Township of Ramara
Active Transportation Plan

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Township of Ramara

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Executive Summary

Active Transportation is defined as any form of self-propelled, non-motorized mode of transportation that uses human energy such as walking, cycling, inline skating, jogging, cross-country skiing, skateboarding and snowshoeing. Active Transportation encourages healthy transportation choices, increases physical activity, promotes safe, responsible transportation behaviour, increases community mobility and reduces air pollutants by replacing vehicle trips with walking and cycling trips.

The County of Simcoe has recently included revisions to the Official Plan that encourages the development of municipal Active Transportation Plans for primary settlement areas and, in conjunction with local and adjoining municipalities and trail associations, develop a county-wide trail system. In response to these changes, the Township of Ramara has initiated this Active Transportation Plan study.

Due to Ramara's geography, population density and demographics, Active Transportation in the Township is best realized through a comprehensive trail system that connects established communities and provides an alternative transportation network. This trail network would be open to all users defined under Active Transportation, as well as other transport modes such as motorized wheelchairs, electric scooters, and for most trails, snowmobiles.

The Township currently maintains three multi-use trails. Lagoon City is connected to Brechin by a 1.5-kilometer crushed limestone trail that runs parallel to County Road 47. The Ramara Trail is a 5-kilometer limestone trail that follows the abandoned CN Rail line between Atherley and the Mara Rama Boundary Line and includes an access spur to Fern Resort on Fern Resort Road. The Rama Road (County Road 44) trail connects Longford Mills and Washago, and is a 9-kilometer path that follows the road corridor, alternating between a separated crushed recycled asphalt pavement path and an on-road shoulder extension.

These existing trails were used as a base on which to build an extended trail network. The proposed trail system is comprised of a mixture of linear trails to facilitate ease-of-travel between communities, and looped trails that provide circulation and recreational opportunities. The proposed system was selected based on existing road corridors, unopened road allowances and abandoned rail lines. Connections across private lands are not shown, though effort should be made to acquire property in order to provide a more connected, integrated network.

The proposed network is primarily focused on connecting the western half of the Township and generally follows the shoreline of Lake Simcoe and Lake Couchiching, as many of the established communities are located in this region. Based on feedback solicited from residents and visitors, connections between communities situated on the western half of Ramara were the most desirable. Connections throughout the Township should be considered a long-term goal in order to provide a fully connected network.

The proposed trail system had three main trail corridor types:

- **On-road trail corridors** consist of an extended asphalt shoulder on low-volume, low-speed residential roads. The trail width is preferably at least 2.5 m (8') wide on both sides for multi-use trails. If sidewalks are present or can be installed, the on-road portion of the trail can be a dedicated bike lane in both directions with a minimum width of 1.5 m (5').
- **Adjacent trail corridors** follow the road corridor but have a buffer zone of at least 1.5 m (5') incorporated to separate trail users from motorists. The trail should be at least 3 m (10') wide, with an additional 0.6 m (2') of clear zone on either side to discourage vegetation overgrowth. At least 3 m (10') of overhead clearance is recommended.
- **Off-road trail corridors** do not follow existing road corridors. Instead, they cut cross-county through unopened road allowances and abandoned rail lines. These trails are similar to adjacent trail corridor design geometry, with a minimum 3 m (10') width with a clear zone of 0.6 m (2') on either side of the trail, and an overhead clearance of 3 m (10').

It is recommended that trail surfaces be either paved asphalt, or limestone screenings. Asphalt trails are recommended for on-road shoulder extensions, and for trails that will experience heavy use, with a limestone screenings surface on the remainder of the trails. A trail surfaced with screenings may also be used as a precursor to an asphalt surface, provided that a suitable subbase is established. In this fashion, trails may be implemented in the short-term and upgraded over time as funding allows.

All trails in the system should be made barrier-free, with accessibility features inherently incorporated into the design so as not to be obvious. Grades on trails should not exceed 5%. Trails with long grades should have intermittent rest areas to break up the grade. For trails with a limestone screenings surface, the addition of extra lime dust to the material mixture will help harden the trail surface, increasing mobility and ease-of-use for wheeled devices such as wheelchairs and strollers.

To enhance the trail user experience, amenities and features such as benches and directional and informational signs should be placed at regular intervals throughout the system. Trash and recycling receptacles should be provided at trailheads and at major trail intersections to discourage litter.

In order to protect and encourage a trail network in the Township, the following policies were recommended:

- Trails should be built and maintained as per standards outlined in this report;
- The Township should protect and prioritize abandoned rail lines and unopened road allowances as potential trail routes;
- The Township should consider the purchase of private property to create further connections to the network and improve circulation;
- New developments should incorporate trails in their design and provide access to the overall trail network;
- Grade crossings on high-volume roads are to be minimized; and
- Trails should be separated from roadways as much as possible.

A maintenance schedule that focuses heavily on correcting minor issues due to the natural environment or design and construction oversights in the first and second year will greatly reduce costs and magnitude of future repairs. Frequent inspections are recommended in these first two years, with a regular maintenance schedule implemented thereafter.

There are a variety of partnership opportunities to assist with trail funding as well as promotion of the trail system. Various federal, provincial and local programs and organizations are instrumental in supporting an Active Transportation trail network, either through partial funding of trail construction, sign fabrication and design, or engineering studies, as well as promotion through organization websites and printed maps and guides.

By providing a unified and comprehensive trail system, the Township of Ramara is encouraging residents and visitors to make healthy transportation and recreation choices. These choices lead to environmental and health benefits, and contributes to making Ramara an active place to live, work and play.

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1.0 Introduction

1.1 Study Background and Purpose

Through recent revisions to the County of Simcoe Official Plan, the County is encouraging communities to develop Active Transportation Plans for primary settlement areas and, in conjunction with local and adjoining municipalities and trail associations, develop a county-wide trail system.

In response to the County's Official Plan, the Township of Ramara contracted the services of R.J. Burnside & Associates Limited to prepare an Active Transportation Plan (ATP) for the Township with the goal of connecting communities. Based on Ramara's geography, population density and demographics, these active transportation goals are best addressed through a comprehensive trails policy. This trails ATP is meant to serve as a guide for future trail policies and network implementation by addressing barriers inherent to the existing network and recommending policies for adoption within the Township's Official Plan, trail standards, and enforcement and funding strategies.

1.2 Active Transportation

Conventional transportation design has progressively focused more on the personal automobile and less on non-motorized alternative modes of transportation such as walking and cycling. As a result of this paradigm shift, comprehensive infrastructure for these modes of "active transportation" has gradually diminished, fostering a disconnected and sometimes unsafe network.

In recent years there has been growing public support for active transportation policies and facilities. More communities across Canada are re-thinking themselves as walkable, connected places with balanced transportation systems in which to live, work and play. A key step in creating these connected communities is the development of Active Transportation Plans.

Active Transportation Plans seek to connect communities and enable efficient, direct routes between public spaces, residential areas, and commercial and institutional developments. An effective Active Transportation Plan encourages healthy transportation choices, increases physical activity, promotes safe, responsible transportation behaviour, increases community mobility and reduces air pollutants by replacing vehicle trips with walking and cycling trips.

1.3 Study Approach

The Township of Ramara's trail system Active Transportation Plan was addressed in five phases, building up from a solid foundation of background information and study.

Phase 1: Preliminary Study & Site Visit

On August 27, 2010 R.J. Burnside conducted a trail review for the Ramara Trail and the Brechin-Lagoon City link. The purpose of this site visit was to assess the current conditions of the existing trail system, note maintenance issues, and document trail features and dimensions. These observations are documented in Section 2.0, Existing Conditions.

Phase 2: Trail User Questionnaire

On October 4, 2010, R.J. Burnside and the Township of Ramara launched the Trail User Questionnaire on the Township's website and invited the public and key stakeholder groups for their responses. A list of these key stakeholder groups is found in Appendix C. The results from the Trail User Questionnaire can be found in Appendix B. Hard copies of the questionnaire were distributed to Ramara's native population, and were available for residents to complete during the Joint Public Consultation Session.

Between October 4th and December 10th 2010, 55 online responses and 1 hardcopy responses were collected.

The majority of respondents were local trail users (58.2%), with members of local recreational clubs comprising the second-largest user group (25.5%).

The most common type of transportation use on Ramara's trails were walking and running (63.6%) and cycling (58.2%). Winter sports were secondary to the two main transportation modes, but fairly evenly distributed among the options of snowmobiling (21.3%), cross-country skiing (16.4%) and snowshoeing (14.5%).

Survey respondents indicated that their primary reasons for using the trails were for recreation (77.8%) and health and exercise (70.4%). A subset of these users also identified dog walking as an activity (22.2%), while only a small portion identified commuting as a reason for using the trails (9.3%).

