assess whether the trail is reasonably capable of handling anticipated levels of use.
- Set up a monitoring program to identify emerging problems.
- If necessary, establish an upgrading program to addresses areas of risk and/or emerging problems, as this helps to create awareness and appreciation towards the issue(s), and determine ways in which they can be resolved so that at least the minimum recommended guidelines can be achieved over time.

Information included in these guidelines is based on currently accepted design practices in North America, and ongoing research and experience gained during the initial years of trail implementation. The guidelines are not intended to be prescriptive, rather should be treated as a reference to be consulted during the development and construction of the trail network. They are not meant to be inclusive of all design considerations for all locations, nor are they meant to replace “sound engineering judgment”. These guidelines are not intended as detailed solutions to specific problem areas. A site-specific design exercise involving a detailed site inventory should be applied as part of the analysis to arrive at final decisions for any section of the multi-use pathway. Therefore, care should be given in the strict application of these guidelines to all situations and location because it may limit the ability to implement a
Appendix A

Guideline A-1: The trail design guidelines presented in Appendix A of the City of Kitchener Multi-Use Pathway Master Plan be adopted as the basis for trail design in the Municipality.

Guideline A-2: That City staff should be directed to remain current with best industry design practices through a variety of means including attendance at professional seminars and conferences.

Guideline A-3: Area specific design solutions that are consistent with good engineering judgment should be considered, given that the strict application of the recommended trail design guidelines in the Multi-Use Pathway Master Plan may not be appropriate for all situations and locations, and could also limit the ability to implement a trail in a constrained corridor.

A.2 MULTI-USE PATHWAY USERS, THEIR NEEDS AND GENERAL DESIGN PARAMETERS

When developing and applying guidelines, it is important to consider the characteristics and preferences of potential users. In Kitchener, the potential user groups include pedestrians, cyclists, in-line skaters, users with mobility aids, all of which are self-propelled. The following sections briefly describe each of these user groups, how they tend to use the trails and some of the design parameters/needs that should be considered.

A.2.1 Pedestrians

Pedestrians can generally be divided into several sub categories:

- Walkers;
- Hikers; and
- Joggers and Runners.
Walkers

A study conducted by Environics International on behalf of Go for Green (1998) reported the following top five reasons for walking in Canada:

- Exercise / Health (62%);
- Pleasure (30%);
- Practicality / Convenience (24%);
- Environmental Concern (10%); and
- Saving money (9%)\(^1\).

Because walking is such a basic activity and a freedom that is enjoyed by most people, guidelines that facilitate this activity must be established for all potential users. Planners and designers should also consider the needs of walkers with baby strollers or walking aids, carrying picnic baskets or other equipment, and walkers in pairs or in groups, such as a class of school children. Planners and designers need to be aware that potential users may have sensory, cognitive or ambulatory difficulties.

Walkers represent a wide range of interests and motives such as leisure, relaxation, socializing, exploring, making contact with nature, meditation, fitness, or dog walking. It is also important to consider pedestrians who walk for utilitarian or transportation purposes. This group tends to be more urban-focused, with trips focusing on shopping and errands and walking to work and school. In addition to using sidewalks, parking lots and urban plazas, the utilitarian walker will use multi-use pathways and trails where they are convenient, well designed and properly maintained. In many cases trails may provide a convenient “short cut” to traveling the sidewalk network to get to their destination. This group may represent a significant portion of users in the urban areas of Kitchener. Where no sidewalks are provided and there are no road shoulders, the Ontario Highway Traffic Act allows pedestrians to walk on the edge of the roadway, facing oncoming traffic\(^2\).

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Hikers

Hikers are often considered more of the elite of the recreational walking group and may challenge themselves to cover long distances and be willing to walk on sections of rural roadway shoulder considered less safe or less interesting by the majority of leisure walkers. Multi-use pathway and trail planners should assume that there will be keen pedestrian users, even in remote or highway environments, despite the fact that the frequency may be very low. Some of the characteristics of this group include:

- Day trips that may range between 5 and 30 km in length;
- They may be more keenly interested in natural features;
- They are often more adept at map reading;
- Are more self sufficient than leisure walkers;
- May expect fewer amenities; and
- Are often attracted to challenging terrain and rural areas.

Runners and Joggers

Although the motive for runners and joggers is primarily fitness and exercise, they may share more in terms of profile characteristics with distance hikers than they do with leisure walkers. They tend to be accomplishment oriented and often enjoy the trails at higher speed and over distances between 3 and 15 km or more. They will often avoid hard surfaces such as asphalt and concrete and prefer to run on granular, natural (earth) and turf surfaces as they provide more cushioning effect.

A.2.2 Cyclists

Recreational cyclists would be considered to have the similar motives as leisure or fitness walkers. The mechanical efficiency of bicycles allows users of all ages to significantly increase their travel speed and distance, often allowing them to experience much more countryside by cycling rather than walking.

Some bicycles, including the “mountain” or “hybrid”, can travel easily over stonedust and gravel surfaces, whereas traditional narrow-tired touring and racing bicycles require well compacted granular surfaces or asphalt pavement. Distances covered vary widely from a few kilometers to well over 100, depending on the fitness level and motivation of the individual cyclist. Although cyclists have the right to access the extensive existing public roadway system, with the exception of the 400-series and major highways, many inexperienced cyclists feel unsafe sharing the road with automobiles. Some do not have the desire or skill level to ride in traffic. Off-road multi-use pathways and trails, shared with pedestrians, can offer recreational and commuter
cyclists a more secure environment to enjoy the use of their bicycles. Those that travel the longer distances are more likely to focus a significant portion of their route on the roadway network, and often seek out quieter, scenic routes over busier roads.

When using roads, cyclists generally travel 0.5-1.0 m from the curb or other obstruction because of the possibility of accumulated debris, uneven longitudinal joints, catch basins, or concern over hitting a pedal on the curb or handlebar on vertical obstacles. However, when cyclists use or cross a public roadway they are considered vehicles by law and are expected to follow the same traffic laws as motorized vehicles³.

Although the average travel speed for a cyclist on a trail or multi-use pathway is in the range of 15-20 km/hr and on a road 18-30 km/hr, speeds in excess of 40 km/hr can be attained on descents on roads and some hard surface facility types. Speed limits and warnings should be posted along the multi-use pathway or trail to discourage fast riding and aggressive behaviour.

A.2.3 In-Line Skaters and Skateboarders

In-line skating, skateboarding and the use of non-motorized scooters are becoming increasingly popular among all age groups, particularly in urban areas. Although in-line skaters may have more in common with cyclists than pedestrians when considering travel motive and speed, they are not considered “vehicles” by the Ministry of Transportation for Ontario (MTO). Some municipalities have responded on an individual basis to the question of where to allow in-line skaters to travel through by-laws. No obvious solutions have emerged, and no standards have been widely adopted. In some municipalities, in-line skaters, skateboarders and scooter users have been prohibited from using either roadways or sidewalks by local by-laws. Consequently, they are avid users of hard-surface off-road facilities and may travel some distance to reach a facility that suits their needs.

This user group prefers a very smooth, hard surface, and loose sand, gravel, twigs, branches, fallen leaves and puddles can be significant hazards. Though skateboarders and scooter users can quickly become pedestrians by dismounting, they too are vulnerable to the effect of grades (both up and downhill) and require ample maneuvering space. An inability to come quickly to a complete stop can be a significant concern for all but the most experienced users in this group. Long or steep hills with limited visibility may be viewed as either challenging or terrifying depending on an individual’s level of experience.

Guideline A-4: That the characteristics and preferences of trail user groups need to be accommodated in the application of the recommended trail design guidelines for each trail and be context sensitive to the location and type of trail planned.

A.3 GENERAL DESIGN PARAMETERS

Careful consideration should be given to the physical, aesthetic and environmental requirements for each multi-use pathway and trail type. In many instances, physical design criteria related to operating space, design speed, alignment and clear zones are often governed by the needs of the fastest, most common user group on the majority of the trails, that being the cyclist. Therefore, many of the physical design criteria outlined in the following sections are recommended in relation to cycling. This is not to say that all multi-use pathways and trails need to be designed to meet the requirements for cyclists, however when multi-use pathways are being designed it is prudent to use parameters for the cyclist. When considering single or specialty uses where part of the trail experience involves maneuvering through challenging conditions, such as BMX or mountain cycling, the parameters outlined below may not apply. In these instances designers should consult directly with the user group and/or design manuals that are specific for that use.

Trail user operating space is a measurement of the horizontal space that the user requires. In the case of in-line skating and cycling, the space includes room required for side to side body motion used to maintain balance and generate momentum. Table A.1 outlines minimum and preferred operating space for different uses.
Table A.1  Trail User Operating Space

<table>
<thead>
<tr>
<th>Operating Condition by Trail User Type</th>
<th>Minimum (metres)</th>
<th>Preferred (metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-way travel (one wheelchair user)</td>
<td>1.2</td>
<td>1.5</td>
</tr>
<tr>
<td>One-way travel (two pedestrians)</td>
<td>1.5</td>
<td>2.0</td>
</tr>
<tr>
<td>One way travel (one cyclist)</td>
<td>1.2 (in constrained locations)</td>
<td>1.5+</td>
</tr>
<tr>
<td>One way travel (one in-line skater)</td>
<td>2.3</td>
<td>3.0</td>
</tr>
<tr>
<td>One way travel (one equestrian)</td>
<td>Dimensions to be added</td>
<td>Dimensions to be added</td>
</tr>
<tr>
<td>Two way travel (two cyclists)</td>
<td>3.0</td>
<td>3.0+</td>
</tr>
<tr>
<td>Two way travel (two wheelchair users)</td>
<td>3.0</td>
<td>3.0+</td>
</tr>
</tbody>
</table>

Horizontal clear distance is the space beside the trail bed that should be kept clear of protruding objects. Vertical clear distance is the space above the head of the user while using the trail (i.e. walking or mounted on their bicycle etc). Table A.2 provides minimum and preferred horizontal and vertical clear distance.
Table A.2  Horizontal and Vertical Clear Distance

<table>
<thead>
<tr>
<th>Clearance Condition</th>
<th>Minimum (metres)</th>
<th>Preferred (metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal clearance to stationary</td>
<td>0.5</td>
<td>1.0</td>
</tr>
<tr>
<td>objects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vertical clearance to stationary</td>
<td>2.5</td>
<td>3.0</td>
</tr>
<tr>
<td>objects</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Slope refers to both the measured fall over a given distance and both the centerline (longitudinal slope) and perpendicular to the centerline (cross slope). Cross slope can be configured so that all runoff is directed to one side of the trail, or so that there is centre crown and runoff is shed to either side of the trail. Table A 3 provides guidance regarding longitudinal and cross slope.

Table A.3  Longitudinal and Cross Slope

<table>
<thead>
<tr>
<th>Longitudinal Grade or Slope</th>
<th>Preferred</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 3%</td>
<td></td>
</tr>
<tr>
<td>5%-10%</td>
<td></td>
</tr>
<tr>
<td>Provide additional trail width where trail segments are greater than 100m in length</td>
<td></td>
</tr>
<tr>
<td>Introduce level rest areas every 100 to 150m of horizontal distance</td>
<td></td>
</tr>
<tr>
<td>Consider design strategies such as switchbacks</td>
<td></td>
</tr>
<tr>
<td>Install signing to alert users of upcoming steep grades</td>
<td></td>
</tr>
<tr>
<td>Avoid grades over 5% for off road trails. Where steeper slopes are necessary “trail hardening” should be considered</td>
<td></td>
</tr>
<tr>
<td>Table A.3</td>
<td>Longitudinal and Cross Slope</td>
</tr>
<tr>
<td>-----------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td><strong>Longitudinal Grade or Slope</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Note: 12:1 (horizontal distance or run : vertical distance or rise), or 8.3% over a distance of 9.0m is the maximum permissible slope for meeting accessibility standards. Level landings or rest areas are required as a minimum every 9.0m where the slope exceeds 8.3%.</td>
</tr>
<tr>
<td>10% to 15%</td>
<td>Consider the use of structures such as steps, step and ramp combinations, stairways</td>
</tr>
<tr>
<td></td>
<td>Consider locating the trail elsewhere</td>
</tr>
<tr>
<td>15% or over</td>
<td>Based on local experience, 15% represents the maximum possible longitudinal slope for a sustainable pathway or trail surface. Where slopes approach or exceed 15% significant washouts become and ongoing issue. Structures such as steps, step and ramp combinations and stairways should be employed. Otherwise and alternative location for the pathway should be sought.</td>
</tr>
<tr>
<td><strong>Cross Slope</strong></td>
<td></td>
</tr>
<tr>
<td>0.5 to 2%</td>
<td>Minimal, acceptable on hard surfaced trails, may not provide adequate drainage on granular surfaced trails</td>
</tr>
<tr>
<td>2 to 4%</td>
<td>Preferred range for both hard and granular surfaced trails</td>
</tr>
<tr>
<td>Greater than 4%</td>
<td>Avoid wherever possible as excessive cross slopes can be difficult and potentially dangerous for some levels of physical ability and certain user groups as they can result in difficulty maintaining balance, especially among user groups with a high centre of gravity.</td>
</tr>
</tbody>
</table>
Design speed is used to determine trail width, minimum curve radius, horizontal alignment and banking or superelevation to ensure that trail users have adequate space and time to safely approach and navigate sharper curves along the trail. The design speed for recreational cyclists is generally considered adequate for all self propelled trail users including pedestrians, in-line skaters, skateboarders, scooter users and those using mobility devices such as wheelchairs. The average recreational cyclists can maintain speeds of up to 18-25 km/hr on some multi-use pathways. For granular surfaced off-road multi-use pathways or trails, a design speed in the area of 25 km/hr is usually adequate, whereas a design speed of 40 km/hr should be considered for hard surfaced multi-use pathways and trails on steeper descents. Cautionary signing should be used to warn of upcoming steep grades and sharp curves.

Cycling is the critical user group when designing off-road multi-use pathways and trails for self-propelled users as they have the highest average travel speed. The minimum radius of a curve on an off-road cycling facility depends on the bicycle speed and super-elevation. The upcoming revision to the AASHTO Guide for the Development of Bicycle Facilities, expected to be published in 2011 will be recommending that the general design speed should be 22km/hr for multi use trails where cycling is the highest speed user group. Based on research, 22km/hr represents the 85th percentile for bicycle speed on granular surfaced pathways. The slightly lower design speed will allow for slightly smaller curve radii and potentially less construction impact as compared to multi-use pathways and trails requiring larger radii. Refer to Table A.4 for suggested centerline radii for a range of design speeds and superelevation rates.
Table A.4  Suggested pathway and trail radii based on travel speed

<table>
<thead>
<tr>
<th>Design speed (km/hr)</th>
<th>Suggested radius (m) where superelevation = 0.02m/m</th>
<th>Suggested radius (m) where superelevation = 0.05m/m</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>30</td>
<td>24</td>
<td>21</td>
</tr>
<tr>
<td>35</td>
<td>33</td>
<td>30</td>
</tr>
<tr>
<td>40</td>
<td>47</td>
<td>42</td>
</tr>
<tr>
<td>45</td>
<td>64</td>
<td>57</td>
</tr>
</tbody>
</table>

When horizontal curves are sharp (i.e. a very small radius), facility widening should be considered to compensate for the tendency of cyclists to track toward the outside of the curve.

Table A.5 provides additional widening requirements for curves on multi-use pathways and trails where the radii are less than the recommended minimum for the design speed selected.
Table A.5  Additional trail widening on the outside of curve

<table>
<thead>
<tr>
<th>Radius (m)</th>
<th>Additional widening (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-7.5</td>
<td>1.2</td>
</tr>
<tr>
<td>7.5-15</td>
<td>0.9</td>
</tr>
<tr>
<td>15-22.5</td>
<td>0.6</td>
</tr>
<tr>
<td>22.5-30</td>
<td>0.3</td>
</tr>
</tbody>
</table>

Stopping Sight Distance is the distance required to for the trail user to come to a full controlled stop upon spotting an obstacle. It is a function of the user’s perception and reaction time. Stopping sight distances for off-road multi-use pathways and trails are typically governed by the distance required for cyclists since pedestrians and other trail users (with the exception of in-line skaters) can typically stop more immediately than cyclists, regardless of the trail configuration. In terms of in-line skaters, though no definitive data currently exists concerning stopping distance, the experiences and observations of in-line skaters, representatives and manufacturers corroborate that a proficient in-line skater travelling near the same speed as a bicycle can stop in a distance equal to or less than that of a cyclist. Therefore, basing stopping distance on the distance required for a cyclist should accommodate all other expected self propelled trail users including in-line skaters.
Guideline A-5: The City should refer to the minimum and preferred trail user operating space widths identified in Table A.1 when developing or reviewing multi-use pathway designs.

Guideline A-6: The City should refer to the minimum and preferred horizontal and vertical clear distances identified in Table A.2 when developing or reviewing multi-use pathway designs.

Guideline A-7: The City should refer to the longitudinal and cross slope guidelines identified in Table A.3 when developing or reviewing multi-use pathway designs.

Guideline A-8: That City should consider the suggested trail curve radii and additional trail widening dimensions identified in Table A.4 and Table A.5 when developing or reviewing multi-use pathway designs.

### A.4 ACCESSIBILITY

Approximately one in eight Canadians suffer from some type of physical disability. Mobility, agility, and pain-related disabilities are by far the most common types, each accounting for approximately 10% of reported disabilities nationally. Disability increases with age: from 3.3% among children, to 9.9% among working-age adults (15 to 64), and 31.2% among seniors 65 to 74 years of age. Disability rates are highest among older seniors (75 and over), with fully 53.3% in this age group reporting a disability.

The Accessibility for Ontarians with Disabilities Act (AODA) states that "The people of Ontario support the right of persons of all ages with disabilities to enjoy equal

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opportunity and to participate fully in the life of the province. Within the AODA, Bills 118 and proposed Bill 125 recognize the need to provide for accessibility standards, improve opportunities and facilitate the removal of barriers in order to enable persons with disabilities to fully participate in the life of the province.

The stated goal of the Accessibility for Ontarians with Disabilities Act (AODA-2005) is “to make Ontario accessible for people with disabilities by 2025” As part of the development of specific regulations within the AODA, the Ministry of Community and Social Services appoints a Standards Development Committee for general topic areas to be covered by the Act. Each committee prepares a draft standard for public review and following the public review Ministry staff makes recommendations and sends the revised Standard to the Minister of Community and Social Services. The Minister has 90 days to recommend that it be enacted in whole or part, or with changes. Once enacted it becomes law.

The Built Environment Standard is the standard that applies to pathways and trails. The intent is that it will help remove barriers in buildings and outdoor spaces for people with disabilities. The standard will only apply to new construction and extensive renovation. Work is continuing on this standard and it is anticipated that regulations will build on the Ontario Building Code. The Final Proposed Built Environment Standard is currently being reviewed by the Ministry. Chapter 11 of the Final Proposed Built Environment Standard deals with technical requirements for paths and trails in natural environments, parks and wilderness areas. The goal is to give people with disabilities appropriate accessibility to natural environments wherever it is practical. It is based on the premise that using a pathway/trail is a voluntary recreational activity. Pathways and trails are considered to be different from exterior walkways - these are covered under Chapter 5 of the Built Environment Standard (Accessible Exterior Routes).

With regard to pathways and trails a number of key criteria have been proposed and are currently being reviewed by the Ministry. These include:

- Maximum running/longitudinal slope of 10%
• Provision of level rest area every 100m where slope exceeds 5%
• Maximum cross slope of 10%
• Minimum width 1.5m
• Surfaces are to be firm, stable with minimal glare
• High tonal or textural changes to distinguish the edge
• Criteria also address changes in level, openings in the surface, edge protection (e.g. near water)
• Signage shall be easily understood and detectable by users of all abilities. It is important to ensure that signage and mapping/messaging clearly communicates which pathways are accessible so that users can make an informed personal decision about which pathways they will use.

Universal Trail Design is a concept that takes into consideration the abilities, needs, and interests of the widest range of possible users. In regards to trail and multi-use pathway design, it means planning and developing a range of facilities that can be experienced by a variety of users of all abilities.

Principles of universal trail design can be summarized as follows:

• Equitable use: provide opportunity for trail users to access, share and experience the same sections of trail rather than providing separate facilities;
• Flexibility in use: provide different options for trail users in order to accommodate a variety of experiences and allow choice;
• Simple, intuitive and perceptible information: whether conveying trail information through signage, maps or a web site, communicate using simple, straightforward forms and formats with easy to understand graphics and/or text;
• Tolerance for error: design trails and information systems so as to minimize exposure to hazards, and indicate to users any potential risks or challenges that may be encountered;
• Low physical effort: trails may provide for challenge but should not exceed the abilities of the intended users; where appropriate, rest areas should be provided; and
Size and space for approach and use: trails and amenities should provide for easy access, comfort and ease in their usage.

Ontario’s Best Trails – Draft (2006)\(^7\) provides an in depth discussion of the application of Universal Design principles and their application.

Where possible and practical, trails and multi-use pathways should be designed to be accessible to all levels of ability. It must be recognized however, that not all trails and multi-use pathways throughout the system can be accessible. Steep slopes are one of the most significant barriers for those with physical disabilities. Designing trails and multi-use pathways to be within the threshold (5%) for universal access will not only overcome this significant barrier but it will help to reduce the potential for erosion of the trail surface. The following are some additional considerations for making existing and new trails accessible:

- Designers should consult the most current standards available;
- Where the trail requires an accessibility solution that is above and beyond what is normally encountered, a representative of the local accessibility advisory committee should be consulted early on in the process to determine if it is practical and desirable to design the specific trail to be fully accessible;
- Where it has been determined that full accessibility is appropriate, the accessibility representative should be consulted during the detailed design process to ensure that the design is appropriate; and
- Work collaboratively with the local accessibility advisory committee to consider developing signage/content to clearly indicate trail accessibility conditions, which allow users with mobility-assisted devices to make an informed decision about using a particular trail prior to travelling on it.

Guideline A-9: Every effort should be made to ensure that Primary Multi-use Pathways (Type 1) and Park Access Trails (Type 3) meet or exceed minimum accessibility requirements. Secondary Multi-use Pathways and Internal Park Trails will be designed to meet minimum accessibility requirements where feasible and practical.

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Hiking/Foot Trails are typically not designed to meet accessibility requirements.

| Guideline A-10: | Signage and maps should be designed to communicate which pathways and trails meet minimum accessibility requirements so that users can make their own advance decision about using the route. |

**A.5 PERSONAL SECURITY (CPTED)**

To the extent possible, trails and multi-use pathways should be designed to allow users to feel comfortable, safe, and secure. Although personal safety can be an issue for all, women, the elderly and children, are among the most vulnerable groups. Principles of Crime Prevention Through Environmental Design (CPTED) should be considered and appropriately applied to help address security issues concerning the use of these facilities, particularly in locations where trails are infrequently used, isolated or in areas where security problems have occurred in the past.

The four main underlying principles of CPTED are:

- **Natural Access Control:** deters access to a target and creates a perception of risk to the offender;
- **Natural Surveillance:** the placement of physical features and/or activities that provides for natural visibility or observation;
- **Territorial Reinforcement:** defines clear borders of controlled space from public to semi-private to private, so that users of an area develop a sense of proprietorship over it; and
- **Maintenance:** allows for the continued use of space for its intended purpose⁸.

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Some specific design considerations that have been employed by municipalities include:

- Providing good visibility by others by having routes pass through well-used public spaces;
- Provide the ability to find and obtain help: Signage that tells users where they are along the trail system;
- Provide “escape” routes from isolated areas at regular intervals;
- Maintain sight lines and sight distances that are appropriately open to allow good visibility by users;
- Provide trailhead parking in highly visible areas;
- Minimize routing close to features that create hiding places such as breaks in building facades, stairwells, dense shrubs and fences;
- Design underpasses and bridges so that users can see the end of the feature as well as the area beyond; and
- Signs near entrances to isolated areas can be used to inform users that the area is isolated and suggest alternative routes.

Guideline A-11: The City of Kitchener has regard to the principles of Crime Prevention Through Environmental Design (CPTED) when designing new trails or improving existing trails.

A.6 PATHWAY AND TRAIL CLASSIFICATION

The following are five proposed multi-use pathway and trail types for the City of Kitchener’s Multi-use Pathways network. Each of these has been developed based on existing industry standards, understanding of the existing conditions and geography of the city as well as the strengths, weaknesses, opportunities and threats identified to the Study Team.

In Kitchener, not all pathways and trails will be designed to be accessible however Primary/Type 1 Pathways will be designed to meet minimum accessibility requirements for longitudinal and cross slope, and surface stability and Secondary/Type 2 Pathways and will be designed to meet accessibility requirements where it is possible and
practical. It is important to ensure that signage and mapping/messaging clearly communicates which pathways are accessible so that users can make an informed personal decision about which pathways they will use.

A.6.1 Classification

PRIMARY MULTI-USE PATHWAY-TYPE 1

- Hard surface (asphalt or concrete)
- 4-season maintenance
- Example- Iron Horse/Trans Canada Trail

Description and Connectivity

Primary Multi-use Pathways perform a City-wide function and are important transportation / commuter routes connecting communities, neighbourhoods, parks, community facilities, commercial sites, institutions and residential areas. They provide a 4-season transportation corridor with opportunities for direct and continuous movement in east-west and north-south directions throughout the city, and provide access to major destinations throughout the city and connections to surrounding municipalities. These facilities include school routes and connections to transit hubs as well as transit related facilities.

Location

Primary Multi-use Pathways are located outside of the road right-of-way in continuous linear corridors. In some locations linear utility corridors create ideal opportunities, however where these opportunities are not present a continuous off-road linear corridor outside of the road right-of-way shall be created as part of the community planning process. To maintain route continuity, crossings of barriers such as major roadways, railways and waterways shall be considered in the early planning stages to identify locations where a minor realignment of the corridor is necessary to accommodate an appropriate crossing. Where alignment adjustments are required the off-road corridor outside of the road right-of-way shall be maintained wherever possible, however it is acceptable to have short sections within a road right-of-way
provided that the pathway is physically separated from motor vehicle traffic (i.e. boulevard multi-use pathway). It is recognized that in special circumstances, particularly in developed neighbourhoods it may be necessary to divert short segments of the Primary Multi-use Pathway onto the road with a cycle-track or bike lane accompanied by a sidewalk. Diversion onto the road will not be permitted in new development areas.

**Design Characteristics**

The Primary Multi-use Pathway is a minimum of 3.0m in width and hard-surfaced with asphalt or concrete. The Primary multi-use pathway shall be designed to meet or exceed minimum accessibility requirements and will be maintained for year-round walking, cycling, transportation and recreational use. Typically they are designed to the highest standards relative to other pathway and trail types in the hierarchy to accommodate high volumes of use, destination oriented traffic, widest range of use abilities and important links to major community facilities. Through the development of the Primary multi-use pathways, year-round connections are developed between areas of housing, employment, transit, commercial services, retail, community facilities and other destinations. In general, a Primary multi-use pathway supports pedestrian convenience and walkability and a range of active transportation opportunities. Lighting may be in considered in the future for Primary Multi-use Pathways where use/demand is high, for example along frequently used commuter routes.
Primary Multi-Use Pathway (Type 1)

- Hard Surface (e.g., asphalt, concrete, boardwalk)
- 4-Season Maintenance
- City wide function/spine pathway route
- Important transportation function
- Meets or exceeds minimum accessibility requirements
- Lighting in areas where use/demand is high

Figure A-1: Primary Multi-use Pathway (Type 1)
Figure A-2: Cross Section-Asphalt Pathway
SECONDARY MULTI-USE PATHWAY – TYPE 2

- Variable surface (granular/gravel or hard surface/asphalt/concrete)
- 3-season maintenance
- Example- Walter Bean Grand River Trail

Description and Connectivity
The Secondary Multi-use Pathway performs a city wide function and is available as a transportation route during the spring, summer and fall seasons. They are also used to provide additional connections to local municipalities, neighbourhoods, parks, community facilities, natural areas, schools and conservation areas. Secondary

Location
Secondary Multi-use Pathways are located outside of the road right-of-way in continuous linear corridors that are created as part of the community planning process. To maintain route continuity, crossings of barriers such as major roadways, railways and waterways shall be considered in the early planning stages to identify locations where a minor realignment of the corridor is necessary to accommodate an appropriate crossing. In some locations, particularly developed neighbourhoods it will be necessary to make short connections between off-road segments by utilizing on-road connections. On-road connections may be by way of bicycle lanes or cycle tracks with sidewalks for pedestrians or in-boulevard multi-use pathways where design criteria can be met. On lower volume roads such as residential streets these connections can be made with sidewalks for pedestrians and shared space for cyclists (i.e. signed route or signed route with Sharrow markings on the roadway). In new development areas diversion onto the road will only be permitted in exceptional circumstances.

Design Characteristics
The Secondary multi-use pathway is typically 3.0 m in width as a minimum and is constructed with a compacted granular surface (e.g. stonedust). In some locations it may be hard surfaced (e.g. asphalt or concrete) or boardwalk to respond to site conditions. These facilities are designed to meet minimum accessibility requirements where practical and feasible. Where this is not possible they are appropriately.
Designed for a moderate to high volume of use and wide range of users, the Secondary Multi-use pathway serves a 3-season transportation function and year-round recreation function.

Figure A-3: Secondary Multi-use Pathway (Type 2)
Figure A-4: Cross Section-Stonedust Pathway
PARK ACCESS TRAIL-TYPE 3

- Generally hard surface, may be compacted granular surface
- 3-season maintenance

Description and Connectivity

Park Access Trails are local routes within city-owned parkland between points of interest and facilities within neighbourhood parks. These trails can also function as a main route to features such as playgrounds and washrooms in local parks as well as maintenance access routes. In some cases Local Park Access Trails may include school routes, isolated loops or solitary pathway segments.

Design Characteristics

Park Access Trails are typically 3.0 m in width as a minimum and is constructed with a compacted granular surface (e.g. stonedust) or hard surface (asphalt, concrete, boardwalk). Where they are the main connection to the main features in a park (e.g. playground, splash pad etc.), they are designed to be universally accessible. Otherwise they are designed to be accessible where possible and they will be appropriately signed to enable users to make an informed decision about whether or not to use the pathway.
INTERNAL PARK TRAIL – TYPE 4

- Variable surface (granular/gravel or hard surface/asphalt/concrete)
- 3-season maintenance

Description and Connectivity

Local Park Trails are local routes within the City’s parkland system which include isolated loops or solitary pathway segments.

Design Characteristics
Internal Park Trails are typically 1.5 to 3.0 m in width depending on their location. Design standards that are appropriate for the location, volume of use and scale / context of the surrounding area are considered to determine the width of the pathway on a site specific basis to reduce unnecessary construction impacts. Pathway surface is generally compacted granular surface, however, hard surfacing will be used where part of the design of the park or an accessible route to park amenities is featured. Local Park Trails are typically designed to be accessible wherever possible. Uses may be limited by the nature of the trail location, trail alignment, width and surface type. Although Local Park Trails are generally maintained for 3-season use, winter maintenance would be considered where the route is part of a school route.

Trails which may be hard surface or gravel which provide a variety of trails within parks and natural areas and serve as secondary or alternate routes not required for accessibility to specific recreational facilities.
HIKING / FOOT TRAIL – TYPE 5

- Natural Or Granular Surface
- Minimal Maintenance

Description and Connectivity

Hiking / Foot Trails are routes that were not planned or designed by the City but have evolved from use (i.e. a desire line between two locations) or that have been created
by a group such as a hiking club that has an established arrangement with the city where the trail is on public land, or with the land owner where the trail is located on private land.

**Design Characteristics**

Hiking/Foot Trails are typically 0.75 to 1.5 m in width and have a natural earth surface. In some locations, however, they may include a granular surface or a boardwalk. The trails provide limited access, with no special accommodations made for specific user groups (e.g. bicycles, strollers, mobility-assisted devices).

Trails which may have a gravel surface, other improvements or be simply worn paths through frequency of use by the public through parks and natural areas.

In addition, the slope of the trail type can vary depending on the existing slopes of natural ground. In these cases, the topography is generally not altered and if minor alterations are required they are completed to accommodate the alignment. Uses are often limited by the nature of the trail alignment, width and surface type.