The trails within Ramara that see the most use were the Ramara Trail (43.6%) and the Fern Resort extension (34.5%). The second-most used system was the snowmobile trails, with moderate utilization for the remainder of the trails within the Township.

In order of preference from most desired to least desired, survey respondents identified the following connections:

- Lagoon City to Bayshore
- Atherley to Uptergrove
- Atherley to Rama
- Concession 7 to Uptergrove
- Longford Mills to Washago
- Rama to Longford Mills
- Brechin to Udney
- Brechin to Gamebridge
- Udney to Uptergrove
- Washago to Sebright
- Udney to Sebright

In addition to the above options, some respondents indicated their desire to see a connection across the Atherley Narrows.

In general, respondents were satisfied with the existing trail amenities, evaluating most as “fair” or “good.” Notable areas of concern were accessibility for persons with disabilities, clarity of municipal maps, and availability of trail-related information.

Trail users identified connectivity as being a major barrier to the network. Other notable barriers included trail surface, trail maintenance, and availability of trail-related information.

Roughly half of all respondents preferred an asphalt trail surface (48.1%), with a crushed stone surface being the second choice with 28.8% support.

Respondents identified trail markers as a highly desirable feature to include in the trail system. Trash and recycling receptacles, educational markers and signs, washrooms and benches generated strong to moderate interest. There was limited to no interest in such features as water fountains, bicycle racks, and public telephones.

Approximately 87% of survey respondents indicated that they would include trail exploration within Ramara as part of or all of their vacation.

Phase 3: Draft Report

Building upon site visits, background information and data collected from the trail user questionnaire, a preliminary report including recommendations was drafted. The recommendations from this draft report was presented for discussion at the Joint Public Consultation Session and was intended to be constructed upon based on subsequent comments received from public consultation.

Phase 4: Joint Public Consultation Session

On December 9th, 2010 the Township of Ramara and R.J. Burnside hosted a public consultation session held jointly with residents and the Township administration. The objectives of this session were to create awareness of the study, and to solicit feedback on the recommendations presented in the draft report.

The public session had a very good turnout, with many engaged and interested attendees. Thirteen attendees signed in at the attendance register, and the total number of attendees is estimated at twenty to twenty-five.

Several poster presentations discussing study objectives, corridor types, user survey results, proposed trails and other topics were arranged throughout the room for review and open discussion.

Below are is a summary of some of the comments received during the public session.

- There is a strong support for a connection between Orillia and Ramara, possibly along the proposed pedestrian bridge over the Narrows.
- Several attendees inquired about whether ATVs would be permitted on the trails, with the majority not in favour of allowing access.
- There was interest in developing trails on privately held land to create more efficient circulation paths, especially on sections that are separated by only a small distance.
- The Ramara Centre was identified as a strong trip generator and potential connection point.

The majority of the attendees were very supportive of the Township of Ramara Active Transportation Plan, and valuable feedback was offered throughout the session.

Phase 5: Final Report

This final report was submitted to the Township of Ramara Leisure and Recreation Committee on December 23, 2010 for their review.

2.0 Existing Conditions

2.1 Regional / Municipally Owned Trails

Rama Road / CR 44 Trail

The Rama Road Trail is a dual-surface trail that follows Rama Road from Longford Mills Road in Longford Mills to Highway 169 in Washago for a total length of approximately 9 km (Figure 2.1). Approximately half of the total trail length consists of a 1.5 m recycled asphalt pavement (RAP) walkway laterally separated from the road. In sections where lateral separation is not possible, the trail connects with Rama Road. These connections are either a 2.0 m wide asphalt shoulder, or a 1.0 m asphalt shoulder with a 2.0 m gravel shoulder.

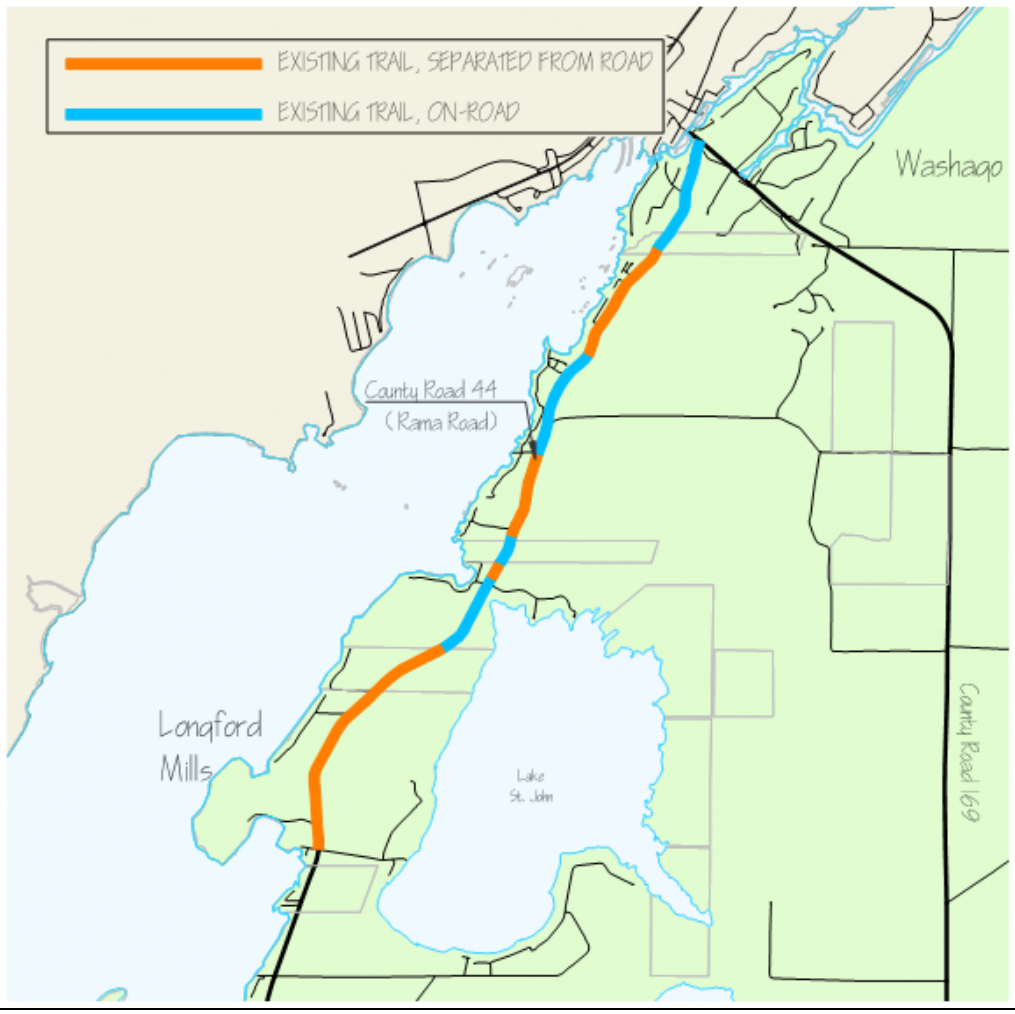

Figure 2.1: Rama Road / CR 44 Trail

Ramara Trail, Including Fern Resort Road Extension

The Ramara Trail is a five-kilometre crushed limestone trail that begins in the south at the historic Mnjikaning First Nations fish weirs and follows the abandoned CN rail line to Monck Road, where it crosses Rama Road and joins once more with the abandoned rail line (Figure 2.2). The trail continues from this point north to the Rama Mara Boundary Road. Connected to the main trail is a one-kilometre extension that extends west along Fern Resort Road. The Ramara Trail is on average 3.0 m to 3.6 m wide, with some sections narrowing to as little as 1.8 m.