Even though they have not been planned or designed by the City, the City may be responsible for management and maintenance where these trails lie on public lands. In some locations such as Monarch Woods, Steckle Woods and The Huron Natural Area, a vast network of foot trails has developed over time. Although it may be desirable to keep some of the routes open for use, others should be closed and rehabilitated. This will be determined on a site by site basis based on site specific management plans undertaken by the City.
A.6.2 Connecting Links

Where there is no opportunity to complete pathway links outside of the road right-of-way, options to do so within the road right of way should be explored so that the connectivity of the network can be maintained. Connecting links within the road-right of way may take a number of different forms depending on their location and the character of the right-of-way. These include:

**Hiking/Foot Trail (Type 5)**
- **Variable surface (e.g. natural earth surface, granular surface, etc.)**
- **Minimal maintenance (as dictated by natural area management plan for the location)**
- **Local function, often in woodlots and natural areas, may or may not be connected to Primary or Secondary Multi-Use Pathways**
- **Typically does not meet minimum accessibility requirements**
- **Often has evolved through use (i.e. not initially planned or designed by the City)**

![Diagram of Pathway Clear Zone, Pathway Sign, and Pathway Surface](image)

**Figure A-7: Hiking/Foot Trail (Type 5)**
- A **Signed Bicycle Route**, whereby cyclists share roadway space with motorist and pedestrian users (pedestrians, skateboarders, in-line skaters, wheelchair users etc.) are directed to use the sidewalk;

- An **In-boulevard Multi-use Pathway**, whereby all users are directed to use a dedicated multi-use pathway that is constructed in the boulevard, between the back side of the curb and the limit of the right-of-way;

- A **Cycle Track**, whereby cyclists use a dedicated facility constructed below the curb and pedestrian users (pedestrians, skateboarders, in-line skaters, wheelchair users etc.) are directed to use the sidewalk; or

- A **Bike Lane**, whereby cyclists use a dedicated facility constructed below the curb and pedestrian users (pedestrians, skateboarders, in-line skaters, wheelchair users etc.) are directed to use the sidewalk.

The application of these facility types is directly related to the character of the road right-of-way. For further reference regarding the selection of an appropriate facility type the design criteria and guidelines described in the City’s Cycling Master Plan for the 21st Century should be consulted.

Where proposed multi-use pathway routes intersect with connecting links signs should be erected which clearly show the alignment of the connecting link and the location of the corresponding off-road pathway at and opposite end of the connecting link.

### A.7 MULTI-USE PATHWAY SURFACING OPTIONS

There are a number of options for multi-use pathway and trail surfaces, each with advantages and disadvantages related to cost, availability, ease of installation, lifespan and compatibility with various trail users groups. Table A.6 provides a summary of the most commonly used multi-use pathway and trail surfacing materials along with some advantages and disadvantages of each. There is no one surface material that is appropriate in all locations, and material selection during the design stage must be considered in the context of the anticipated users and location. Asphalt is the most commonly used hard surface and stonedust/“screenings” is likely the most widely used and accepted granular surface.
<table>
<thead>
<tr>
<th>Type</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
</table>
| Concrete  
(may be suitable for Primary and Secondary Multi-use Pathways, Park Access Trails and Internal Park Trails) | • Smooth surface, can be designed with a variety of textures and colours, providing flexibility for different urban design treatments.  
• Long lasting, easy to maintain. | • High cost to install.  
• Requires expansion joints which can create discomfort for users with mobility aids.  
• Must be installed by skilled trades people.  
• Is not flexible and cracking can lead to heaving and shifting, sometimes creating large step joints. |
| Unit Pavers  
(may be suitable for Primary and Secondary Multi-use Pathways, Park Access Trails and Internal Park Trails) | • Relatively smooth surface, available in a variety of patterns and colours to meet urban design needs  
• Long lasting, can be easily repaired by lifting and relaying. | • High cost to install.  
• Users with mobility aids may find textured surface difficult to negotiate.  
• Must be installed by skilled trades people. |
| Asphalt  
(may be suitable for Primary and Secondary Multi-use Pathways, Park Access Trails and Internal Park Trails) | • Smooth surface, moulds well to surrounding grades, and is easily negotiated by a wide range of trail user groups.  
• Relatively easy to install by skilled trades.  
• Patterned and coloured surface treatments are available, however patterning in surface may be difficult | • Moderate-high cost to install.  
• Must be installed by skilled trades people. Has a lifespan of 15-20 years depending on the quality of the initial installation. Poor base preparation can lead to significant reduction in lifespan.  
• Cracking and “alligatoring” occurs near the edges, grass and weeds |
### Table A.6  Comparison of Trail Surfacing Materials

<table>
<thead>
<tr>
<th>Type</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Granulars (for bases only)</td>
<td>- Pit Run: Mixed granular material “straight from the pit” containing a range of particle sizes from sand to cobbles. Excellent for creating a strong sub base, relatively inexpensive (for bases only)</td>
<td>- Can invade cracks and speed up deterioration.</td>
</tr>
<tr>
<td>Granulars</td>
<td>- ‘B’ Gravel: Similar characteristics to Pit Run with regulated particle size (more coarse than ‘A’ Gravel). Excellent for creating strong, stable and well drained sub bases and bases. Relatively inexpensive. (for bases only)</td>
<td>- Not appropriate for trail surfacing.</td>
</tr>
</tbody>
</table>
| Granulars             | - ‘A’ Gravel: Similar characteristics to ‘B’ Gravel, with smaller maximum particle size. Excellent for trail bases, may be appropriate for trail surfacing of rail trails in rural areas and woodlands. Easy to spread and regrade where surface deformities develop. (for bases only) | - Subject to erosion on slopes.  
- Some users have difficulty negotiating surface due to range in particle size and uneven sorting of particles that can take place over time with surface drainage. |
| Granulars             | - Clear stone: Crushed and washed granular, particles of uniform size, no sand or fine particles included. Excellent bedding for trail drainage structures and retaining wall | - Not appropriate for trail surfacing.                                                          |
Table A.6  Comparison of Trail Surfacing Materials

<table>
<thead>
<tr>
<th>Type</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>backfilling, if properly leveled</td>
<td>backfilling, if properly leveled and compacted, makes an excellent base for asphalt trails. (for bases only)</td>
<td></td>
</tr>
<tr>
<td>and compacted, makes an excellent</td>
<td></td>
<td></td>
</tr>
<tr>
<td>base for asphalt trails. (for</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bases only)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stone fines (Screenings): Mixture</td>
<td>Stone fines (Screenings): Mixture of fine particles and small diameter crushed stone. Levels and compacts very well and creates a smooth surface that most trail users can negotiate easily. Easy to spread and regrade where surface deformities develop. Inexpensive and easy to work with. Widely used and accepted as the surface of choice for most granular surfaced trails. (for Secondary Multi-use Pathways, Park Access Trails, Internal Park Trails and some locations along Hiking/Foot Trails)</td>
<td>Subject to erosion on slopes</td>
</tr>
<tr>
<td>of fine particles and small</td>
<td></td>
<td>Wheelchair users have reported that stone shards picked up by wheels can be hard on hands.</td>
</tr>
<tr>
<td>diameter crushed stone. Levels and</td>
<td></td>
<td>May not be suitable as a base for hard surfaced trails in some locations.</td>
</tr>
<tr>
<td>compacts very well and creates a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>smooth surface that most trail</td>
<td></td>
<td></td>
</tr>
<tr>
<td>users can negotiate easily. Easy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>to spread and regrade where</td>
<td></td>
<td></td>
</tr>
<tr>
<td>surface deformities develop.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>inexpensive and easy to work with.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widely used and accepted as the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>surface of choice for most</td>
<td></td>
<td></td>
</tr>
<tr>
<td>granular surfaced trails. (for</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary Multi-use Pathways, Park</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access Trails, Internal Park Trails</td>
<td></td>
<td></td>
</tr>
<tr>
<td>and some locations along Hiking/Foot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trails)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crushed 3/8&quot; Limestone material.</td>
<td>Crushed 3/8&quot; Limestone material. This surfacing material has been used successfully by Operations to make surface repairs in some areas where finer stonedust has washed out but this material has remained in place longer</td>
<td></td>
</tr>
<tr>
<td>Mulches and Wood Chips</td>
<td>Mulches and Wood Chips (May be appropriate only for Hiking/Foot)</td>
<td></td>
</tr>
<tr>
<td>Bark or wood chips, particle size</td>
<td>Bark or wood chips, particle size ranges from fine to coarse depending on product selected, soft under foot, very natural appearance that is aesthetically appropriate for</td>
<td>Breaks down over time, therefore requires “topping up”.</td>
</tr>
<tr>
<td>ranges from fine to coarse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>depending on product selected,</td>
<td></td>
<td>Source of material must be carefully researched to avoid unintentional importation of invasive species</td>
</tr>
<tr>
<td>soft under foot, very natural</td>
<td></td>
<td></td>
</tr>
<tr>
<td>appearance that is aesthetically</td>
<td></td>
<td></td>
</tr>
<tr>
<td>appropriate for</td>
<td></td>
<td></td>
</tr>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table A.6  Comparison of Trail Surfacing Materials

<table>
<thead>
<tr>
<th>Type</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trails in limited locations)</td>
<td>woodland and natural area settings.</td>
<td>(plants and insects).</td>
</tr>
<tr>
<td></td>
<td>• Some user groups have difficulty negotiating the softer surface, therefore this surface can be used to discourage some uses such as cycling.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• May be available at a very low cost depending on source, and easy to work with.</td>
<td></td>
</tr>
<tr>
<td>Earth/Natural Surface</td>
<td>Native soils existing in situ. Only cost is labour to clear and grub out vegetation and regrade to create appropriate surface. Appropriate for trails in natural areas provided that desired grades can be achieved and that soil is stable (do not use organic soils).</td>
<td>• Subject to erosion on slopes.</td>
</tr>
<tr>
<td>(Appropriate only for Hiking/Foot Trails)</td>
<td></td>
<td>• Different characteristics in different locations along the trail can lead to soft spots.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Some user groups will have difficulty negotiating surface.</td>
</tr>
<tr>
<td>Soil Cement, and soil binding agents</td>
<td>Soil Cement= mixture of Portland Cement and native/parent trail material. When mixed and sets it creates a stable surface that can be useful for “trail hardening” on slopes, particularly in natural settings.</td>
<td></td>
</tr>
<tr>
<td>(Appropriate only for Hiking/Foot Trails)</td>
<td></td>
<td>• Useful for specific locations only.</td>
</tr>
<tr>
<td></td>
<td>• Soil Binding Agents=mix of granulars and polymers that create a solid, yet flexible surface that may be appropriate for “trail hardening” on slopes in natural areas.</td>
<td>• Soil binding agents tend to be expensive and have been met with mixed success.</td>
</tr>
<tr>
<td></td>
<td>• Limits volume and weight of materials to be hauled into remote locations.</td>
<td></td>
</tr>
</tbody>
</table>
### Table A.6 Comparison of Trail Surfacing Materials

<table>
<thead>
<tr>
<th>Type</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood (i.e., bridges and boardwalks)</td>
<td>• Attractive, natural, renewable material that creates a solid and level travel surface. Choose rough sawn materials for deck surfacing for added traction.</td>
<td>• Requires skill to install, particularly with the substructure.</td>
</tr>
<tr>
<td>(appropriate for all Multi-use Pathway and Trail Types)</td>
<td></td>
<td>• Wood gradually decomposes over time, this can be accelerated in damp and shady locations, and where wood is in contact with soil.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Expensive to install.</td>
</tr>
</tbody>
</table>

### A.8 MULTI-USE PATHWAYS IN UTILITY CORRIDORS

Pipeline and hydro corridors, are examples of linear corridors that provide excellent opportunities for trail development and should be considered for the development of trails in Kitchener. Utility lines in urban areas often have a substantial easement, and in many cases are used informally as trail routes as they tend to provide direct connections to a variety of destinations over and long distance. When the alignment and design details are properly considered, pathways can also serve as emergency and service access routes to assets within the hydro corridor. A number of municipalities have recently adopted policies and practices whereby emergency service access must be provided to manholes along sanitary sewer lines in river valleys in the event of an emergency such as a line blockage.

### A.9 MULTI-USE PATHWAYS IN NATURAL AREAS AND ENVIRONMENTAL BUFFERS

Trail users often seek natural areas such as woodlands and wetlands where they can find some relief from the urban environment. Natural areas provide opportunities to enjoy and interpret nature, and to pursue some trail activities that are not possible in...
more traditional parks. In many cases, multi-use pathways and trails are compatible with natural areas, in some cases they are not. Creating the balance between providing public access and the need to conserve and/or protect the resource itself can be a difficult goal, especially in situations where there is a large population of residents nearby or surrounding the feature. Where this is the case, this increases the pressure on the very resource that users seek and enjoy.

Where trails are to be located in natural areas it is important that they be properly aligned and designed, and that the area be monitored for the effects of inappropriate use and/or overuse. For example a boardwalk with railings (see Section A.12.2) can be an effective design treatment in areas with seasonally wet or prolonged moist soils. The elevated tread eliminates foot contact with the moist soils and railings encourages users to stay on the designated route. Regular monitoring will alert trail managers to locations where users may be straying off the trail or taking short cuts so that mitigation strategies can be developed before significant damage to soils and vegetation occurs. If trails are not carefully planned, designed, constructed and maintained in these areas, users will create their own desire line foot trails, sometimes in sensitive locations where it would be preferable not to have trails at all. Proper planning, design and construction of trails, coupled with public education can assist with creating the balance between use and protection.

In some cases multi-use pathways, trails, and people should not be in natural areas. Vegetation communities that are highly sensitive to disturbance and narrow, constrained wildlife corridors are two examples where trails may not be appropriate. In these cases, it is advisable to provide alternative trail routes and information (e.g. signing, public information campaigns, etc.) explaining the management decision to exclude trails from the area. When designing trails through sensitive natural heritage features the following general considerations should include:

- Route or reroute to avoid the most sensitive and/or critical habitats;
- Interpret sensitive species away from their location;
- Consider and evaluate alternative routes and design treatments;
- Balance the effect of alternatives;
- Use previously disturbed areas where possible and appropriate;
- Maintain natural process;
• Limit accessibility;
• Incorporate habitat enhancements; and
• Complement and highlight natural features.

Where proposed multi-use pathway and trail routes pass through Environmentally Sensitive areas, an Environmental Impact Study will be required to assess the potential impact of pathway development, and to identify design and construction requirements prior to approval.

Environmental buffers are established to protect existing natural features and to deter users from entering and disturbing protected and sensitive lands. Developing multi-use pathways and trails within designated environmental buffers provides users direct excess into protected areas and is generally discouraged by the City. Planning for multi-use pathways and trails early in the planning stages ensures that linkages are in the best locations and that they are implemented outside of sensitive and protected environmental features. One solution to the issue of multi-use pathway and trail development within environmental buffers that has been included on recent draft plans of subdivision within the City of Kitchener is the concept of dedicated blocks established specifically for that purpose and the associated amenities. Dedicated blocks enable prospective homebuyers to clearly see planned multi-use pathway and trail locations and understand the implications these may have on their lifestyle. A dedicated block should have the limits of work established adjacent to the buffer, which can eliminate construction within sensitive areas as the limit of the block coincides with the limit of construction, therefore enabling construction of the pathway as part of the development of the neighbourhood. Additional details regarding multi-use pathway development in new neighbourhoods and natural areas can be found in Chapter 3 of this report.

<table>
<thead>
<tr>
<th>Guideline A-12:</th>
<th>Where multi-use pathways are to be placed adjacent to significant natural features as part of new community developments, they should be located in a dedicated pathway block.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Multi-use pathways in environmental buffers are generally discouraged except for locations where the conditions in the buffer</td>
</tr>
</tbody>
</table>
A.10 MULTI-USE PATHWAY SIGNS

Kitchener is a city made up of many different neighbourhoods which have their own identity. Local identity has evolved over time, in some cases the result of the architecture, landscape, land use, cultural history and residents. Multi-use Pathway themes can add a local flavour to individual pathways or loops, creating an overall unique quality to the multi-use pathway network. It also provides an additional opportunity and incentive for neighbourhood associations and interest groups to become unified as partners in developing and maintaining the pathways in the city.

Other jurisdictions have taken this approach using a variety of methods including:

- Adding a distinct trail name or additional logo plate while maintaining other common design elements of the signs;
- Creating neighbourhood/district gateway nodes in key locations where the edges of neighbourhoods are considered to be; and
- Creating distinct interpretive themes for different neighbourhoods.

Signage is a critical element of the trail network and serves many important functions including:

- Providing instruction regarding traffic operations (for both motorists and trail users);
- Providing information regarding safety while traveling (i.e. maximum travel, upcoming hazards, junctions and crossings);
- Advertising the network to attract new users;
- Orienting and guiding trail users as they travel throughout the network, which can also be used as reference points to guide Emergency Services personnel to a specific trail location;
- Providing information about the routes, nearby services and trail–related events;
- Informing users of their responsibilities while on the network; and
- Providing interpretation of local historical, cultural, natural and other resources.
Good signing systems have common characteristics, including:

- Clearly, concisely and consistently communicating information related to identification, direction, regulation and operation of the trail;
- Informing, but not distracting, trail users and deterring from the visual quality of overall trail experience;
- Graphics and internationally recognized symbols instead of excessive text to overcome language barriers;
- Visibility at night through the use of reflective materials should also be considered in locations where low light and night use is anticipated;
- A design that is timeless, in-scale and visually integrated with the landscape without creating unnecessary clutter; and
- High quality, durable (including resistance to ultraviolet radiation), vandal resistant quality materials and finishes.
Figure A-8: Community Trail Marker
A.10.1 The Multi-use Pathway Sign Family

The design and construction of the network should incorporate a hierarchy of signs each with a different purpose and message. This hierarchy is organized into a “family” of signs with unifying design and graphic elements, materials and construction techniques. The unified system becomes immediately recognizable by the user and can become a branding element. Consistent with this approach is the correct use of signage, which in-turn reinforces the trail’s identity. Generally the family of signs includes:

**Orientation and trailhead signs**, which are typically located at key destination points and major network junctions. They provide orientation to the network through mapping, other appropriate network information as well as any rules and regulations. Where network nodes are visible from a distance, these can be a useful landmark. In some municipalities, orientation signing has also been used as an opportunity to sell advertising space. This not only provides information about local services that may be of interest to trail users, but it may also help to offset the cost of signs and/or pathway.

![Trailhead Sign-Typical Information Features](image)
Gateway signs, which should be employed where multi-use pathways enter into the city of Kitchener from surrounding municipalities. The gateway sign is a smaller version of the trailhead sign and includes elements such as route mapping, “Welcome to Kitchener”, trail branding/logos, and user etiquette and emergency contact information.

“Rules of the Trail” signs, which 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. Reminder signs may be needed at some locations such as “Please stay on the Trail”. At trailheads, this information can be incorporated into trailhead signs. In other areas, this information can be integrated with access barriers.

Regulatory signs which are 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) Manual of Uniform Traffic Control Devices, 1996).

**Figure A-11: Typical Regulatory Sign Examples**

**Interpretive signs** which 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. They should be located carefully in highly visible locations to minimize the potential for vandalism.

**Figure A-12: Interpretive Sign Examples**
Erin (Top Left)-Photo MMM Group
Fundy National Park (Top Right) Photo MMM Group
Tobermory (Bottom Left)-Photo MMM Group
Sauble Beach (Bottom Right) Photo MMM Group
**Route marker and trail-directional signs**, which should be located at pathway intersections and at regular intervals along long, uninterrupted sections of pathway. The purpose of route marker signs is to provide a simple visual message to users that they are travelling on the pathway network. Where the multi-use pathway network must use an on-street connecting link, clear direction to the next available segment of the off-street pathway network should be provided. This includes directional markers and a small map board (i.e. 60cm x 60cm) that clearly shows the alignment of the route to the next available off-street segment.

![Figure A-13: Route Marker Examples-](image)

*Figure A-13: Route Marker Examples-*

- Essex (Left)-Photo Essex Region Conservation Authority
- Kissing Bridge Trail, Guelph (Second from left) Photo MMM Group
- Halton Hills (Third from Left)-Photo MMM Group
- Confederation Trail (Right) Photo MMM Group
Guideline A-13: That the City complete a pathway sign design strategy and branding details using the sign types outlined in the Multi-Use Pathways Master Plan as a guide. This strategy should be coordinated with similar work being contemplated for cycling wayfinding at the City level, as well as signage and wayfinding being considered at the Regional level.

A.11 MULTI-USE PATHWAY CROSSINGS

A significant challenge when implementing a pathway and trail system is how to accommodate users when crossing various physical barriers and roads. The following section provides guidance on crossing design.

A.11.1 Minor Roads

In the case of lower volume, lower speed roads the crossing should include the following:

- Creation and maintenance of an open sight triangle at each crossing point;
- Access barriers to prevent unauthorized motorized users from accessing the pathway;
- Advisory signing along the roadway in advance of the crossing point to alert motorists to the upcoming crossing;
- Signing along the pathway to alert users of the upcoming roadway crossing;
- Alignment of the crossing point to achieve as close to possible a perpendicular crossing of the roadway, to minimize the time that users are in the traveled portion of the roadway;
- Concrete ramp in boulevard between the sidewalk and roadway; and
- Curb ramps on both sides of the road.

Pavement markings, to delineate a crossing, should not be considered at "uncontrolled" trail intersections with roads as trail users are required to wait for a gap in traffic before crossing at these locations. Pavement markings designed to look like a
pedestrian cross over may give pedestrian and trail users the false sense that they have the right-of-way over motor vehicles, which is contrary to the Highway Traffic Act of Ontario for uncontrolled intersections.

In some locations signing on the trail may not be enough to get trail users to stop before crossing the road. Under these circumstances or in situations where the sight lines for motorists are reduced and/or where there is a tendency for motorists to travel faster than desirable, the addition of other elements into the trail crossing may be necessary. Changing the trail alignment may help to get trail users to slow and stop prior to crossing. Changes to the streetscape may also provide a cue and traffic calming effect for vehicles.

| Guideline A-14 | Trail crossings of local minor roads at mid block locations include advance advisory pedestrian crossing signs on the roadway approaches and a yield or stop sign on the trail approaches. |
Figure A-14: Pathway - Road Crossing
A.11.2 Pedestrian Refuge Islands

Pedestrian refuge islands are medians that are placed in the centre of the roadway separating opposing lanes of traffic. They allow trail users to cross one direction of traffic at a time, with a location in the centre of the roadway where they can for a gap in traffic for the other direction. They are particularly suited for roadways with multiple lanes since the cognitive requirements to select a gap in traffic traveling in two directions in multiple lanes is considerably higher than that required for cross two lanes of traffic. A number of jurisdictions have implemented Pedestrian Refuge Islands.

Guidelines for the typical design elements for a pedestrian refuge island are as follows:

- Islands are typically a minimum of 6 m in length;
- Island width should be at least 1.8 m wide, but 2.4 m is preferred to accommodate wheelchairs in a level landing 1.2 m wide plus 0.6 m wide detectable warning devices on each side. The 2.4 m width will also accommodate bicycles in the refuge;
- Curb ramps are provided to allow access to the roadway and island for wheelchair users, and detectable warning devices (0.6 m in width) should be placed at the bottom of the curb ramps;
- The pathway on the island is constructed of concrete, not asphalt. The visually impaired can better detect the change in texture and contrast in colour supplemented by the detectable warning devices to locate the refuge island;
- Appropriate tapers are required to diverge traffic around the island based on the design speed of the roadway;
- The pathway on the island can be angled so that pedestrians are able to view on-coming traffic as they approach the crossing;
- Illumination should be provided on both sides of the crossing;
- Signage associated with the pedestrian refuge island includes “Keep Right” and “Object Marker” warning signs installed on the island facing traffic, and “Pedestrian Crossing Ahead” warning signs installed on the roadway.

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approaching the crossing. “Wait for Gap” warning signs can be installed on the far side of the crossing and on the refuge island if pedestrians are failing to cross in a safe manner;

![Image](image-url)

*Figure A-15 Pedestrian Refuge on a Collector Street*

- Crosswalk markings are not provided unless the crossing is at an intersection controlled by signals, stop or yield signs, or controlled by a school crossing guard; and
- Railings on the island to control pedestrian access are not recommended because they are a hazard in potential collisions (spearing of driver or pedestrian). Some pedestrians will walk in front of or behind the island to avoid the railings, a less safe refuge location than on the island.

### A.11.3 Midblock Pedestrian Signal

The midblock pedestrian signal is a device to assist pedestrians crossing major streets and is a more positive and effective pedestrian crossing device than a pedestrian crossover (PXO).
A midblock pedestrian signal includes:

- Standard traffic signal indications to control traffic on the major street; and
- Standard pedestrian “Walk” and “Don’t Walk” signals, activated by push buttons, for pedestrians wishing to cross the major street at the designated crossing point.

Midblock pedestrian signals may be considered when:

- A multi-use path or trail crosses a high volume and / or multi-lane road;
- A grade separation is not practical; and
- There is no other controlled intersection or crossing nearby.

| Guideline A-15: | At-grade mid-block multi-use pathway crossings of collector and arterial roadways should be controlled by a pedestrian signal or pedestrian cross over where possible. |

A.11.4 Active Railways
Currently, in order to establish a pathway crossing of an active rail line, proponents must submit their request directly to the railroad company. Submissions need to identify the crossing location and its basic design. Designs should be consistent with Draft RTD-10, Road/Railway Grade Crossings: Technical Standards and Inspection, Testing and Maintenance Requirements (2002) available from Transport Canada. In the event that an agreement cannot be reached on some aspect of the crossing, then an application may be submitted to the Canadian Transportation Agency, who will mediate a resolution between the parties.
A.11.5 Bridges

Where possible, the Multi-use pathway network should make use of existing bridges, including pedestrian bridges, vehicular bridges and abandoned railway bridges in appropriate locations. In cases where this is not possible a new structure will be needed and the type and design of a structure needs to be assessed on an individual basis. The following are some general considerations:
In most situations the prefabricated steel truss bridge is a practical, cost effective solution;
In locations where crossing distances are short, a wooden structure constructed on site may be suitable;
Railings should be considered if the height of the bridge deck exceeds 60cm above the surrounding grade, and should be designed with a “rub rail” to prevent bicycle pedals and handlebars from becoming entangled in the pickets;
When considering barrier free access to bridges, an appropriate hardened surface should be employed on the trail approaches and bridge decking should be spaced sufficiently close to allow easy passage by a person using a mobility-assisted device; and
Decking running perpendicular to the path of travel is preferred over decking running parallel, as the latter is more difficult for use by wheelchairs, strollers, in-line skates and narrow tired bicycles.

A.11.6 Underpasses and Tunnels
Often an underpass or tunnel is the only way to cross significant barriers such as elevated railways and multi-lane highways. Designing trails through underpasses and tunnels can be challenging because of the confined space. Underpasses should be wide enough to accommodate all trail users whether they are traveling by foot, bicycle, in-line skates, wheelchair or other forms of active transportation. Where feasible, it is suggested that trail widths through underpasses be equal to or greater than that of the approaching trail. The guidelines provided below outline key considerations for the development of an underpass crossing.

Guideline A-16:
- The minimum recommended underpass or tunnel width for a multi-use pathway is 3.5m. Where the structure exceeds 20m in length, in high traffic and/or urban areas the width should be increased to 4.2m or greater where possible;
- For shorter length underpasses, a vertical clearance of 2.5m is usually sufficient;
- For longer structures a vertical clearance of 3.0m should be
considered. If service and/or emergency vehicles are to be accommodated within the underpass, an increase in vertical clearance may also need to be provided;

- Underpasses and tunnels can be a security concern and also present maintenance challenges. To address these issues, tunnels should be well lit with special consideration made to security, maintenance and drainage. Approaches and exits should be clear and open to provide unrestricted views into and beyond the end of the structure wherever possible;

- Abutments should be appropriately painted/marked with reflective hazard markings; and

- Ideally, the transition between the multi-use pathway and underpass crossing should be level and provide for accessibility. In the case where an underpass crosses beneath ground-level travel/road ways, ramps should be provided to allow a transition down to the lower grade under the passage, with grade or alignment changes being taken up by the access ramps wherever possible.

A.12 MULTI-USE PATHWAY STRUCTURES

A.12.1 Gate and Barrier Systems

Access barriers are intended to allow free flowing passage by permitted user groups, and prohibit access by others. Barriers typically require some mechanism to allow access by service and emergency vehicles. Depending on site conditions, it may also be necessary to provide additional treatments between the ends of the access barrier and limit of the multi-use pathway right of way to prevent bypassing of the barrier altogether. Each access point should be evaluated to determine if additional treatments are necessary. Additional treatments can consist of plantings, boulders, fencing or extension of the barrier treatment depending on the location.
There are many designs for trail access barriers in use by different trail organizations, some are more successful than others. They can generally be grouped into three categories:

- Bollards;
- Offset Swing Gates; and
- Single Swing Gates.

**Bollards**

The bollard is the simplest and least costly barrier, and can range from permanent, direct buried wood or metal posts, to more intricately designed cast metal units that are removable by maintenance staff. An odd number of bollards (usually one or three) are placed in the multi-use pathway bed to create an even number of “lanes” for users to follow as they pass through the barrier. Although the removable bollard system provides flexibility to allow service vehicle access, they can be difficult to maintain as the metal sleeves placed below grade can be damaged by equipment and can become jammed with gravel and debris from the trail bed.

**Swing Gates**

The single swing gate combines the ease of opening for service vehicle access, with the ease of passage of the bollard. Gates also provide a surface/support for mounting signage. The swing gate should provide a permanent opening to allow permitted users to flow freely through the barrier. The width of the permanent opening must be carefully considered so that it will allow free passage by wheelchairs, wide jogging and double strollers and bicycle trailers and electric scooters, yet not allow passage by unauthorized vehicles such as snowmobiles and all terrain vehicles.

The offset gate is similar to the single swing gate, except that barriers are paired and offset from one another. Although they can be effective in limiting access by unauthorized users and can be easily opened by operations staff, some groups including cyclists, especially cyclists pulling trailers and wheelchair users, can have difficulty negotiating the offset swing gate if the spacing between the gates is not adequate.

In urban areas the single swing gate or bollard is quite effective for most applications. For large parks, park service access/pathway routes, more rural settings and locations
where unauthorized access is an ongoing problem, a more robust single swing gate should be employed.

Figure A-18: Pathway/Park Gate
A.12.2 Boardwalks

Where multi-use pathways and trails pass through sensitive environments (see Section A.9) such as marshes, swamps, or woodlands with a large number of exposed roots, an elevated trailbed or boardwalk is usually required to minimize impacts on the natural feature. If these areas are left untreated, trail users tend to walk around obstacles such as wet spots, gradually creating a wider, often braided trail through the surrounding vegetation. The turnpike and low profile boardwalk are two relatively simple yet effective methods for some Local Park Trails and Hiking/Foot Trails.

The turnpike is a low tech, low cost method that works very well in areas where organic soils are encountered. Various geosynthetic products have also been successfully used to overcome difficult soil conditions. The United States Department of Agriculture (Forest Service) has evaluated many products and design applications in the construction of trails in heavily used parks and on backcountry trails10.

Low profile boardwalks have been successfully employed by trail managers across Ontario. In some cases, the simple construction method provides a great opportunity for construction by supervised volunteers where precast “deck blocks” have been used for the foundation of the boardwalk. Where the trail is in a high profile location, where it is necessary to provide a fully accessible trail, or where the trail surface must be greater than 60cm above the surrounding grade, a more sophisticated design and installation is necessary. This is likely to include engineered footings or abutments, structural elements and railings. A professional who is trained in structural design and approval requirements should be retained for these types of applications.

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Appendix A

Figure A-19: Boardwalk-Longitudinal Section

Figure A-20: Boardwalk-Cross Section
A.12.3 Switcbacks and Stairs

Pedestrian and some self-propelled users are capable of ascending grades of 30% or more whereas some users are limited to grades of less than 10%. For example, a slope of 5% is the threshold for a fully accessible facility. Once trail slopes exceed this threshold and slopes are long (i.e. more than 30m) it is important to consider alternative methods of ascending slopes. Two alternatives to consider are switchbacks and stairs.