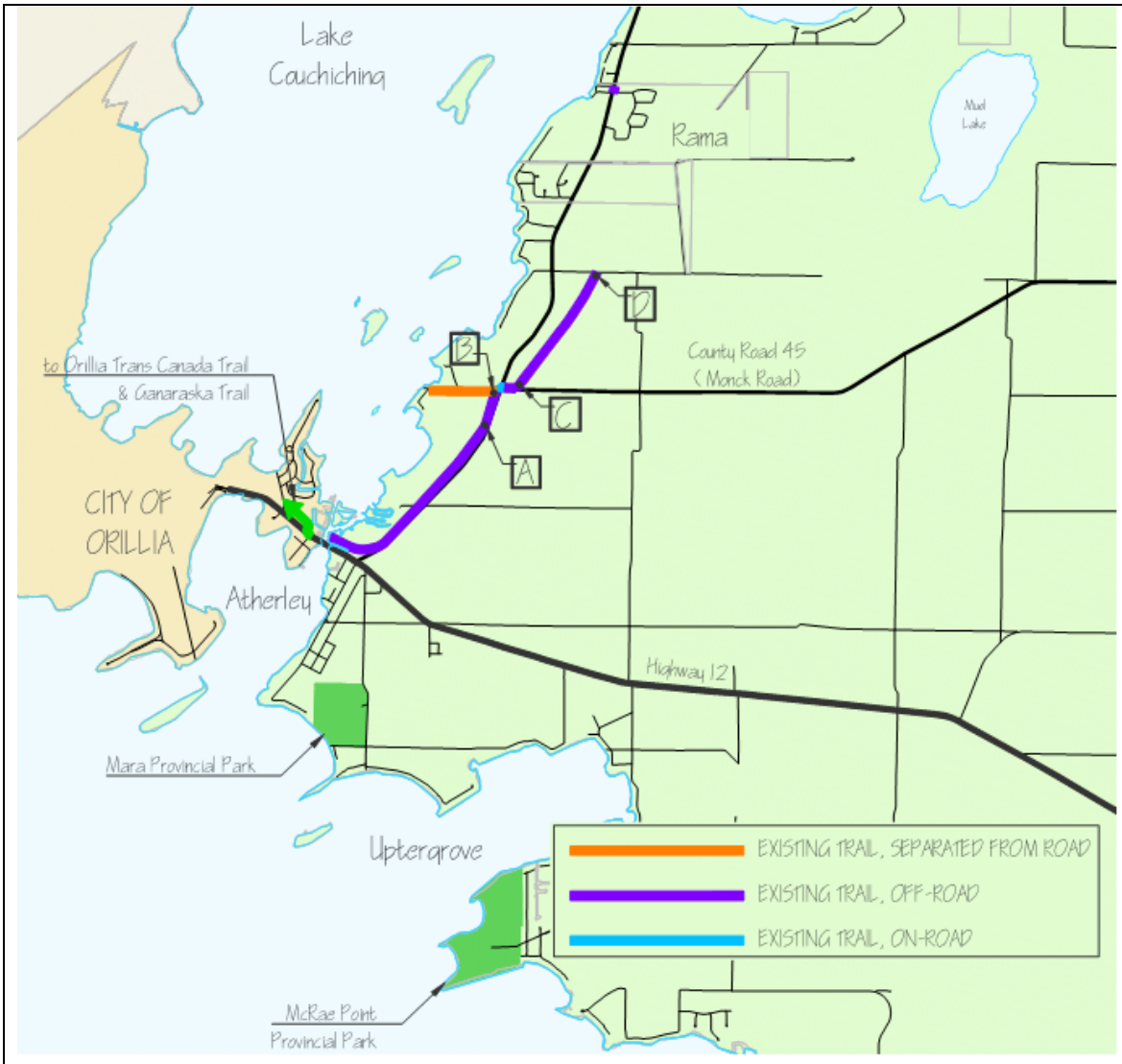

Figure 2.2: Ramara Trail

During the August 27th 2010 site visit, some maintenance and trail design issues were noted. One major concern was significant erosion and channelization across the trail surface at approximately kilometre number 2.43, noted as point “A” on Figure 2.2.

At point “A” and “B” in Figure 2.2, severe grades in excess of 5% were noted. Such steep grades create accessibility problems not only for persons with disabilities but for general trail users as well. It is generally recommended that trail grades do not exceed 5%, and that significantly long grades be broken up with level rest areas. For more information, see Section 4.3, Grades and Section 4.11, Accessibility.

The 160 meter section of trail that runs parallel to Monck Road (Point “B” to Point “C”) was noted to be in poor condition, with extensive overgrowth and insufficient widths maintained.

The 1.5-kilometer section of trail north of Monck Road, (indicated as Point “C” to “D” in Figure 2.2) that followed the abandoned rail line was in good condition with few maintenance issues. One item of note was that the trail surface in this section had an excess amount of crushed limestone, resulting in a softer surface that could potentially be problematic for wheeled modes of transport such as bicycles, wheelchairs and electric scooters.

During the site visit, the project team encountered significantly more trail users south of Monck Road. This area has an increased residential build-up that may contribute to this condition. Another factor that may contribute to low usage is that the north leg of the Ramara Trail terminates at a rural concession road with minimal trip attraction features.

Brechin – Lagoon City Trail

The Brechin – Lagoon City is a 1.5-kilometre long, crushed limestone surface trail that runs parallel along Simcoe Road and eventually joins with Simcoe Road just outside of Lagoon City at the widened road section (see Figure 2.3). The average trail width is approximately 1.2 m. The Brechin – Lagoon City Trail intersects a number of driveways on the south side of Simcoe Road, and has an at-grade railway crossing at its Brechin end.

During the August 27th site visit, the Brechin – Lagoon City Trail required significant maintenance. The crushed limestone surface had been worn away in some sections, and the trail widths were considerably reduced due to extensive vegetation overgrowth.

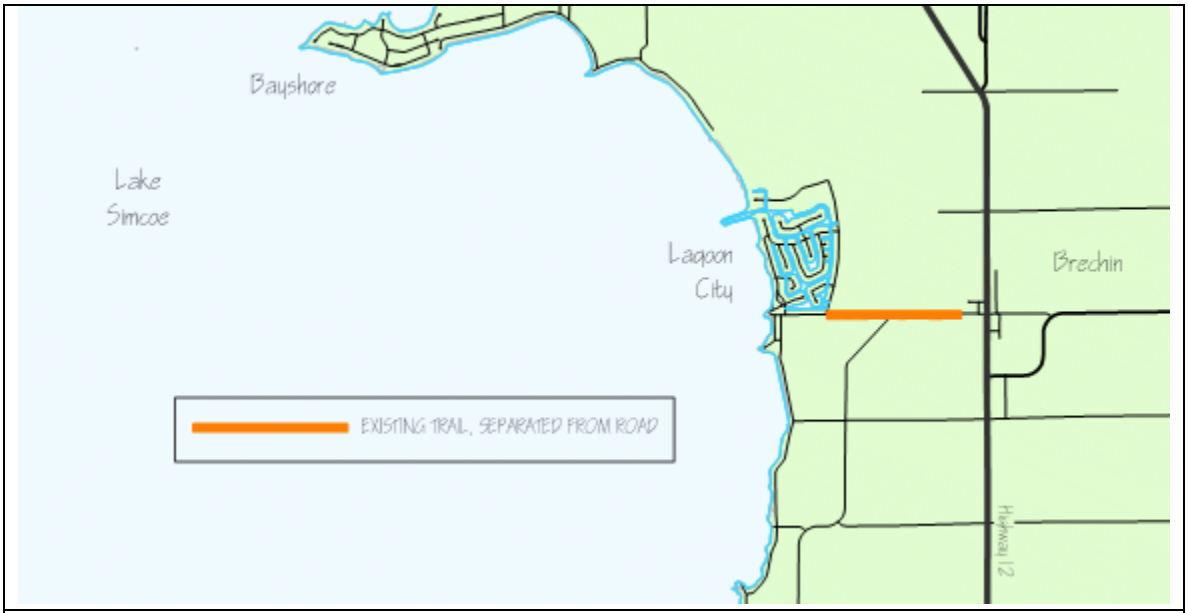

Figure 2.4: Brechin – Lagoon City Trail

2.2 Inter-Regional Trails

Ganaraska Trail

The Ganaraska Trail is a 500-kilometre long trail that extends from Port Hope on Lake Ontario to the Bruce Trail near Collingwood. Approximately 27 kilometres of the Ganaraska passes through Ramara, beginning at Sebright in the east and following a south-western route to cross at the Narrows. Figure 2.4 shows the path of the Ganaraska Trail through the Township.