Where construction is feasible, switchbacks are generally preferred because they allow wheeled users such as cyclists to maintain their momentum, and there is less temptation to create shortcuts, as might be the case where stairways are used. Switchbacks are constructed with turns of about 180 degrees and are used to decrease the grade of the multi-use pathway. A properly constructed switchback also provides outlets for runoff at regular intervals, thus reducing the potential for erosion. Switchbacks typically require extensive grading and are more suited to open locations where construction activity will not cause major disruption to the surrounding environment. Switchbacks can be difficult to implement in wooded areas without significant impacts to surrounding trees.
Figure A-22: Pathway Stairs-
Woven Metal Mesh Stairs, Kagawong (left) Photo MMM Group
Stairs with Bicycle Gutter, Oakville (right) Photo MMM Group

Figure A-23: Switchback
### Guideline A-17:

- When slopes exceed 15%, or where there is inadequate room to develop a switchback or another accessible solution, a stairway system should be considered. In these situations the site should be carefully studied so that the most suitable design can be developed.

- The following are some considerations for stairway design:
  - Provide a gutter integrated into the stairway for cyclists to push their bicycles up and down (where appropriate to have bicycles);
  - Develop a series of short stair sections with regularly spaced landings rather than one long run of stairs;
  - For long slopes, provide landings at regular intervals (e.g. every 8-16 risers) and an enlarged landing at the mid-way point complete with benches to allow users the opportunity to rest;
  - On treed slopes, lay the stairway out so that the minimum number of trees will be compromised or removed
  - Use slip resistant surfacing materials, especially in shady locations.
  - Incorporate barriers on either side of the upper and lower landing to prevent trail users from bypassing the stairs; and
  - Provide signs well in advance of the structure to inform users that may not be able to climb stairs

### A.13 MULTI-USE PATHWAY LIGHTING

Lighting of Kitchener Multi-use Pathways must be carefully considered. Very few municipalities make the decision to light their entire trail system for a number of important reasons, including:
• The cost of initial installation can be prohibitive. General budget figures range from $130,000 to $160,000 per kilometer including cabling, transformers, power supply and fixtures;

• Staff time and material cost to properly monitor, maintain lamp fixtures and replace broken and burned out bulbs on an ongoing basis;

• A tendency for vandals to target light bulbs;

• Energy consumption;

• Excessive light pollution, especially in residential rear yards and adjacent to natural areas (though this can be controlled with proper shielding);

• Potential detrimental effects on flora and fauna, especially with light pollution in natural areas such as woodlands;

• The potentially false sense of personal security created by lighting in the nighttime environment; and

• Inability of the human eye to adapt to the high contrast resulting from brightly lit and dark shadowed areas adjacent one another.

Lighting the entire multi-use pathway network is not recommended, however there may be some locations along Primary Multi-use Pathways where lighting may be appropriate. The decision whether or not to light segments of the multi-use pathway network should be made on a location-specific basis.

Some criteria for pathway lighting include:

• Main connections to important attractions such major parks;

• Heavily used commuter routes (anecdotal information on volume of use supported by user counts);

• Key school routes; and

• Numerous requests for lighting, supported by similar results through public consultation.

Where it has been determined that lighting is appropriate, the quality and intensity of lighting should be consistent with prevailing standards that fit the setting being considered.
A.14 MULTI-USE PATHWAY STAGING AREAS

Staging areas can also be called trailhead areas and are generally proposed for important community destinations such as community centres. Because of their high visibility and proximity to other recreation facilities, they help to raise the profile of the pathway network, and some of the necessary facilities and amenities may already be present or located nearby. In some locations it may be possible to share parking and washrooms with other community facilities or other partners (e.g. School Boards for parking, Conservation Authority for parking and washroom facilities). A well-designed trail staging area typically incorporates the following elements:

- Regular parking with an appropriate number of spaces in relation to the anticipated level of use of the nearby pathway, with the flexibility to increase the number of spaces where warranted by future demand;
- An appropriate number of accessible (handicapped) spaces;
- Pathway access barriers;
- Easy access to and from the pathway;
- Ample room to load and unload service equipment;
- Secure bicycle parking facilities;
- Waste receptacles;
- Lighting (may or may not be included, depending on location and site context);
- Signing;
- Washrooms (may or may not be included, depending on location and site context);
- Seating and or picnic/informal activity space.

Guideline A-18: Where practical, new trailheads should be designed to be accessible.

A.15 SEATING AND REST AREAS

Seating provides the opportunity to pause along the trail at points of interest or just to rest. Young children, older adults and those with disabilities will need to rest more
frequently than others. Benches are the most common form of seating, but walls of appropriate height and width, large flat boulders, and sawn logs are some alternatives depending on the multi-use pathway or trail setting. Where seating/rest areas are planned, the design should consider a 1m wide level area with a curb or other appropriate wheel stop for mobility-assisted devices. For heavily used routes it is reasonable to provide some form of seating at approximately 500m intervals.

Guideline A-19: Where seating / rest areas are planned, implement a 1.0m wide level area with a curb or other appropriate wheel stop for mobility-assisted devices. For heavily used routes consideration should be given to providing seating at approximately 500 m intervals.

A.16 WASHROOMS

Washrooms are typically located at major trailheads, and where possible make use of existing facilities (i.e. at community centres and in major parks). As network use continues to increase, and as the network becomes denser, it may be necessary to provide additional facilities. Where this is necessary, they must be placed where they
can be easily accessed for maintenance and surveillance. In some jurisdictions managers have used portable washrooms prior to installing permanent facilities, as this provides the opportunity to determine the most appropriate location for permanent washroom facilities before a more significant investment is made.

| Guideline A-20: | Trailhead signs and pathway/trail maps should illustrate the location of publicly accessible washrooms. |

**A.17 WASTE / RECYCLING RECEPTACLES**

Waste receptacles are an absolute necessity throughout the multi-use pathway and trail network. They should be located where they can be easily serviced. Mid block crossing points, staging areas, pathway rest areas are ideal locations. They must be monitored and emptied on a regular basis to prevent unsightly overflow. Below ground trash receptacles (Molok) have been used by a number of municipalities, especially in heavily used areas. These have a larger capacity, are “out of sight” and may result in fewer odours as trash is stored at cooler temperatures. This is also the new standard for the City of Kitchener.

| Guideline A-21: | Waste receptacles should be located at mid block crossing points, staging areas and rest areas where they are visible and easily serviceable. |

**A.18 MULTI-USE PATHWAY CLOSURES AND REHABILITATION**

From time to time it will be necessary to temporarily close sections of the pathway network or entire routes to public access. Situations such as inundation by water, culvert washout or general trail construction are typical reasons for temporary closures. As these situations arise, users must be informed well in advance of the closure. If the closure is planned, advance notices should be placed at all access points for the affected section(s). In the event of an emergency closure, notices must be placed at these locations immediately following the discovery of the problem. Signing and temporary barricades, notification in community newspapers, on local radio stations and the City of Kitchener’s website are possible methods of informing users of about temporary closures.
Permanent closures may be required at some point in the life cycle of the pathway, particularly in the case of routes in woodlands and other natural settings. As part of a permanent closure the landscape should be rehabilitated to match the surrounding conditions, inform trail users that it has been closed, and to provide reasons for the closure. Some design considerations for permanent closures include:

- Slope stabilization, using engineered material and methods for severely eroded slopes;
- Plantings with appropriate native species (may include plants salvaged from nearby sites that will be cleared for development, roadway widening etc.), and “water me” signs for newly planted trees;
- The application of erosion blankets and mulches;
- Seeding with mixes that are appropriate for the site in which they are to be applied;
- Scarification of the surface of the trail to be closed and covering it with forest litter (leaves, branches, and limbs) in a naturalistic manner which can help to reinforce the message that the trail is closed, reduce erosion, and supply nutrients to plants during establishment;
- Erecting signage describing the closure to inform users of permanent closure, the location of the new permanent route.

**Figure A-25: Pathway Closures**

Barricades, St. John’s NL (left) Photo MMM Group
Closure Notice, Owen Sound, ON (right) Photo MMM Group
**Guideline A-22:**

When temporary pathway closures are required, inform users in advance by placing closure notices at all access points and clearly mark the closure.

When permanent closures are required the section of pathway that is being closed should be properly rehabilitated.

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**Figure A-26 Typical Pathway/Trail Closure and Rehabilitation Naturalized Setting**

- Existing vegetation to remain
- New plantings: native, locally represented species
- Stormwater management to reflect natural conditions
- Existing relicts in meadow areas, planting only in wooded areas
- Trail closure sign, indicating reason for trail closure, nearest phone number for further information
- Trailway obstacles: place cut and downed limbs in a biodegradable manner; access leaf - gravel near slopes or paved area near crossings that have been completed
- Erosion blankets on steeply sloped areas
- Status or permanent path马来e (grasses, depending on site conditions)
- Status beyond the limits of the trail corridor to be permanently closed
- Existing vegetation to remain
### GENERAL

- **11. Construct new Type 1 Multi-use Pathway** within road right-of-way per metre  $250  
  Hard surface pathway (asphalt) within road right-of-way along Regional roads, typically along Regional roads.
- **12. Construct new Type 1 Multi-use Pathway** outside of road right-of-way per metre  $70  
  Soft asphalt surface pathway, 3.0m wide, normal site conditions.
- **13. Upgrade existing pathway to Type 1 standard** (outside of road right-of-way) per metre  $100  
  Asphalt surface, 3.0m wide, existing pathway alignment generally suitable (no major realignment or rerouting required).
- **14. Construct new Type 2 Multi-use Pathway** outside of road right-of-way per metre  $70  
  Gravel or granular surface pathway, 3.0m wide, normal site conditions.
- **15. Upgrade existing pathway to Type 2 standard** (outside of road right-of-way) per metre  $70  
  Gravel or granular surface alignment generally suitable (no major realignment or rerouting required).
- **16. Construct new Multi-use Pathway** in a maintainable setting per metre  $250  
  Soft surface, 2.0m wide, normal site conditions.
- **17. Pedestrian/pedway road to add bicycle lanes** per metre  $250  
  Additional footpath required, infill or turnover only. The city, other road agencies, the successful contractor, and the City Bicycle Advisory Committee (BCAC) will select the appropriate road surface.

### STRUCTURAL ENHANCEMENTS

- **21. Construct new Boardwalk (heavy duty for Type 1 or Type 2 route)** per metre  $1,500  
  Structure on footings, 2.4m wide with railings, designed to hold light service vehicle.
- **22. Construct new Boardwalk (pedestrian light duty)** per metre  $250  
  Low profile structure on floating foundation and decking (1.5m width), no railings.
- **23. Self-stabilizing sheet steel bridge** per metre  $1,500  
  Self stabilizing bridge.
- **24. Self-stabilizing sheet steel bridge** per metre  $2,500  
  Self stabilizing bridge.
- **25. Construct pedestrian overpass of major arterial/highway** per metre  $750,000-$2,000,000  
  Requirements and design vary widely, use price as general guideline only.
- **26. Multi-use pathway under 3 lane road** per metre  $1,200  
  Steel, low cost structure for 3.0m wide multi-use path.
- **26. Pathway / Road transition** per metre  $1,500  
  Transition for road (typically includes sidewalks, retaining walls, and minimal restoration). Work includes widening, realigning, topping up of existing asphalt surface (typically along Regional roads, typically along Regional roads).
- **27. Pathway / Road transition of existing formalized intersection** per metre  $13,000  
  A full design with pedestrian crossings typically includes sidewalks, retaining walls, and minimal restoration.
- **28. At-grade rail crossing** per metre  $9,000  
  A full design includes pedestrian crossings, 6 to 10 mitigation, 2 benches, retaining wall, bike racks and minimal restoration (median refuge island included).
- **29. At-grade rail terminal crossing** per metre  $12,000  
  A full design includes pedestrian crossings, 6 to 10 mitigation, 2 benches, retaining wall, bike racks and minimal restoration (median refuge island included).
- **30. Biking station at a terminal crossing** per metre  $290  
  Standing lights, motion sensing switch (no median).
- **31. At-grade rail crossing with gate** per metre  $290  
  Standing lights, motion sensing switch and automatic gate (2.5m wide).
- **32. Biking station at a terminal crossing** per metre  $100,000-$200,000  
  Standing lights, motion sensing switch and automatic gate (2.5m wide).
- **33. Chain link fencing** per metre  $100  
  Retaining walls or along pathway (1.2m high).
- **34. Pedestrian activated traffic signal (IPS)** per metre  $800  
  Varies depending on number of signal heads required.

### SIGNAGE

- **35. Signboards for staging area kiosk sign** each  $2,000  
  Typical production cost, does not include graphic design (based on a 900mm x 1500mm typical size and embedded polymer material).
- **36. Pathway directional sign** each  $500  
  100mm x 100mm marker, graphics on all 4 sides.
- **37. Pathway / Road transition at existing signalized intersection** per metre  $3,000  
  Includes 6 bollards, warning signs.
- **38. Pathway marker sign** each  $250  
  100mm x 100mm marker, graphics on one side only.

### GEORGE

- **39. Regulatory and evaluation signage (off road pathway) off road median post** each  $300  
  900mm x 900mm sign embedded in post "W" channel post.
- **40. Bicycle/dog sign** each  $900  
  Does not include graphics design (based on a 900mm x 900mm typical size and embedded polymer material).
- **41. Bridging area sign** each  $13,000  
  Does not include design and supply of sign brackets.
- **42. Bridging area signs** each  $22,000  
  Design production cost, does not include graphics design (based on a 900mm x 900mm typical size and embedded polymer material).
- **43. Bicycle / Pedestrian activated traffic signal** each  $800  
  100mm x 100mm marker, graphics on 4 sides.
- **44. Bicycle / Pedestrian activated traffic signal** each  $800  
  100mm x 100mm marker, graphics on 1 side only.

### OTHER

- **45. Major roadworks (for multi-use pathways)** each  $10,000  
  Varies depending on number of works including road closures, disposal location etc.
- **46. Clearing and Grazing** each  $0.10  
  Varies depending on number of lots including access routes, disposal location etc.
- **47. Bicycle rack** each  $200  
  Metal and replacement sign.
- **48. Bicycle rack** each  $1,200  
  Metal bike racks, plaque systems on carbon fiber backbone.
- **49. Bicycle rack** each  $100  
  Bike rack, suitable for existing bike rack style.
- **50. Bike share station** each  $3,000  
  Bike share station.
- **51. Bike share station** each  $750  
  Bike share station.
- **52. Metal offset gates** each  $1,200  
  "P"-style park gate.
- **53. All-terrain vehicle (ATV) Trail Signage** each  $500-$750  
  Metal offset gates.
- **54. Metal offset gates** each  $1,200  
  All-terrain vehicle (ATV) Trail Signage.
- **55. Signing plan** each  $1,200  
  Steel, low cost structure for 3.0m wide multi-use path.
- **56. Signing plan** each  $1,200  
  Steel, low cost structure for 3.0m wide multi-use path.

### NOTES

- Unit prices were used to estimate network costs for the Implementation Plan. Other unit prices are provided for reference only.

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City of Kitchener

Multi-Use Pathways Master Plan and Implementation Study

Appendix B

Unit Cost Schedule

May 2012
APPENDIX C BENEFITS OF MULTI-USE PATHWAYS AND TRAILS

The promotion of walking and cycling through the development of an integrated multi-use pathways network can provide transportation, health and fitness, economic development and environment benefits. Providing options that will encourage people to reduce the use of personal automobiles, and to walk and cycle more, can reduce health care costs, and can help create sustainable, more livable communities. Over the last ten years or so, the concepts of community trail networks and active transportation have been gaining popularity because of these outstanding benefits. This chapter of the master plan provides a brief synopsis of some of these benefits.

C.1 TRANSPORTATION

Canadians view environmental quality as an important factor influencing their personal health. The transportation sector is a major source of air pollution in Canada, Transport Canada (2006) identified that urban passenger travel created almost half of the greenhouse gas emission of Canada’s transportation sector, which in turn produces about one quarter of Canada’s total greenhouse gas emissions.

The ecological footprint is a measure of human demands on natural resources such as land, water and air, and is reduced when people choose to travel by walking and cycling. “The greatest contributing factor to a large ecological footprint is carbon intensive fuel supplies for transportation, electricity and heating” (Ontario College of Family Physicians, 2005). The average greenhouse gas intensity for light duty vehicles was 295 grams CO₂ per km in 2005. Promoting trail use, especially walking and cycling, can result in significant greenhouse gas emission reductions, approximately 1KT of CO₂ for each 3,500 km reduction in vehicle kilometers travelled. Walking and cycling curb greenhouse gas emissions and global climate change, and save valuable green space (National Active Transportation Roundtable, 2003).
Walking and cycling have negligible effects on the size of the ecological footprint. Providing infrastructure that supports alternative modes of transportation, such as an integrated trail network can reduce vehicle traffic volumes, cause little or no congestion and result in no greenhouse gas emissions. Compact communities with mixed land use serviced by trails provide excellent active transportation choices, decrease the need to drive to daily destinations and will decrease the vehicle emissions that contribute to air pollution (CMHC, 2006). Automobile dependent communities require more land for road right-of-way and parking than communities that are not as reliant on the automobile. Making communities less auto-dependent by providing infrastructure for recreation and as alternative transportation modes, such as walking and cycling, can reduce the amount of land required to construct new communities, thus creating more compact subdivisions that are easier to manage from a transportation perspective.

There is strong evidence that given complete high-quality cycling route networks, a significant number of people will use bicycles as a mode of transportation as demonstrated in Davis, California and Boulder, Colorado. With 20% of trips by bicycle, these communities have the highest levels of bicycle usage in North America. This high level of cycling is facilitated by mature networks, which include extensive on-road cycling facilities complemented by extensive off-road trail networks. Residents can simply get on their bicycles with confidence knowing there will always be a safe and efficient route to their destination (British Columbia Cycling Coalition Budget Submission, 2007).

C.2 HEALTH & FITNESS

Sedentary lifestyles have serious health consequences. Almost half of Canadians age 12 and over report being physically inactive and 26% of youth between the ages of 2 and 17 are overweight or obese (Statistics Canada 2005). In Canada, the
prevalence of obesity has more than doubled in the last 20 years (Katzmarzyk & Mason, 2006). Obesity is associated with serious health conditions, including increased risks of diabetes and cardiovascular diseases (CVD). Walking and cycling are both popular recreational activities and a means of transportation that are efficient, affordable and accessible and promote healthy lifestyles. Increasing frequency of walking and cycling and reducing reliance on cars can lower the risk of obesity, lower the risk of hospitalizations from asthma and address other health conditions such as Heart Disease and Type 2 diabetes caused by inactivity. The following are some specific examples:

- The ability to walk or cycle safely in neighbourhoods is integral to being physically active, maintaining a healthy body weight, and increasing social interaction (Heart and Stroke Foundation of Canada, 2006);
- Trails are considered to be the safest and most preferred location to walk, cycle and use other non-motorized forms of recreation (Go for Green, National Active Transportation Survey, 2005);
- Exercise and health are seen by Canadians as the main benefit to walking and cycling. Practicality, convenience and pleasure are also frequently cited benefits (Go For Green, National Active Transportation Survey, 2005);
- A 5% increase in the walkability of a residential neighbourhood is associated with 32 more minutes of physically active travel per day (Frank, 2006a);
- Individuals who have access to trails increase their recreational activity on average by 44% (Irish Trail Strategy, 2006);
- Policy changes at the local level have the potential to encourage increased physical activity over the long term by making active transportation an easier choice for residents (World Health Organization, 2006);
- One study has estimated that 40% of chronic illness could be prevented by regular physical activity and suggested that urban planning could offer opportunities for increased physical activity by creating walking and cycling alternatives, such as trails, instead of motorized transportation (Heart & Stroke Foundation of Nova Scotia, 2004);
- Canada’s 2005 Physical Activity Monitor found that the top three preferred physical activities among Canadian youth are walking (66%), jogging or running (56%) and bicycling (49%) (Canadian Fitness and Lifestyle Research Institute, 2005);
• Mixed land uses, well-connected streets, trail and sidewalk networks that promote a supportive walking and cycling environment can help to increase resident’s health by affecting their travel behaviour to include more active transportation modes (Frank, Kaveage & Litman, 2006); and

• Manufacturers and suppliers of park equipment and furnishings realize the public interest in the benefits that active lifestyles can provide and have begun to develop and market products designed to increase muscle strength and endurance, and improve cardiovascular fitness, core strength and flexibility, all of which help to reduce the risk of osteoporosis in older adults, improve the ability to perform daily tasks provide psychological benefits and improved quality of life (McConkey, 2010).

C.3 ECONOMIC DEVELOPMENT AND TOURISM

Trails across North America have created numerous benefits and opportunities for the communities that they pass through. Communities benefit from trail development through increases in business activity, and by providing services to an increasing number of trail users.

A 2004 comprehensive study completed by Price Waterhouse Coopers investigated the economic benefits of developing trail systems as part of a study to project the economic benefits of developing the Trans Canada Trail in Ontario. Some of the information collected regarding economic benefits to other jurisdictions included the following:

• A study of the “T” Railway in Newfoundland (2002) found that the total annual economic impacts associated with this trail are estimated to be as high as $17.4 million in new income generated, upwards of 850 new jobs and millions of dollars in additional tax revenue for both the provincial and federal governments;

• A survey of users of the Georgian Trail in Collingwood, Ontario estimated that the direct expenditure associated with the trail users was $5.2 million in 1999; and

“Trails across North America have created numerous benefits and opportunities for the communities that they pass through. Communities benefit from trail development through increases in business activity, and by providing services to an increasing number of trail users.”
The Economic Impact Study for the Allegheny Trail Alliance (1999) found that trail business accounts for more than 10% of annual receipts for a third of business respondents in the region, and that approximately half of all businesses in the area have plans to expand their business as a result.

Trail systems can have varied levels of attraction for tourists. They can be travel destinations in themselves, encouraging visitors to extend their stay in the area or enhancing business and pleasure visits. Attractive and interesting trail systems with features and amenities that capture the attention of users can encourage travelers to stay longer and spend more money during their stay which results in a direct and positive benefit to local businesses. There is ample evidence to suggest that trails provide significant economic benefits for adjacent landowners and local businesses. Trails provide benefits to the local economy during both construction and operation. Trail construction results in direct benefits such as jobs, including the supply and installation of materials. Following construction, benefits emerge in the form of expenditures by trail users. A few examples include:

- Trails in New Brunswick employ around 1,500 people for an average of six months per year;
- 70% of users of the Bruce Trail cite the trail as the main reason for visiting the area. They spend an average of about $20.00 per user per visit within a 10 km corridor on either side of the trail;
- The Riverwalk is considered the anchor of the tourism industry in San Antonio, Texas and contributes $1.2 billion annually to the local economy;
- In 1988, users of the Elroy-Sparta Trail in Wisconsin averaged expenditures of $25.14 USD per day for trip related expenses for a total of over $1.2 million annually;
- More than 600,000 Americans took a bicycle vacation in 1985, and when travelling in a group, spent $17 per day camping or $50 per day staying in motels. Cyclists travelling alone spent an average of $22 per day camping or $60 per day staying in motels;
- In Ontario, the Eastern Ontario Trails Alliance estimated that at the end of a 10 year build-out period, 320 km of their system, constructed at a cost of $5.4 million will generate approximately $36 million in annual economic benefits in the communities through which it passes, and create or sustain over 1,100 jobs; and
- In Surrey, British Columbia a 2001 study compared the impact to single-family property

“Attractive and interesting trail systems with features and amenities that capture the attention of users can encourage travelers to stay longer and spend more money during their stay which results in a direct and positive benefit to local businesses.”
values over 20 years for properties that bordered an open space or trail versus properties that did not. The study found that introducing a trail in four Surrey neighbourhoods increased property values bordering the trail by 1% to 10%, and did not result in any measurable increase in crime.

C.4 ENVIRONMENT

Walking and cycling are energy-efficient, non-polluting modes of travel. Short distance, motor vehicle trips are the least fuel-efficient and generate the most pollution per kilometre. These trips have the greatest potential of being replaced by walking or cycling trips and integrated walking-transit and cycling-transit trips. Shifting to these modes can mitigate ozone depletion, the greenhouse effect, ground-level air pollution, photochemical smog, acid rain, water pollution, and noise pollution.

Reducing the number of vehicles on the road reduces the number of hazardous pollutants that are emitted into the atmosphere by motor vehicles. Motor vehicles, roads and parking facilities are major sources of water pollution and hydrologic disruptions due to practices such as road de-icing, application of roadside herbicides, road construction, increased use of impervious surfaces and the deposition of air pollutants.

In addition, motor vehicles can be a large cause of noise pollution within communities. Motor vehicles generate various types of unwanted noise and vibration that cause disturbance and discomfort to residents. This includes engine acceleration, tire/road contact, braking, horns and vehicle theft alarms etc. Bicyclists and pedestrians make little or no noise, and are not disruptive to communities from a noise perspective.

“Walking and cycling are energy-efficient, non-polluting modes of travel. Short distance, motor vehicle trips are the least fuel-efficient and generate the most pollution per kilometre.”
APPENDIX D PUBLIC CONSULTATION: LEARNING FROM KITCHENER’S RESIDENTS

D.1 AN OVERVIEW OF THE CONSULTATION PROGRAM

Public consultation was an important component in the development of the Kitchener Multi-use Pathways Master Plan and Implementation Strategy. Drawing upon knowledge of the people who live, work and play in Kitchener, and the various partners who will have a role in implementing the study recommendations, a comprehensive consultation strategy was developed at the outset of the study and confirmed by the Project Steering Committee. The consultation strategy was designed to:

- Engage City Staff, Councillors, residents and stakeholder about the purpose, approach and findings of the Multi-use Pathways Master Plan and Implementation Strategy;
- Encourage stakeholders to participate in the study process;
- Promote trail and trail related development (multi-use pathway), particularly walking and cycling for residents of all ages; and
- Provide information related to the benefits of investing in multi-use pathways and encourage behaviours that help reduce the unnecessary single occupant motor vehicle use.

The primary consultation techniques that were undertaken throughout the study process included:

- Study Team Meetings;
- Notice of Study Commencement;
- Online Questionnaire;
- Public Information Centres;
- Stakeholder Working Group Sessions;
- Consultation with various Committees; and
- The study webpage linked to the City’s website.

Over the course of the study, a Project Record was maintained which document the input received from various stakeholders and the public. The Project Record is provided as a separately bound appendix to this report. The

“Drawing upon knowledge of the people who live, work and play in Kitchener, and the various partners who will have a role in implementing the study recommendations, a comprehensive consultation strategy was developed at the outset of the study and confirmed by the Project Steering Committee.”
consultation program provided the study team with a wide range of comments and ideas from members of the public, Council, committees and agencies. These comments were reviewed and where applicable, they were incorporated into the Master Plan.

D.2 ON LINE QUESTIONNAIRE

As part of the Multi-use Pathways Master Plan and Implementation Strategy, a web-based questionnaire was developed and hosted using the online service SurveyMonkey (http://www.surveymonkey.com/KTMP_Questionnaire). The questionnaire was available for public response from early September 2010 until March 31, 2011. The questionnaire was voluntary (i.e. not a random telephone questionnaire) and although not statistically valid, the questionnaire results provided the study team with important information that was used to inform the study and provide more detailed input to the materials developed. A total of 284 responses were received. Some of the key information provided from the online questionnaire included:

1. The frequency of use for multi-use pathways and trails related modes of transportation;
2. The types of uses considered when developing new multi-use pathway and trail facilities;
3. The motivation behind the use of multi-use pathways and trail facilities and improvements;
4. The reasons for implementing a comprehensive multi-use trail system; and
5. The importance of the funding.

The following is a summary of key findings from the online questionnaire:

- Over 83% of questionnaire respondents agree that the City of Kitchener should
invest in trail improvements that provide opportunities for increased trail use and activity throughout the City as illustrated in Figure D-1.

Figure D-1: Level of support for Making the investment in trail improvements in Kitchener

- The primary use for existing trail systems within the City of Kitchener is walking / jogging as well as cycling. Approximately 44% of respondents indicated that they walk or jog and 35% cycle at least a few times a week. Hiking (18%), cross country skiing (6%) and in-line skating / rollerblading (2%) are less common occurrences on a weekly basis.

- Fitness and exercise as well as the enjoyment of the natural environment are the primary motivators for using the multi-use trail system with 65% (fitness and exercise) and 62% (enjoyment of natural environment) of respondents indicating that it always motivates them to use the existing system. In addition, results also indicate that sometimes people are inclined to use trails for destination oriented trips (travel to visit friends, etc.) with 36% of respondents indicating this motivator “sometimes”. Based on more detailed answers provided, respondents have indicated other reasons not identified in the questionnaire such as the use of the trail system for alternative routes for dog walking. Trips for commuting purposes to work and school are currently not the main reason for using the multi-use pathway and trail network in the City. The comparison of responses is illustrated in Figure D-2.

“Drawing upon knowledge of the people who live, work and play in Kitchener, and the various partners who will have a role in implementing the study recommendations, a comprehensive consultation strategy was developed at the outset of the study and confirmed by the Project Steering Committee.”
Respondents were able to provide their input on their comfort level for a number of proposed trail types. From the results, it was clear that respondents were generally very comfortable with all trail types, with an over 50% rating of very comfortable…

Figure D-2: Reasons that Motivators Trail Users

Respondents were able to provide their input on their comfort level for a number of proposed trail types. From the results, it was clear that respondents were generally very comfortable with all trail types, with an over 50% rating of very comfortable for the following trail types:

- Soft Surface, Single-Track (e.g. narrow) trails through natural areas such as wetlands or woodlands (53%);
- Soft Surface, Multi-use Trails (e.g. up to 3m wide) through natural areas such as sections of the Walter Bean
Trail (67%);

- Soft Surface, Multi-use Trails (e.g. up to 3m wide) through urban parks and urban spaces such as the Dominic Cardillo Trail (64%); and

- Hard Surface, Multi-use Trails (e.g. up to 3m wide) through urban parks and urban spaces such as Victoria Park and the Iron Horse Trail (69%).

From these results it is clear that respondents are supportive of the development / expansion of the multi-use trail system no matter the type of facility that is considered for implementation.

Question 6 asked respondents to rate, based on importance, the reasons why the City of Kitchener should develop a multi-use trail system. The following are the three key reasons that were selected as the most important by respondents: to improve walking and cycling as transportation options (85%), to improve the quality of life and health of Kitchener residents (84%) and to provide places to walk and cycling within neighbourhoods for recreation (82%). When compared with the responses above to the question about what motivates people to use the multi-use pathway network and this question that asks why the city should develop the multi-use pathway system it is notable that use of the system for commuting currently ranks lower than use for enjoyment of the natural environment and for fitness, however, when compared with the response for why the city should develop the multi-use system, the response “to improve conditions for walking and cycling as transportation options rated very highly. This may imply that there is a latent demand for the use of the system. In other words it may be reasonable to suggest that if important improvements are made to the network that more people would use it for transportation purposes. Results are shown graphically in Figure D-3.
Respondents were also given the opportunity to highlight key destinations and connections that should be considered within the overall multi-use trail network. Respondents suggested several preferred connections along specific corridors and routes, these included:

- Iron Horse Trail from John Street to Victoria Park;
- Completion of the Walter Bean Trail;
- Connection from Downtown Kitchener to Fairview Mall;
- Connections on the East Side from Downtown Kitchener to Uptown Waterloo;
- Connection from the railroad track trail at Union and Moore down to the Train Station;
- A Downtown connection to the Iron Horse Trail
“The purpose of the session was to bring together individuals with a variety of interests and/or responsibilities related to trails in Kitchener. This first session was aimed at providing an introduction and background to the study and to gain an understanding of some of the issues and opportunities related to trails in Kitchener.”

with the east side of Kitchener;
- The Iron Horse Trail from Nyberg Street to the pedestrian bridge crossing Highway 401;
- A safe linkage to the South of Kitchener;
- A connection from Highland Hills Mall to Downtown Kitchener;
- An east-west corridor connection from Fischer Hallman to Lancaster; and
- Chicopee neighbourhood trails to connect to the Walter Bean Trail.