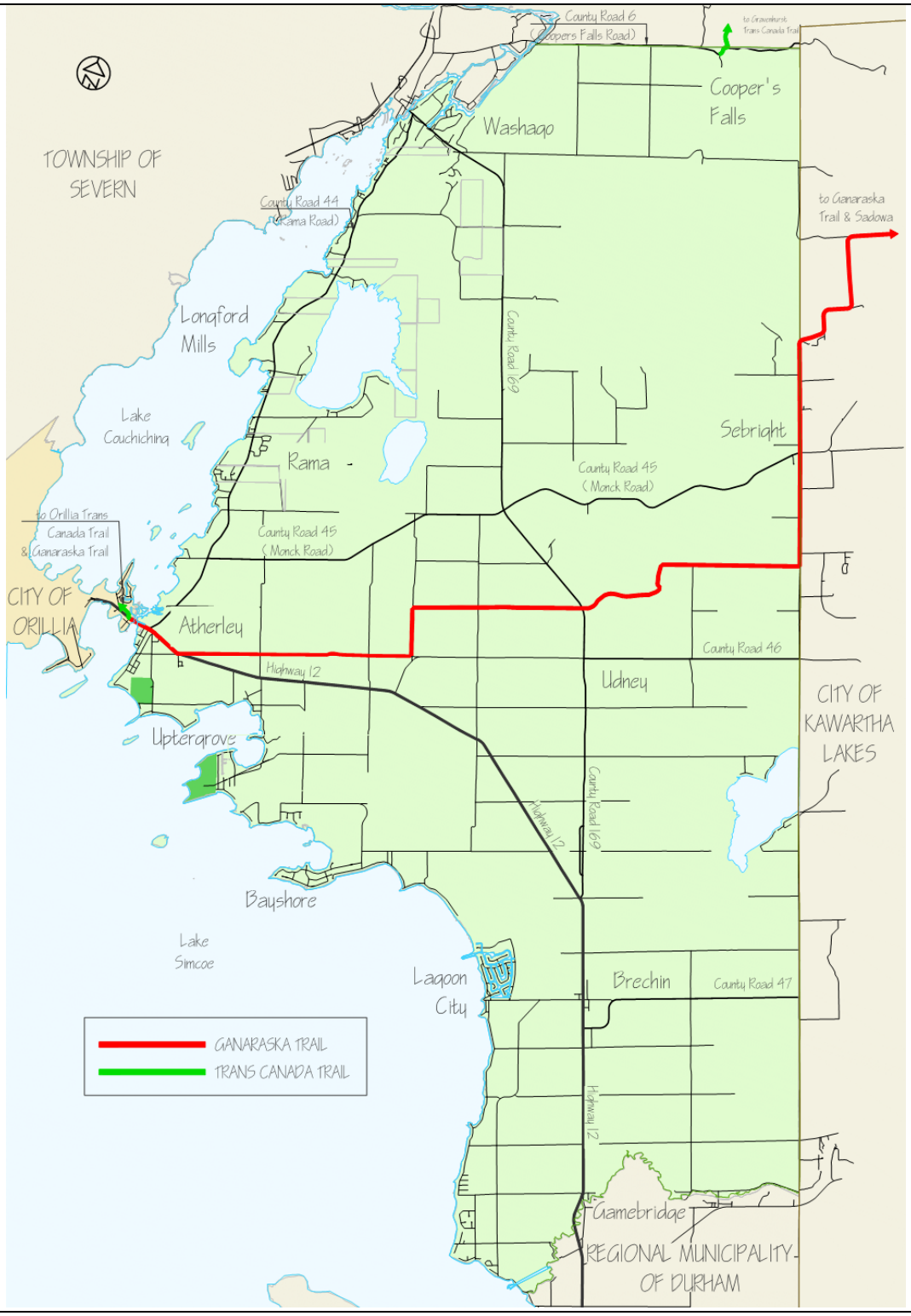

Figure 2.4: Ganaraska Trail

Trans Canada Trail

The Trans Canada Trail is the world's longest network of trails. When completed, the Trail will stretch over 22,000 km from the Atlantic to the Pacific to the Arctic Oceans, linking 1000 communities and 33 million Canadians. Today more than 16,500 kilometres of trail have been developed. Millions of Canadians and international visitors are using the Trail to get active and to explore. The Trail is supported by the federal government (Canadian Heritage), provincial and municipal governments, corporations, local businesses and individual Canadians.

The proposed pathway for the Trans Canada Trail through the Township of Ramara is along the County Road 44/Rama Road corridor from Atherley to Washago, and from Washago to the existing Trans Canada Trail staging area in Cooper's Falls.

2.3 Regional Trail Connections

Orillia

Due to the geography of the City and the Township, the City of Orillia has only one connection to Ramara. This connection follows the Trans Canada Trail/Lightfoot trail through Orillia and terminates at the Narrows.

The single crossing at this point is the vehicular bridge which has pedestrian sidewalks and on-road bike lanes in both directions. This crossing is not considered an ideal setting, especially for snowmobiles. There is currently a preliminary study underway to investigate the construction of a pedestrian bridge across the Narrows, linking Atherley to Orillia. This pedestrian bridge will serve as a regional trail connection and will provide a safer, more desirable connection at this location. For these reasons it is strongly endorsed by this study.

3.0 Recommendations

3.1 Trail Philosophy

The ultimate purpose of all trail planning and design is to maximize the user's experience on the trail, whether it is for recreational uses such as walking and cycling, or for commuting purposes. A safe and sustainable trail can accomplish more than just connecting two points. By combining aesthetics and function, a trail provides a sensory experience that draws visitors to explore the trails and keeps them coming back again and again.

There are two main types of trails: linear trails and looped trails. Linear trails start and end at different points and can have a variety of destinations located along its length. These trails are more often encountered in commuting networks as they are the most efficient method of travel. Since existing property lines tend to follow straight lines, linear trails are easier to implement through communities and rural areas. A disadvantage of this type of trail layout for non-commuting users is that they can be uninteresting for the simple fact that in order to return to their starting point, one must turn around and traverse the same trail in the opposite direction.

Looped trails can be stand-alone trails or can be connected to main linear trails. They have the same major starting and ending destination and are typically intended for recreational use. However, looped trails can also serve commuting needs if multiple destinations are located along or near the trail path. A drawback for using looped trails as a commuter connection is that they may not necessarily provide the most efficient route between destinations. Additionally, looped trails are significantly limited by the amount of available property required to fully connect the trail.

An effective trail network is a combination of these two trail types. A central "spine" of linear trails connects major municipalities, with connecting loop trails branching off at various locations. These branch-off points can be at significant natural features, or connect outlying smaller communities close to the main trail line.

Regardless of the trail use type, a desirable corridor incorporates traits such as natural, historical and geological features and seeks to preserve open spaces, greenbelts, wildlife habitats and environmentally sensitive areas. Trails should avoid, where possible, busy at-grade highway crossings, corridor alignments along noisy or unpleasant sites and unnatural alignments.

3.2 Recommended Policies

In an effort to achieve desirable trail qualities, a trail network should attempt to adhere to the following policies:

- Trails shall be built and maintained to Township standards and incorporate the recommended standards contained herein. It is important to maintain a consistent, recognizable network throughout the Township.
- Where possible, trails will be installed on abandoned railway lines, unopened road allowances and/or within the established right-of-way, where space allows.
- New developments will incorporate pedestrian and bicycle paths and, if available, connect to the existing or proposed future trail network. It is possible that this provision can be substituted in lieu of required open space as per development standards.
- The trail network will at all times seek to minimize vehicular crossings at off-road trails.
- Trails should be separated from the traveled portion of the road where possible. In areas where such allowances cannot be guaranteed and there exists an insufficient buffer between trail users and vehicles, adequate safety measures (signage, road markings, barriers, etc) should be employed.
- When trails are located adjacent to roadways within the right-of-way, the path should run parallel to the roadway where feasible.
- Enable “No Outdoor Smoking” by-laws for the trails system to keep with the theme of promoting healthy, active lifestyles.
- The Township should make an effort to acquire private land, when the opportunity arises, that would improve the trail network through increased circulation, shorter overall routes and safer connections.

3.3 New Connections & Trail Network

The Township of Ramara has three municipal trails and one inter-regional trail that can serve as a foundation on which to build a connected trail network. It is important to build new connections that are desired and will experience a high volume of trail users. During the course of this study, resident feedback was gathered on which connections were most desired. It is suggested that the new connections be implemented in at least three stages, with the most popular routes being implemented first.

First Stage:

- Lagoon City to Bayshore
- Concession 7 to Uptergrove
- Atherley to Uptergrove
- Atherley to Rama

Second Stage:

- Brechin to Gamebridge
- Rama to Longford Mills
- Udney to Uptergrove

Third Stage:

- Udney to Sebright
- Washago to Sebright

It can be concluded from the above list that the main focus of the trail network is to be on the western section of the Township, based on a corridor that loosely follows Highway 12 and County Road 44 / Rama Road. Based on resident feedback, there is low demand for connections along the Highway 169 corridor, and as such trails for this region are low priority. However, efforts should be made to provide connections in order to offer a complete, integrated network for the region.

It is strongly suggested that trails follow the shoreline where possible. In general, doing so provides more direct connections between communities, as most established areas are situated in close proximity to the shore. Where possible, connections should follow unopened road allowances in order to provide the optimal trail experience. Where unopened road allowances are not present or cannot accommodate a trail, then trail connections should follow road corridors with a sufficient buffer zone separating the trail from the road.

In addition to connecting corridors between established areas, routes within communities are also necessary. Most of these routes should follow existing roadways with low traffic volumes, with proper signage and pavement markings.

A map of the proposed trail network can be found in Appendix A, Proposed Trail Network.

For more information on trail corridor types, see Section 4.2, Trail & Corridor Parameters.

4.0 Trail Standards and Design

Trails are to be designed so that they may accommodate the widest variety of non-motorized vehicles and users. By maintaining a consistent design standard, trails throughout Ramara will be recognizable and familiar regardless of which section one is using. The standards outlined below and elsewhere in this report should be followed as closely as possible and deviate only when it is necessary to do so.

4.1 Trail Surface

The type of trail surface selected depends on expected users, usage level, trail purpose, and environmental and financial limitations. Trail surfaces can be grouped into two major types: hard and soft surface. Some examples of hard surfaces are asphalt, concrete and cement-treated soil. Soft surfaces can vary from crushed stone to wood chips to bare packed earth.

Hard surface trails are commonly used for high-use trails and accommodate the largest amount of user types. These trails typically serve as an alternate transportation method within and between communities and are designed to support both recreation and conventional transportation.

Soft-surface trails are more suitable for trails that experience moderate use for primarily recreational purposes. Though not as accessible as hard-surface trails, soft surfaces can still support a variety of trail users, including wheelchairs and electric scooters, with minimal reduction in comfort and ease of travel. Soft surface trails may also serve as a precursor to hard-surface trails and allows for a phased approach to installing trails.

Table 4.1 details the various advantages and disadvantages of a number of trail surface types.

Table 4.1: Trail Surface Properties		
Surface	**Advantages**	**Disadvantages**
Asphalt	▪ Longer service life ▪ Ease of mobility ▪ Less maintenance ▪ Easier snow removal ▪ Fewer erosion issues ▪ Good initial surface (smooth, no cracks) ▪ Deflection possible for elevation changes and rolling terrain	▪ Expensive when compared to limestone screenings, for both initial construction and maintenance repairs ▪ Lacks a “natural” feel ▪ Vegetation infiltration leads to cracks, especially along edges ▪ Depending on subbase stability, extra maintenance may be required ▪ Complete overlay necessary every 8-10 years ▪ Requires higher initial excavation to establish subbase ▪ Impervious surface increases runoff rates, leading to possible erosion problems ▪ Once cracks form, path immediately deteriorates in appearance
Concrete	▪ High service life (20+ years) ▪ Consistent surface ▪ High stability ▪ Few erosion issues ▪ Low deflection ▪ “Clean” surface appearance	▪ Most expensive to construct ▪ Harder surface unfavourable for high-impact activities ▪ Impervious surface increases runoff rates, leading to possible erosion problems ▪ Lacks a natural feel
Limestone Screenings	▪ Natural-looking ▪ Less expensive installation and material costs, especially in areas where limestone supply is plentiful ▪ Softer trail surface for high-impact activities	▪ Ongoing maintenance costs can potentially be high, depending on degree of erosion ▪ Inconsistent surface quality ▪ Steep slopes and loose surfaces can be hazardous ▪ Prone to dust ▪ Accessibility concerns for persons with disabilities

Table 4.1: Trail Surface Properties		
Surface	**Advantages**	**Disadvantages**
Packed Earth	▪ Very low installation cost ▪ Soft surface for high-impact activities ▪ Very low material cost, sometimes no material cost whatsoever ▪ Natural appearance ▪ Pervious surface reduces runoff impacts	▪ Drainage issues ▪ Erosion problems ▪ Not accessible for all users ▪ Requires regular vegetation removal and maintenance to keep surface consistent and even ▪ Problematic in wet conditions
Wood Chips	▪ Blends with natural environment ▪ Moderate cost to supply material and install	▪ Material decomposes naturally ▪ Poor accommodation for wheelchairs ▪ Requires replacement/replenishment approximately every 2 years ▪ Regular maintenance required to keep width and surface steady ▪ Vegetation growth can be an issue

The general recommended approach for the Township of Ramara's trail network is to provide an asphalt pathway adjacent to roadways in established areas. Where sidewalks exist for pedestrians, on-road bike lanes or routes shall be present with appropriate signage and markings.

Between established areas, a limestone surface trail should be provided, either adjacent to existing roadways, through unopened road allowances, or through abandoned rail lines as site conditions allow.

4.2 Trail & Corridor Parameters

The proposed trail system had three main trail corridor types:

- **On-road trail corridors** consist of an extended asphalt shoulder on low-volume, low-speed residential roads. The trail width is preferably at least 2.5 m (8') wide on both sides for multi-use trails. If sidewalks are present or can be installed, the on-road portion of the trail can be a dedicated bike lane in both directions with a minimum width of 1.5 m (5'). See Figure 4.1.

- **Adjacent trail corridors** follow the road corridor but have a buffer zone of at least 1.5 m (5') incorporated to separate trail users from motorists. The trail should be at least 3 m (10') wide, with an additional 0.6 m (2') of clear zone on either side to discourage vegetation overgrowth. At least 3 m (10') of overhead clearance is recommended. See Figure 4.2.
- **Off-road trail corridors** do not follow existing road corridors. Instead, they cut cross-county through unopened road allowances and abandoned rail lines. These trails are similar to adjacent trail corridor design geometry, with a minimum 3 m (10') width with a clear zone of 0.6 m (2') on either side of the trail, and an overhead clearance of 3 m (10'). See Figure 4.3.