These comments were documented and taken into consideration during the network development process outlined in Chapter 6. All responses from the online survey are summarized and presented in a separately bound appendix.

D.3 STAKEHOLDER CONSULTATIONS

D.3.1 Stakeholder Working Group Session #1

The first Stakeholder Working Group Session took place on November 1st, 2010, near the conclusion of the first phase of the master plan process. The purpose of the session was to bring together individuals with a variety of interests and/or responsibilities related to trails in Kitchener. This first session was aimed at providing an introduction and background to the study and to gain an understanding of some of the issues and opportunities related to trails in Kitchener.

Figure D-4 Stakeholder Working Group #1, November 1, 2010.
The session began with a background presentation by the consulting team which summarized the:

- Background and history of trails in Kitchener;
- Study objectives and process;
- Current policies related to trails; and
- Insight regarding what the consultant team learned about trails in Kitchener through the trail inventory, the On-line survey, and the first Public Open House that was held at the Kitchener Market on September 18th, 2010.

Following the presentation participants were separated into 3 groups and asked to provide input on the following 4 topics. Maps were also provided for participants to add location-specific comments related to trails across the city. Specifically participants were asked to:

- Provide comments and suggestions on the draft vision for multi-use pathways;
- Mark or describe the location of destinations and barriers related to Multi-use Pathways (Community Trails), where new multi-use pathway links should be provided and identify priorities for implementation;
- Identify the role that various agencies/partners/groups might play in the development, maintenance, operation of Multi-use Pathways (Community Trails) in the City; and
- List the top 3 actions that should be undertaken to improve Multi-use Pathways (Community Trails) throughout the City.

The following is a summary of key points raised regarding destinations and barriers:

- General connections throughout the community are needed such as Fischer Hallman to Homer Watson as well as the Iron Horse to Pioneer Tower areas.
- Suggestions were made for site specific improvements and priorities for implementation such as Carisbrook Drive, as well as the Iron Horse Trail crossing at Glasgow and Victoria Street which should include a pedestrian right of way e.g. curb cuts or a yellow centre line.
- Crossing of physical barriers such as controlled access highways (i.e.
Highway 85, 7/8, and 401), Regional roads, railways, and waterways was noted as an issue.

- Other types of barriers identified included resistance to implementing trails adjacent to existing backyards and the political will to overcome local opposition for new trails particularly in established neighbourhoods.

The following points were offered by the Working Group as they relate to roles that various groups/departments/bodies can take in furthering the development of Multi-use Pathways in Kitchener.

**Political**

- Develop a clearer understanding of local opposition/“NIMBY” to developing trail connections in established neighbourhoods
- Provide stronger financial commitment to the development and maintenance of trails
- Invest in and encourage partnerships to promote trails
- Provide leadership regarding public support for trails

**Municipal Process/Departments**

- Ensure inter-departmental coordination in the planning, design, and development of the ‘active transportation’ system, including the ‘off-road’ system of community trails and good links and connections with the ‘on-road’ system
- The community trail system needs to be reorganized as a ‘urban design form determinant’ in the planning of new subdivisions
- Community trails need to be considered as a component of all engineering projects within existing developed areas of the city, where every project should be considered as an opportunity to implement or improve the ‘active transportation’ system. The Multi-use Pathway Master Plan to be consulted for all engineering/infrastructure projects.
- The budget for the implementation of Multi-use Pathways should be recognized as a part of all engineering projects
- Trails need to be implemented as part of the transportation network

Finally each of the 3 groups were asked to provide their top 3 suggestions for how Community Trails (Multi-use Pathways) could be improved in Kitchener.
Appendix D

Group 1

1) Trails are important part of transportation network, therefore should they be part of the transportation (i.e. engineering budget).

2) Include trails as part of engineering infrastructure projects in built up areas.

3) Design major transportation (Multi-use Pathway) routes within the City then look at recreational loops that connect open spaces and other transportation systems.

Group 2

1) Strong political and financial commitment is needed.

2) Encourage and foster partnerships with outside agencies and groups.

3) Improve marketing and communication related to trails (e.g. signage, wayfinding, safety).

Group 3

1) Have Developers build trails in new developments, and ensure that trails are in place before people move in to new homes which will result in less opposition than waiting to put trails in later. Plan straight long distance trails in greenfield areas so that any new development adds on to the existing network rather than creating short isolated pieces that don’t connect to the overall network.

“Ensure inter-departmental coordination in the planning, design and development of the ‘active transportation’ system, including the ‘off-road’ system of community trails and good links and connections with the ‘on-road’ system.”

“In addition to the group discussions undertaken regarding topics proposed for discussion, early on during the session some questions/concerns were raised about the term “Community Trail” as it has a different meaning to different people.”
2) Examine the potential for redevelopment as a tool for adding missing links/closing gaps in the system. Use overlays to examine how well the trail network complements the transit and cycling networks.

3) Create more comprehensive trail maps, regardless of who manages the various trail routes. Be more consistent with signage and wayfinding. For example trail markers need to say “Trail”, and links to next section of trail need to be more clearly marked where trails meet and must follow roads.

In addition to the group discussions undertaken regarding topics proposed, some questions/concerns were raised about the term “Community Trail” as it has a different meaning to different people. For example City staff that routinely deal with trails as part of their day-to-day business, “Community Trails” refers to the main or spine trails across the city and “Community Trails” do not include the smaller and informal trails in some woodlands, parks and natural areas. Currently, routes that encompass “Community Trails” are marked by the tall wood sign/bollard at prominent locations throughout the city.

On the other hand and to most others, the term “Community Trail” is synonymous with “trails in my community” or all trails in the city regardless of location or hierarchy within the network. It was suggested that the terminology used to describe various types of routes in the network be further considered and more clearly defined. This terminology is clearly defined in Chapter 6 and Appendix A of this report.

D.3.2 Stakeholder Working Group Session #2

The second stakeholder working group session took place from 2:00 p.m. to 4:30 p.m. on February 15, 2011 and was attended by 16 people including representatives from the study team. The purpose of the session was to
receive comment on the updated vision, the proposed route classification, the draft network as well as the draft Official Plan policies recommended for consideration as part of that separate study.

Figure D-5 Stakeholder Working Group #2, February 2011

At the beginning of the workshop, a short presentation was delivered by the study team summarizing the key results of the first stakeholder working groups and updating participants on the progress of the study, the draft Official Plan policies, draft network as well as some results of the online questionnaire to date. Following the presentation, attendees were separated into two groups and asked to review the draft Official Plan policies, discuss potential programs and initiatives to support the development of multi-use pathways and trails and encourage use throughout the community. They were also asked to provide their comments on the draft network. More specifically, the groups were asked the following 4 points to guide their review:

- Review the Draft Official Plan policy recommendations and agree/disagree with them, and provide suggestions for modifications;
- Identify potential programs that should be considered to support/promote Multi-use Pathway initiatives. These could relate to encouraging use, safety, economic development etc.;
- Review the Draft Network and provide comments on the map related to additional network connections that should be considered; and

“Following the presentation, attendees were separated into two groups and asked to review the draft Official Plan policies, discuss potential programs and initiatives to support the development of multi-use pathways and trails and encourage use throughout the community.”
Using a highlighter, trace over those routes that should be included as the Type 1 routes, and identify any priorities for implementation.

The following summarizes the key points raised by the 2 groups:

   - The current Official Plan policy is weak- new policies are being developed to be more comprehensive;
   - A schedule in the updated Official Plan needs to identify/specify that it is illustrating Type 1 and Type 2 Multi-use Pathways only;
   - Continuing Education should be included within Official Plan policies; and
   - The role of the Multi-use Pathway Master Plan relative to the Official Plan process is that the master plan provides suggestions and these are refined/massaged through the Official Plan update process itself. The public and stakeholders have the opportunity to comment on specific wording through the Official Plan update process (a separate project that was underway at the same time as the Multi-use Pathways Master Plan).

2. **Identify Potential Programs**
   - Instead of closing city streets for races for fundraising (e.g. CIBC Run for the Cure) use the multi-use pathway/trail system;
   - The City could host a trail festival at a central access point such as Victoria Park or encourage an existing festival to use or incorporate the trail system;
   - Use trail system for event promotion; and
   - Include public education and etiquette as well as programming on communication and signage.

3. **Review the Draft Network**

   The following is a summary of comments received related to the Draft Network.

   **A. Routes**
   - Could the existing parking lot at the end of Glasgow St. near the landfill be used a trailhead in the future?
   - A link should be provided to the future transportation hub at Victoria St. and King St.;
   - Develop East/West and North/South spines; and
• Create a connection from the bike park at McLennan Park to the mountain bike trails at the Waterloo Hydro Cut.

**B. Network Planning and Design**

• Signage is lacking along the southern portions of the Trans Canada Trail in Kitchener;

• The network needs to include signs to clearly show how trails connect through neighbourhoods (i.e. how to get from one section of the off-road network to the next);

• Use signage along the roads to inform motorists of trail crossing and also to brand the multi-use pathway system and encourage users; and

• Encourage developers to create connected linear parks rather than isolated blocks, and consider “Vita Parcours” (exercise stations along the pathway created using natural materials).

**4. Identify the Type 1 Network and Implementation Priorities**

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“Use signage along the roads to inform motorists of trail crossing and also to brand the multi-use pathway system and encourage users.”
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• Conestoga College, malls, downtown and link them to support alternate transportation modes across the city;

• Trail connections to Cambridge via Fairway Rd.

• Balzer Rd. area connections and connections to major recreational destinations;

• The Trans Canada Trail (TCT) Foundation is working on a National Connection Plan and tied to this will be funding opportunities for connections that are identified in the plan. If the City can identify key linkages or improvements along the TCT in Kitchener, the TCT Foundation can possibly help support funding for trail development of sections of the TCT in Kitchener.

Participants were asked to highlight the routes on the map that they felt should be designated as the Type 1 routes. They are illustrated in Figure D-6.
D.3.3 Cycling Advisory Committee

The study team was invited to attend the February 8, 2011 meeting of the Cycling Advisory Committee where a short presentation was delivered outlining the study...
process, interim results from the online questionnaire, a refined vision and objectives, the proposed route classification, the draft network as well as the draft Official Plan policies.

Attendees were provided copies of the draft network and were asked to provide their thoughts regarding continuity, routes selected, interface with the approved cycling network, priorities for implementation and to provide their suggestions for routes that should be for the Type 1. The following are highlights of the comments provided and suggestions for the Type 1 network are illustrated in Figure D-7:

**Network Links:**

- Design the pathway go under Manitou where it currently crosses south of Fairway Rd., this is a very difficult crossing due to vehicle speeds and difficult sight lines;
- Avoid the proposed link via on street network using Ottawa St and Homer Watson Blvd, instead propose a pedestrian/pathway bridge over Hwy 7/8 at end of Strasburg Rd.;
- Use the Borden Greenway culvert (just east of Westmount Rd/) to create a pathway crossing below Highway 7/8;
  - Mill St. from Courtland to Borden is too narrow for cyclists and there is a bad rail crossing, please suggest an alternative; and
  - Redesign the angled crossing of Iron Horse Trail over the railway near Victoria Park. Current access barriers are a problem also.

**Priorities:**

- Old Mill Drive/Wastewater Treatment Plant area;
- Homer Watson Multi-use Pathway from Manitou Dr. to Beasely Dr. and Beasley Dr. to the Budd Plant Driveway;
- Manitou Dr from Doon Village Rd. to Fairway Rd.;
- Wilson Ave. link from Huron Rd. the Wilson Ave.; and
- Schneider Creek Multi-use Pathway.
- Trans Canada Trail along Courtland Ave. from Mill St. to Overland Dr.
- Grand River Pedestrian-Cyclist bridge to Sportsworld proposed link
- Pioneer Tower to King St. Grand River Bridge link
- Create network connections to the Bridgeport area.

Figure D-7: Suggestions for the Primary network (Illustrations by the Cycling Advisory Committee).
**D.3.4 Environmental Committee**

A preliminary draft of the background sections of the report was circulated to the Environmental Committee in March 2011. Following this a representative of the study team and the City’s Project Manager for the KMUP were invited to attend the Committee’s regularly scheduled meeting on April 21, 2011. A short update presentation was made by the study team representative summary which was followed by a discussion/question-answer session. Some of the key discussion points included:

- It is important to highlight the benefits of pathways/trails as an essential part of the community fabric. They provide places for people to “get away” from the busy urban environment; pathway/trail use helps to reduce greenhouse gas impacts and helps to improve air quality.
- Pathways and trails have a number of direct and indirect economic benefits, for instance a good pathway/trail system can be a selling feature to attract businesses to the community, and in this can help businesses attract employees to live in the city where they work.

A set of written comments on the background draft report sections was provided to the study team representative and these were reviewed and incorporated into the final draft report where appropriate.

**D.3.5 Grand River Accessibility Advisory Committee**

A representative of the study team and the City’s Project Manager were invited to the Committee’s May 26, 2011 meeting. A short background/study status presentation was provided. Although no time was available for a question/answer period, it was agreed that the final draft report would be provided to the Committee’s coordinator in a variety of formats so that it could be passed along to the Committee members to review at their leisure.
D.3.6 Waterloo Region Homebuilders Association Liaison Committee

The City’s Project Manager and a representative of the study team attended the Waterloo Region Homebuilders Association Liaison Committee Meeting on January 20, 2012. The study team provided a brief presentation on the study and key findings/recommendations as they relate to the land development and home construction industry. The membership raised a number of points related to the development of trails and the land development process. Some of these included:

- All the requirements for active transportation should be considered simultaneously such as multi-use trails, cycling routes and sidewalks so that facilities are not being duplicated or even triplicated
- If there is an interest in ensuring that trails are constructed as new developments are created and not left until much later when they can be difficult to install, then policy should state that they need to be in place prior to registration rather than occupancy. Using occupancy as a critical date could be problematic during certain times of the year and delay the occupancy process
- Getting the base in place as part of area grading and servicing is a good, workable idea, final surfacing should be completed after house construction
- Relate the strategy and Development Charges funding to ensure that the developer is paid within a reasonable timeframe
- The requirements and timing for trails should be stipulated in the Development Manual and Subdivision Agreements
- Create loops in the system, this is how people use trails
- Make key land acquisitions to complete critical missing links in the trail system such as gaps in the Walter Bean Trail system in the Grand River floodplain
- Parkland dedication and cash in lieu; there is a need to work through the details of these as they relate to trails
- More details and standards are required (e.g. for standard road crossings, property demarcation etc.)
- Having a master plan is commendable, it helps everyone understand the vision
D.4 PUBLIC INFORMATION CENTRES

Two Public Information Centres (PIC) were held during the course of the study. The first PIC was conducted on the upper floor of the Kitchener Market on the morning of September 18, 2010 in an effort to gain input from a broad cross section of residents. The second PIC was held on February 23, 2011 between 4:00 p.m. and 8:00 p.m. in the Rotunda at Kitchener City Hall. Comment forms were also available at each PIC as well as interactive display boards where attendees are able to write their ideas and comments on the multi-use pathway network for future consideration and development.

D.4.1 Public Information Centre #1

The first PIC focused on presenting the study vision, route selection principles, typical facility types and the inventory of the existing network that had been completed by that point. Members of the consulting team and city staff were on hand to seek input from the public and to encourage them to answer the on-line survey either at the computer station provided or at their leisure (participants were given a “business card” with the study contact information that included a web link to the City website and the on-line survey).

“The first PIC focused on presenting the study vision, route selection principles, typical facility types and the inventory of the existing network that had been completed by that point.”

Figure D-8 Public Information Centre #1, September 18, 2010 at the Kitchener Market
A number of comments were provided to the study during the PIC as well as additional comments which were documented on the maps displayed at the Kitchener Market. Many of these comments provided references to potential locations for the multi-use pathway system in Kitchener and suggestions as to how the multi-use pathways system could benefit the community most and be connected most effectively to current, existing trail system / cycling / pedestrian facilities.

In addition to providing comments about city trails, the route selection principles and the study itself, participants were asked to indicate which trails they use most frequently, places where improvements and/or new connections should be made by adding their thoughts and ideas directly on the map panels. It was estimated that approximately 60-80 people reviewed the displays, ask questions or provide comments. These same displays were set up at Conestoga Mall on the evenings of September 8 and 9, 2010 in association with the Minor Sports Registration Program. A member of the consultant team was present to seek input from the public and answer questions related to the Multi-use Pathway Master Planning study. It was estimated that approximately 50 people stopped to review the displays, ask questions or provide comments over the 2 evening period.