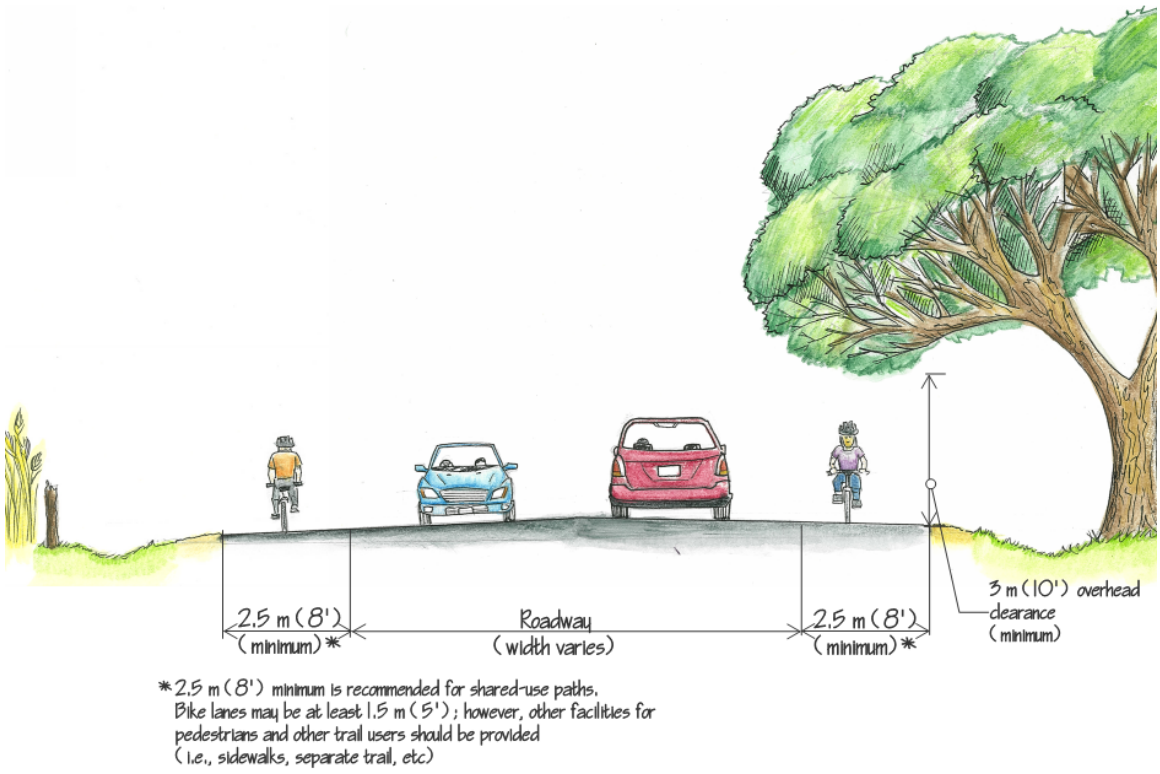

Figure 4.1: On-Road Trail Corridor

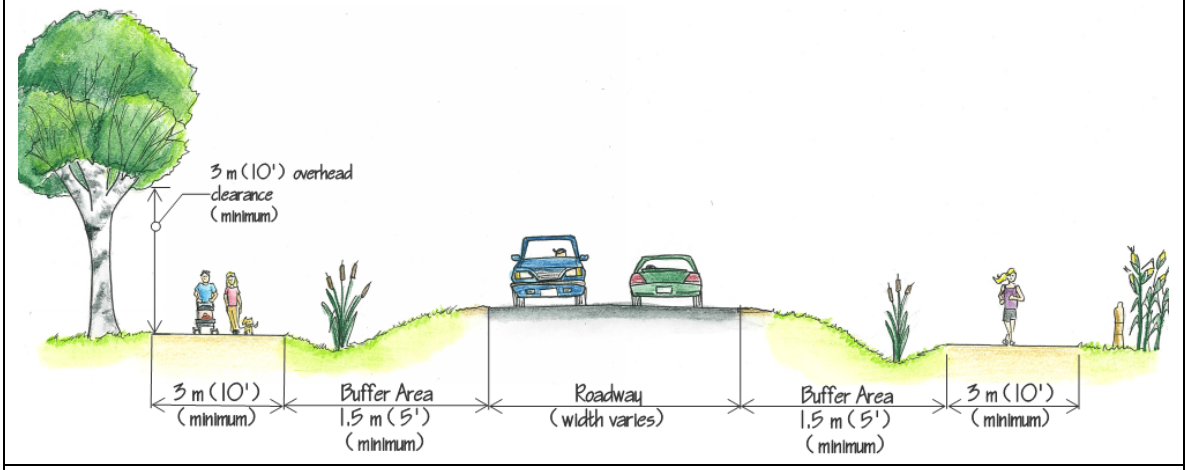

Figure 4.2: Road-Separated Trail Corridor

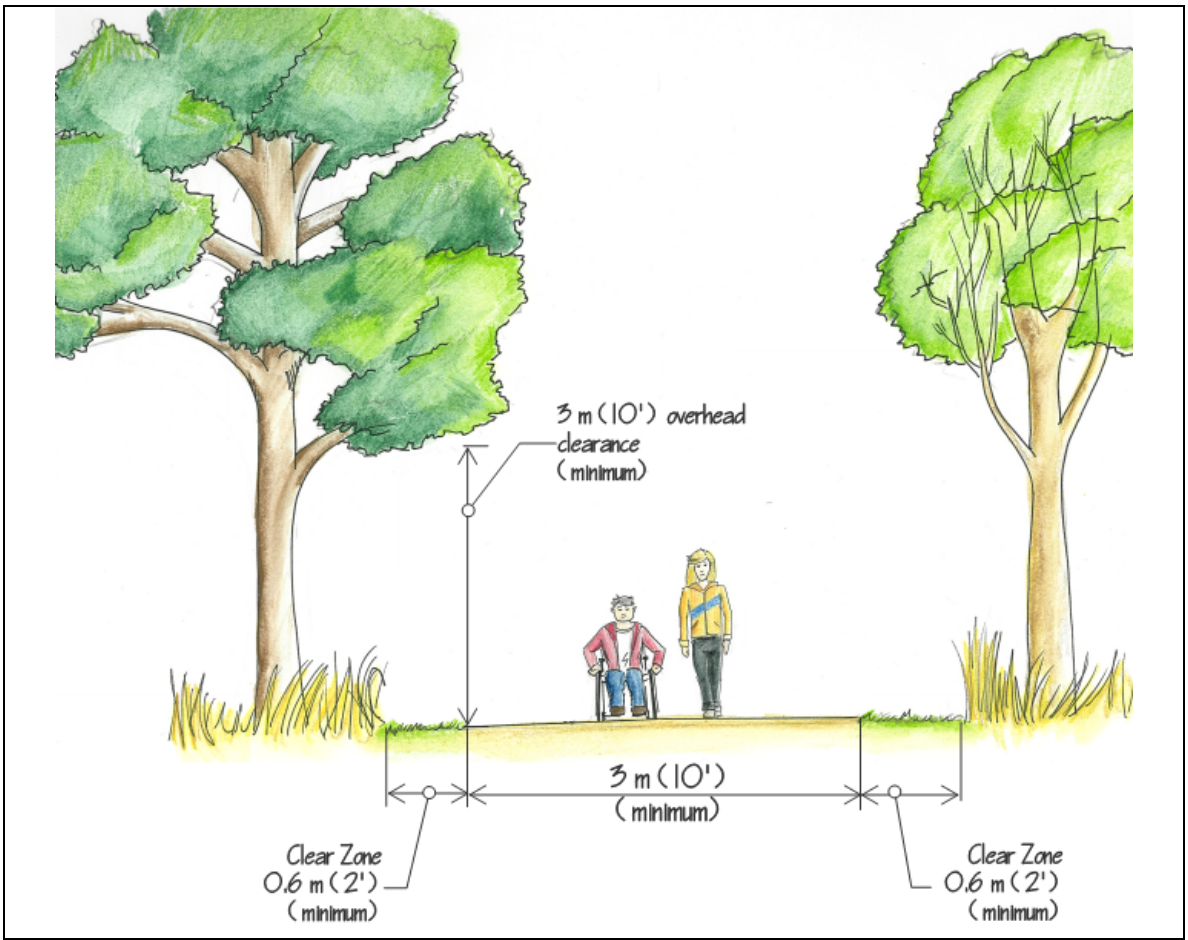

Figure 4.3: Off-Road Trail Corridor

The perceived width of the corridor can, and should, vary continually for user interest. Optimally, a large corridor width is preferred in order to preserve natural, scenic, historical and geological features. The minimum recommended corridor width is 15 m (50 feet), with narrower corridors permissible if land or allowances for a wider corridor are difficult to obtain, if the surrounding land is protected from development, or if the surrounding land is impractical or impossible to develop.

It is recommended that 3 m (10 feet) of vertical clearance be provided for the width of the trail, including the width allocated to clear shoulders.

4.3 Grades

To provide accessibility to all user types, grades more than 5% should not be used except for limited lengths of trail, with an absolute maximum grade of 8%. Any grade higher than 5% is considered inaccessible to wheelchair users, and every effort should be made to limit extreme grade changes. If such grade changes are unavoidable, switchbacks or short lengths of steep grade with multiple level-surfaced “rest sections” should be incorporated into the design.

Table 4.2 outlines maximum trail lengths for a given grade. Note that grades should not exceed 8% at any point.

Table 4.2: Path Length Limits on Grades

Grade	Limit on length at given grade
< 5%	None
5% to 6%	210 m (690 feet)
6% to 7%	120 m (394 feet)
7% to 8%	60 m (197 feet)

4.4 Sightlines

Depending on user types and operating speeds, conflicts may arise between different user groups on a given length of trail. Sightlines should be extended to their maximum limit so as to avoid potential accidents. Sightline distances are based on perception-reaction time and operating speed, and are summarized in Table 4.3.

Table 4.3: Sightline Distances	
Speed	Sight Distance
32 km/h (20 mph)	40 – 60 m (130 – 200 feet)
24 km/h (15 mph)	25 – 60 m (85 – 130 feet)
16 km/h (10 mph)	10 – 20 m (33 – 65 feet)

4.5 Intersections and Access Points

From time to time trails will intersect with other traveled pathways, whether at public roads, driveways or other trails within the system. It is important to provide adequate sightlines to these intersections in order to mitigate collision hazards. Roadways require special attention so that motorists are aware of the possibility that trail users may be crossing their path ahead.

4.5.1 Trails Intersecting Trails

In a complete network it is common and desirable for trails to access each other in order to provide connectivity. Operating speeds on trails vary, but are significantly lower in magnitude than on roads. Still, the danger of poor sightlines at trail intersections is something that should be addressed.

Trail intersections should optimally be T-shaped, with the adjoining trail meeting the main trail as close as possible to 90 degrees, with corner radii of at least 2.5 m (8 feet). If the trails do not meet at 90 degrees, then the adjoining trail should be realigned so as to achieve a suitable approach angle. This configuration provides the best potential sightlines and minimizes the need for awkward turns for trail users.

Since intersecting trails are unsignalized in any direction, it is desirable to have sufficient sight distance on each approach to enable trail users to see each other and adjust their speeds accordingly. Figure 4.4 below shows the recommended minimum sightline triangles for trails at a T intersection. These sightline distances are based on operating speeds of 15 km/h and a 3-second perception-decision time.

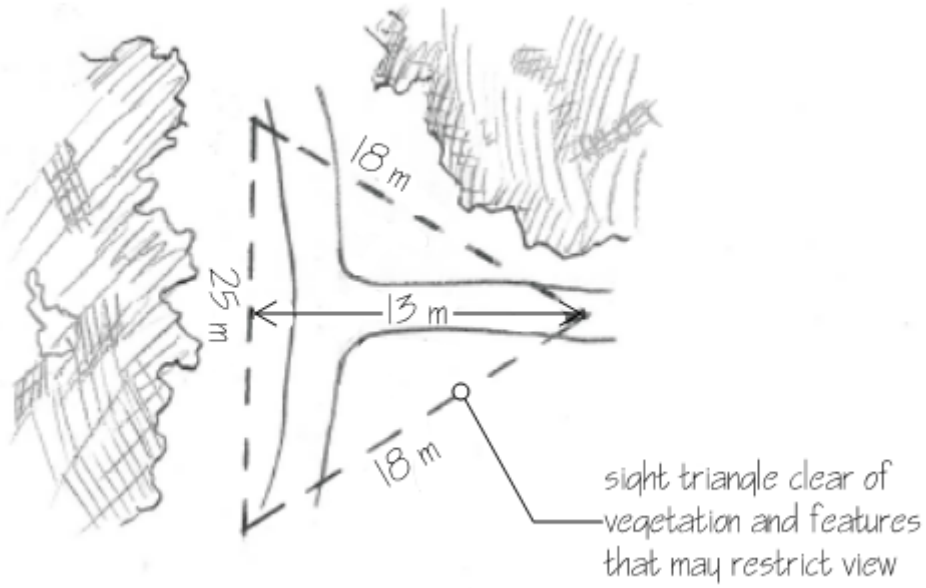

Figure 4.4: Sight Triangle for Trails Intersecting Trails

For access spurs to adjacent trail features or private properties, it is acceptable to adopt a less rigorous approach to sight triangles due to the spurs experiencing less trail users at a lower approach speed than a major trail. For such access spurs, a clear-cut zone of 2.5 m (8 feet) on either side of the entrance should be established, for a total clear-cut zone of 5 m (16 feet). Creating such a break in the line of features along the side of a trail is a visual cue to trail users that an intersection is ahead. Figure 4.5 is an example of an access spur connection.

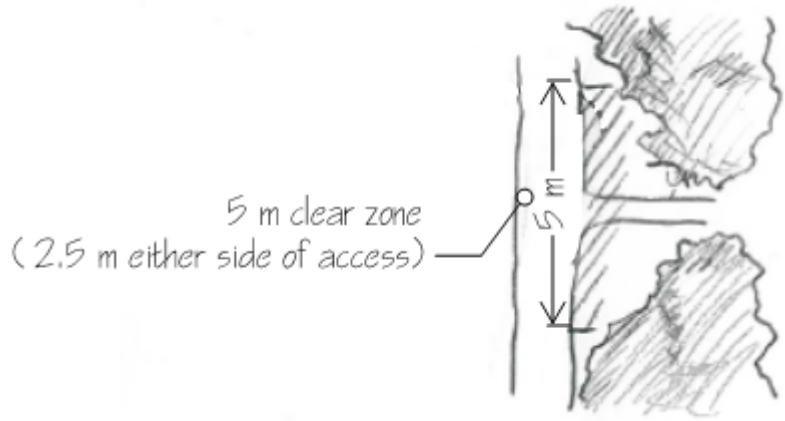

Figure 4.5: Access Spur Connection

4.5.2 Trails Intersecting Roadways

Due the large differential in operating speeds between motorists and trail users, it is important to select road crossings carefully. When possible, road crossings should be avoided. Unfortunately, eliminating such crossings altogether is nearly impossible if a comprehensive trail network is to be achieved. Instead, low-speed, low-volume roads should be selected as crossing sites, preferably at signalized or all-way stop-controlled intersections. Advance signage on the trail and the road serves to alert motorists and trail users that an intersection is approaching. As with trail-to-trail intersections, proper sightlines must be established. Figure 4.6 illustrates the recommended sightline triangle for trails intersecting roads, based on trail operating speeds of 15 km/h, roadway operating speeds of 50 km/h and a 3-second perception-decision time.

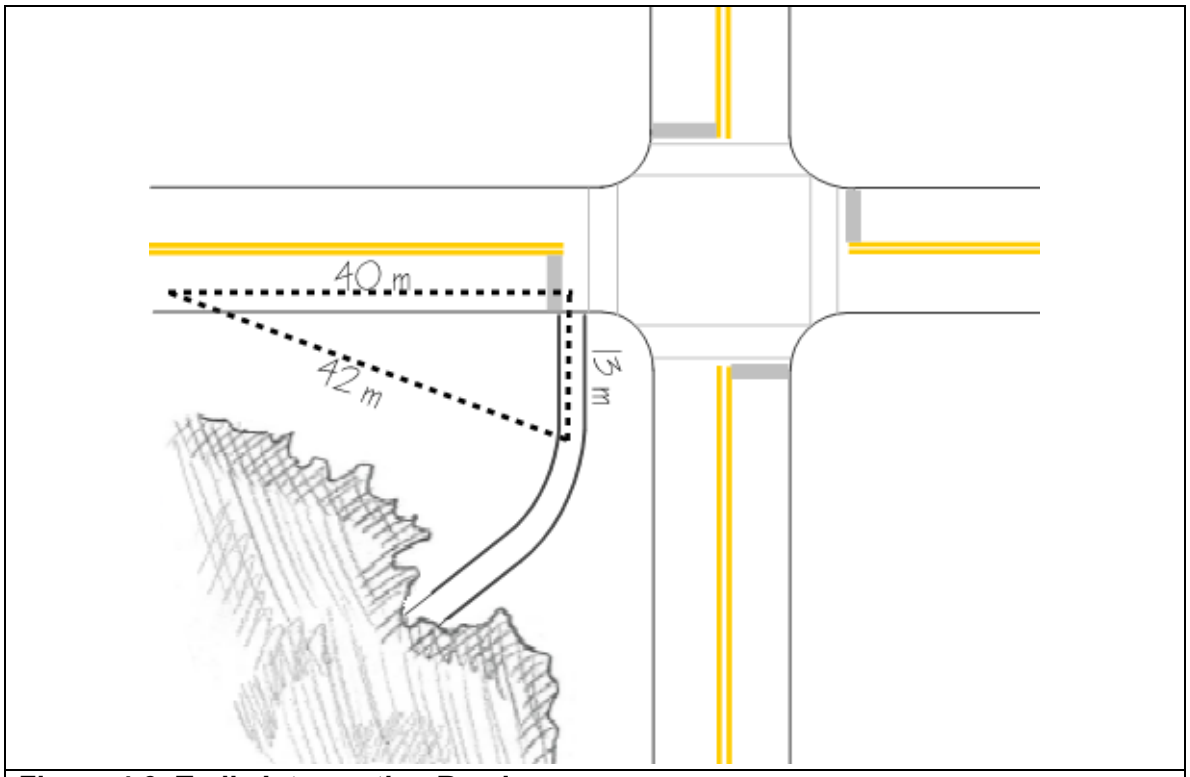

Figure 4.6: Trails Intersecting Roadways

4.5.3 Trails Intersecting Driveways

When a trail is installed adjacent to a roadway within the right-of-way, it is possible that the trail will eventually intersect a private driveway. If possible, such conflicts should be avoided. However, in cases where a trail must cross a driveway, the same basic principles regarding sight triangles apply. Figure 4.7 shows the recommended sightline

triangles for such situations, based on a vehicle operating speeds of 10 km/h, trail operating speeds of 15 km/h and a 3-second perception-decision time.

Due to the trail proximity to property lines, it may not be feasible to provide the recommended sight distances. In such cases, a gentle realignment of the trail may be necessary. If sightline conditions are not significantly improved with realignment, consideration should be given to relocating the trail along a roadway with fewer driveway-trail conflict points.

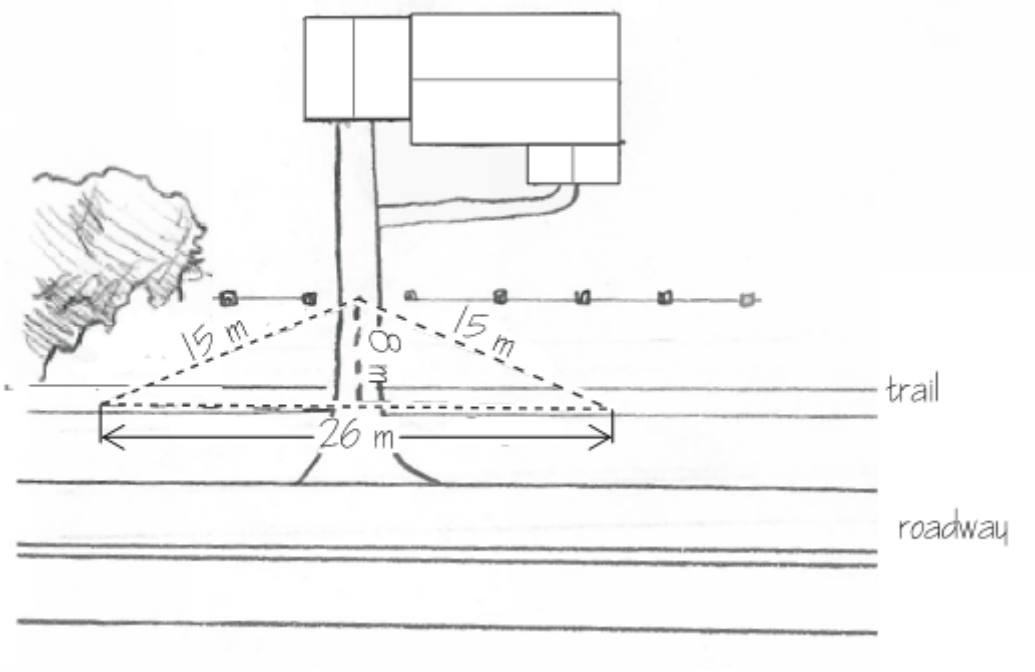

Figure 4.7: Trails Intersecting Driveways

4.6 Construction

Depending on the trail surface selected, trail materials will vary, both in type and quantity. For all trail types, a solid base is important in order to eliminate settlement issues that can lead to unsafe trail conditions. Additionally, due to the width of the trail, construction on flat or gently sloping sites is far less expensive than building on steeper slopes or rolling terrain. Based on Ramara's geography, excessively steep slopes are not considered to be an issue.