The following notes regarding trail connections and improvements were transcribed from the mapping displays used at the Conestoga Mall and Kitchener Market.

**General Comments:**

- A lot of people liked the Iron Horse trail – most people use the Iron Horse
- Several people were pleased with the City's recent planning for a pedestrian bridge along the Walter Bean Trail to cross the Grand River and were happy to hear that it is moving forward to implementation
- The City should explore forming a trails advisory committee
- Numerous requests for hard copies of trail maps, specifically a fold-out type map

**Network Connections Needed:**

- Idlewood Park to Downtown
- Stanley Park to Downtown
Connect Iron Horse Trail south from Hayward Avenue to trails near Manitou Drive and Cress Lane

Improve trails between Manitou Drive and Balzer Road

Develop a 14km looped “Grand River Heritage Trail” in the Hidden Valley area

**Maintenance and Operations:**

- More garbage and recycling receptacles needed at key trail entry points
- More frequent maintenance of trails is required especially following significant rain or wind events

**Amenities:**

- It would be helpful to have marker signs that allow trail users to alert police about their location on trails in case of an emergency
- Better wayfinding and directional signage is needed
- Need improved trails adjacent to Peter Hallman ball yard
- Trails need more garbage cans and more lighting

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**D.4.2 Public Information Centre #2**

The second Public Information Centre was held in the Rotunda at City Hall from 4:00 p.m. to 8:00 p.m. on February 23, 2011. The purpose of the session was to provide an update on the status of the study and provide an opportunity for the public to comment on key directions being established in the Master Plan, including the draft network, the proposed route classification (i.e. Type 1-Type 5) and draft Official Plan policy
recommendations that would be forwarded for consideration by the team responsible for the Official Plan update.

Figure D-9 Public Information Centre #2, February 23, 2011 at Kitchener City Hall.

Display materials for the second PIC built upon those presented at the first PIC, and included the updated vision and an update of results from the on-line questionnaire (approximately 260 responses had been received by the dated of the second PIC). Ten people signed in and it was estimated that approximately five other people viewed the displays/provided comments but did not add their names to the sign in sheet. The study “business card” containing the study contact information, link to the City website and the on-line survey were also available for participants to pick up.

Staff and Study Team Members were on hand to respond to questions and to encourage participants to add their comments / insight directly to the displays and network map (refer to Figure D-10). A comment form was also provided which posed 3 questions regarding the proposed network, priorities for implementation and draft Official Plan Policies.
In addition, key highlights of the comments pertaining to routes, priorities and other recommendations are summarized below:

**Routes**
- “We would like to be able to go from one end of the city to the other on a paved route, but don’t pave everything”;
- “The proposed trail along the Waterloo Spur Line is a great idea, we like this trail”;
- “Paving the trail parallel to West Heights Drive reduces its usefulness for running (runners prefer the soft surface over asphalt)”;
- “Like the proposed connection from the proposed hydro corridor trail to Laurentian Wetlands”; and
- “Develop a connection from Kitchener to Guelph.”

**Priorities**
- Connection off Fallowfield to Courtland to Fairway/Fairview Mall is a bottleneck in the system and should be a priority for construction;
- “The section of trail west from the old Mill Park road allowance and along Schneider Creek should be a priority for rehabilitation, it is too rough and winding”;
- “Iron Horse Trail should have lights at least from West Ave. to Queen St.”;
- “Improve the Iron Horse Trail crossing of the railway by Victoria Park. The trail is at an angle to the tracks. Also the barriers are difficult to see (i.e. not enough contrast) for a person with low vision/visual impairment”; and
- “A priority should be to complete the connection between the bridge over the 401 at Conestoga College to Waterloo (i.e. Cambridge to Waterloo).”

**Other**
- “Trail on east side of Stanley Park is not winter maintained.”
More winter maintenance of trails in general should be considered;

- “Provide signs at key points (e.g. at road crossings) so that Emergency Services can be better notified in case of personal injury;
- “There is a very dark, wooded section of the Henry Sturm Greenway west of Victoria Park. Lighting this section needs to be considered”; and
- “Better signage is needed in and around the intersection of the Henry Sturm Greenway and the Iron Horse Trail”.

In addition to those comments provided on the large scale map boards, input was gathered from the comment forms available to attendees. The following are some comments received:

**Question 1 - Do you agree with the proposed network or are there any additions or deletions?**

- “The City of Kitchener appears to be well linked, though a stronger northeast link to Waterloo could be beneficial”;
- “I really like the emphasis on interconnectedness. As a commuter and a multi modal one at that, I think this is key. I also like that this plan will need to be considered / reflected in future development & planning”;
- “I think you have the network right, but still need main trails paved and signed for inclusive usability”; and
- “I think it presents a well-balanced and interconnected system that tries to avoid “dead zones” where there are no trails”.

**Question 2 - What are the top 3 priorities for implementation?**

- “Create ‘sharing the path’ rules” (i.e. painting centre lines, rules for cyclists, bell should be required before passing etc.);
- “Make trails a destination in and of themselves; interesting things along the way (design) rather than just utilitarian commuter or recreation. An example is Millennium Trail in Quebec City”;
- “Safety in Design (e.g. mile markers for emergencies and communication, incorporate into signage)”; and

“I really like the emphasis on interconnectedness. As a commuter and a multi modal one at that, I think this is key. I also like that this plan will need to be considered / reflected in future development & planning”.

“Place making is a good concept to have when considering design. Creating and sustaining public spaces the build stronger communities (Project for Public Spaces see www.pps.org)”
- Large open spaces at path/trailheads allow for gathering spaces; incorporate open space along the way to encourage use of the path as a destination rather than the only route to get somewhere else.

**Question 3 - Do you have any suggested changes to the proposed official plan policies?**

- “Ensure new development abides by proposed policies - a strong Type 1 network is essential to making Kitchener as cycling friendly city.”

**Question 4 - Do you have any other comments or suggestions?**

- “What will the winter maintenance be?”
- “Will Kitchener residents be informed of the cost to achieve this and the timeline for the network?”
- “Will the KW-Cambridge region consider linking routes / publishing a single map?”
- “Place making is a good concept to have when considering design. Creating and sustaining public spaces the build stronger communities (Project for Public Spaces see www.pps.org)”

Following PIC #2 notes from the March 3rd of the Iron Horse Trail Action Group were forwarded to the Multi-use Pathway Study Team as a number of the ideas/actions have relevance to the Master Plan Study. Specifically those noted were:

- “Take idea of kilometre/location marking system for trail back to Trails Master Plan study team and encourage residents with properties backing on to the trail to put a street address on the back of their property (fence).”
- “Work on developing a Safety Audit of Trail(s) (CPTED) - contacts already made to start planning this initiative.”
- Community spring clean – include a visit from the Mounted Patrol (events like this draw a larger number of people to the area, create an opportunity to meet neighbours, create the opportunity to talk about issues, builds more momentum)
- Write an article about the action/work of the neighbourhood for the Kitchener Citizen.
D.5 HOW COMMENTS WERE INCORPORATED INTO THE MULTI-USE PATHWAYS MASTER PLAN

The consultation program provided the study team with a wide range of comments and ideas from members of the public, Council, committees and agencies. Comment forms were provided at the PICs and the online questionnaire results were maintained and updated frequently throughout the study, and interested parties were encouraged to contact the Project Manager from the City and MMM Group. All comments were reviewed and where applicable, they were incorporated in the Master Plan.

“The consultation program provided the study team with a wide range of comments and ideas from members of the public, Council, committees and agencies. Comment forms were provided at the PICs and the online questionnaire results were maintained and updated frequently throughout the study…”
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<tr>
<td><strong>Strategy-Technique 1: Purchase</strong></td>
<td>Any open space, particularly those requiring environmental protection.</td>
<td>Municipal or other group directly acquires land. Permanent protection and public access.</td>
<td>Municipal Act (right of municipality to acquire and dispose of own land) and right of municipality to levy local improvement charge on benefiting land</td>
<td>Municipal government Land Trusts</td>
<td>The City can purchase properties within a neighbourhood that are listed for sale, and divide the side and/or rear lot to accommodate a block for future trail development through a minor variance of creation of an easement. This strategy is dependent on monitoring properties as they become available and the assembly of a corridor may have to take place over a number of years. The City may compensate a homeowner for the portion of their land required for trail development. In this case the homeowner and City would obtain separate appraisals and negotiate a reasonable price based on the independent results.</td>
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<tr>
<td><strong>Strategy-Technique 2: Land Exchange</strong></td>
<td>Any land or land use open space or other type of use including housing.</td>
<td>Same cost as purchase; permanent protection; public access possible. Must be equitable for both parties to be attractive.</td>
<td>Municipal Act (right of municipality to acquire and dispose of own land).</td>
<td>Municipal most common – public ownership.</td>
<td>N/A</td>
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<tr>
<td><strong>Strategy-Technique 3: Donation / Bequest</strong></td>
<td>Any land or land use open space or other type of use including housing.</td>
<td>Low cost/ permanent protection and public access. Tax benefits for donor. Lands must meet Federal Tax rules for donation in order to qualify for tax exemptions.</td>
<td>Municipal Act</td>
<td>All of the above</td>
<td>The City may coordinate an agreement with a homeowner whose property is potentially impacted by trail development to pay their property and land taxes until such a time when the homeowner sells or relocates at which time their property is gifted to the City.</td>
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### Table E-1: Land Securement Strategies and Techniques

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<tr>
<td>Lands dedicated to municipality for parkland purposes as a result of subdivision development.</td>
<td>Any open space, but usually active parkland.</td>
<td>Provides parkland in growing communities: Can be converted to cash for more flexibility.</td>
<td>Planning Act</td>
<td>Municipal Ownership</td>
<td>The City may coordinate an agreement with a homeowner whose property is potentially impacted by trail development to pay their property and land taxes until such a time when the homeowner sells or relocates at which time their property is gifted to the City.</td>
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<tr>
<td>Usually relates to recreation land but may be used to acquire natural areas.</td>
<td>Planning Act limits amount of land that can be required at no charge.</td>
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**Strategy-Technique 4: Parkland Dedication**

- Use of land use planning (Official Plan/Zoning/ Subdivision Watershed and Sub-watershed Plans) and other regulatory controls.
- Land Ownership does not change.

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<th>Strategy-Technique 5: Traditional Land Use and Other Regulatory Controls</th>
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<td>Any open space if designation or zoning is not successfully challenged.</td>
<td>Intent for the land is provided in the Official Plan. Permanent protection can be achieved. May not be popular and does not provide for public access. May trigger requests for financial compensation or purchase.</td>
<td>Planning Act</td>
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<td>Conservation Authorities Act</td>
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<td>Fisheries Act</td>
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<td>Aggregate Resources Act</td>
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</table>

**Strategy-Technique 6: Sale with Restrictions (Including acquisition and resale)**

| Land can be sold with restrictions in place to control future uses. | Natural open spaces requiring environmental protection where public access may not be as critical. | Generates revenue while maintaining natural open space; permanent protection; public access can be negotiated. Restricted land more difficult to sell, limited market and reduced value. In the case of natural open space that requires environmental protection, and consistent with the Official Plan only small scale, passive recreation uses such as pathways and trails, boardwalks, footbridges and picnic facilities which will have no significant negative impact on the natural features or ecological function of the Natural Heritage System are permitted. | Municipal Act | Municipal/Provincial Government | N/A |
| | | Conservation Land Act | | | |

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<td><strong>Strategy-Technique 7: Land Trust</strong></td>
<td>Non-profit organizations dedicated to conserving open space, natural areas, etc.</td>
<td>Usually land needing environmental protection or recreational multi-use pathways.</td>
<td>High profile grass-roots organization. Provides permanent protection and public education. Limits public access. Needs high profile and independence to get funds. In the case of natural open space that requires environmental protection, and consistent with the Official Plan only small scale, passive recreation uses such as pathways and trails, boardwalks, footbridges and picnic facilities which will have no significant negative impact on the natural features or ecological function of the Natural Heritage System are permitted.</td>
<td>N/A</td>
<td>Generally non-profit, incorporated community organization or a chapter within an existing organization N/A</td>
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<td><strong>Strategy-Technique 8: Corporate Landowner Agreement / Condominium Agreement</strong></td>
<td>Similar to Land Trust Conservation land can be owned by a shareholder's corporation or condominium devoted to the protection and management of the lands.</td>
<td>Any open spaces.</td>
<td>An alternative to government ownership and management; no cost; flexible; management costs borne by those directly benefiting. Protection not guaranteed. Little used; no guarantee of public access, needs a willing corporate entity.</td>
<td>Corporations Act Condominium Act</td>
<td>Private landowners, would not involve public ownership. N/A</td>
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<tr>
<td><strong>Strategy-Technique 9: Conservation Easement</strong></td>
<td>Agreements that restrict uses for conservation purposes, and when registered on title, they bind both current and future landowners.</td>
<td>Usually land needing environmental protection as well as heritage buildings.</td>
<td>Low cost; may be more acceptable to landowner; can provide permanent protection. Cost of easements may be as great as purchase; public access may be limited; requires ongoing monitoring; not extensively used in Ontario. In the case of natural open space that requires environmental protection, and consistent with the Official Plan only small scale, passive recreation uses such as pathways and trails, boardwalks, footbridges and picnic facilities which will have no significant negative impact on the natural features or ecological function of the Natural Heritage System are permitted.</td>
<td>Ontario Heritage Act; Ministry of Government Services Act Ontario Conservation Land Act</td>
<td>Only government agencies and registered charities including land trusts. Private ownership N/A</td>
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### Appendix E: Table E-1. Land Securement Strategies and Techniques

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<td>A condition on title that restricts the landowner’s use of land or assigns certain rights or access to an adjacent landowner. Applicable where a government wishes to control land use but not own the land.</td>
<td>Usually land needing environmental protection.</td>
<td>Low cost; can provide permanent protection. Can only be used under certain conditions; unlikely to be able to specify long-term management obligation. Public access not likely. In the case of natural open space that requires environmental protection, and consistent with the Official Plan only small scale, passive recreation uses such as pathways and trails, boardwalks, footbridges and picnic facilities which will have no significant negative impact on the natural features or ecological function of the Natural Heritage System are permitted.</td>
<td>Common Law</td>
<td>Any government or conservation authority.</td>
<td>N/A</td>
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<td>A lease gives exclusive rights to use land for a specified term and cost. Licenses give permission to use a property for a purpose but not exclusive rights and does not bind future owner.</td>
<td>Any land</td>
<td>Public access can be negotiated Agreement must be renewed periodically; may not protect land in perpetuity.</td>
<td>Legal lease or license agreement between parties.</td>
<td>Private or public ownership.</td>
<td>N/A</td>
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<td>Tax or management incentives to encourage retention/ restoration of natural areas. Usually linked to land use restrictions such as Provincial policy and zoning. i.e. Tax Rebates/ Credits/ Management Agreements/ Funding Assistance</td>
<td>Usually land needing environmental protection.</td>
<td>Lower cost and non-confrontational; willing landowner agreement Difficult to monitor compliance; does not provide public access or permanent protection. Lost tax revenue. In the case of natural open space that requires environmental protection, and consistent with the Offcial Plan only small scale, passive recreation uses such as pathways and trails, boardwalks, footbridges and picnic facilities which will have no significant negative impact on the natural features or ecological function of the Natural Heritage System are permitted.</td>
<td>Woodland Improvement Act</td>
<td>Ministry of Natural Resources</td>
<td>N/A</td>
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<td>Private land owner care and protection of land. Can be linked to incentives. Provides support/education for owner.</td>
<td>Usually land needing environmental protection.</td>
<td>Voluntary. Least costly; non-threatening; builds rapport. Not permanent. No public access or protection. In the case of natural open space that requires environmental protection, and consistent with the Official Plan only small scale, passive recreation uses such as pathways and trails, boardwalks, footbridges and picnic facilities which will have no significant negative impact on the natural features or ecological function of the Natural Heritage System are permitted.</td>
<td>N/A</td>
<td>Private although all levels of government publicize and provide support.</td>
<td>N/A</td>
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