Figures 4.8 through 4.11 illustrate construction design standards to be used for various trail surfaces. These are considered typical cross-sections only, and may require adjustments as required by specific site conditions.

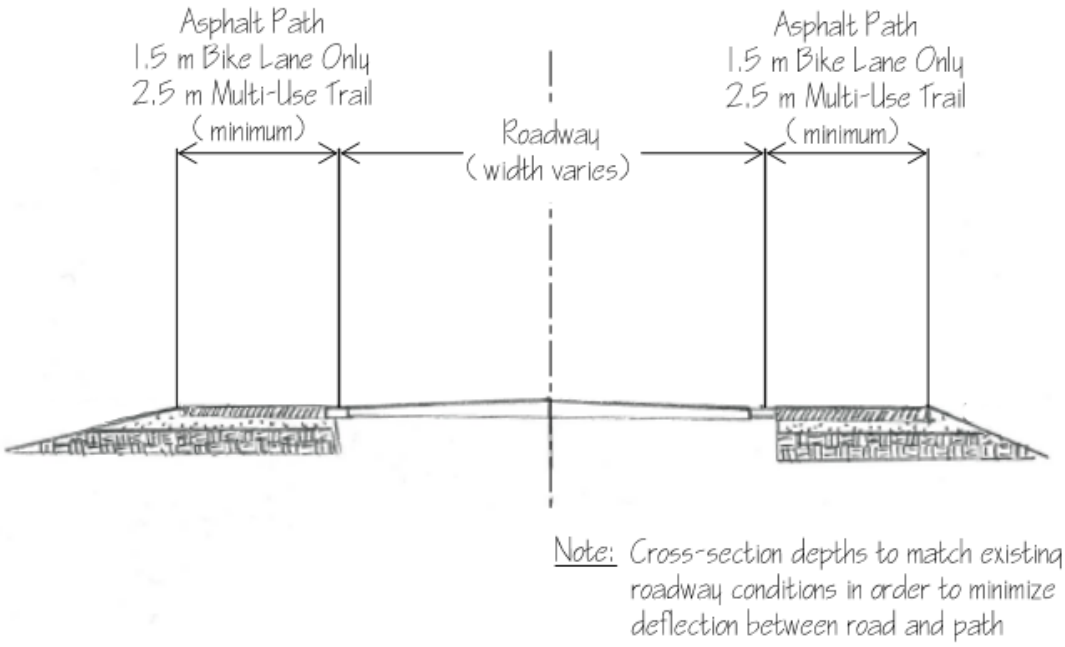

Figure 4.8: Extended Asphalt Shoulder Trails (Bike Lanes)

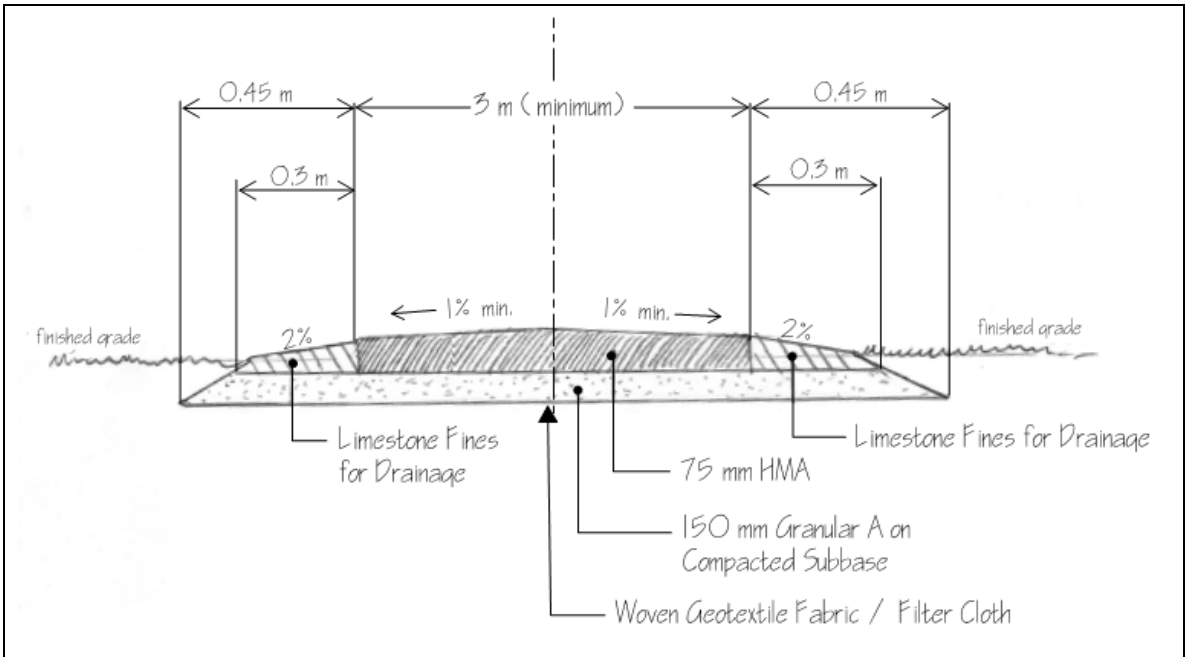

Figure 4.9: Asphalt Trails, Separate from Road

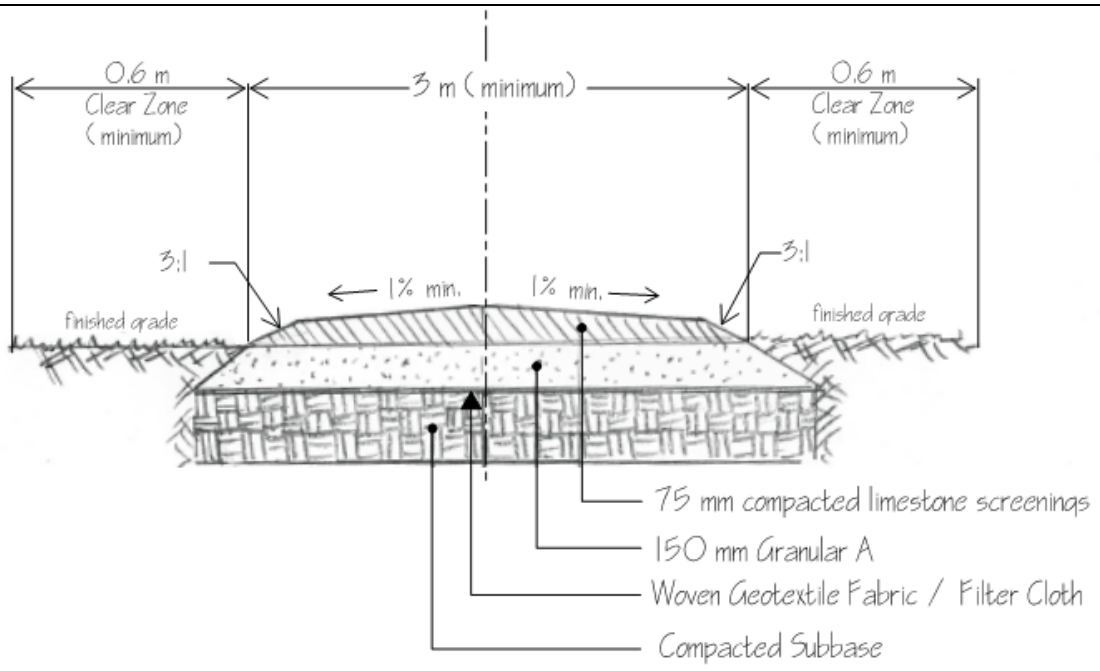

Figure 4.10: Limestone Screenings Surface Cross-Section, General Application

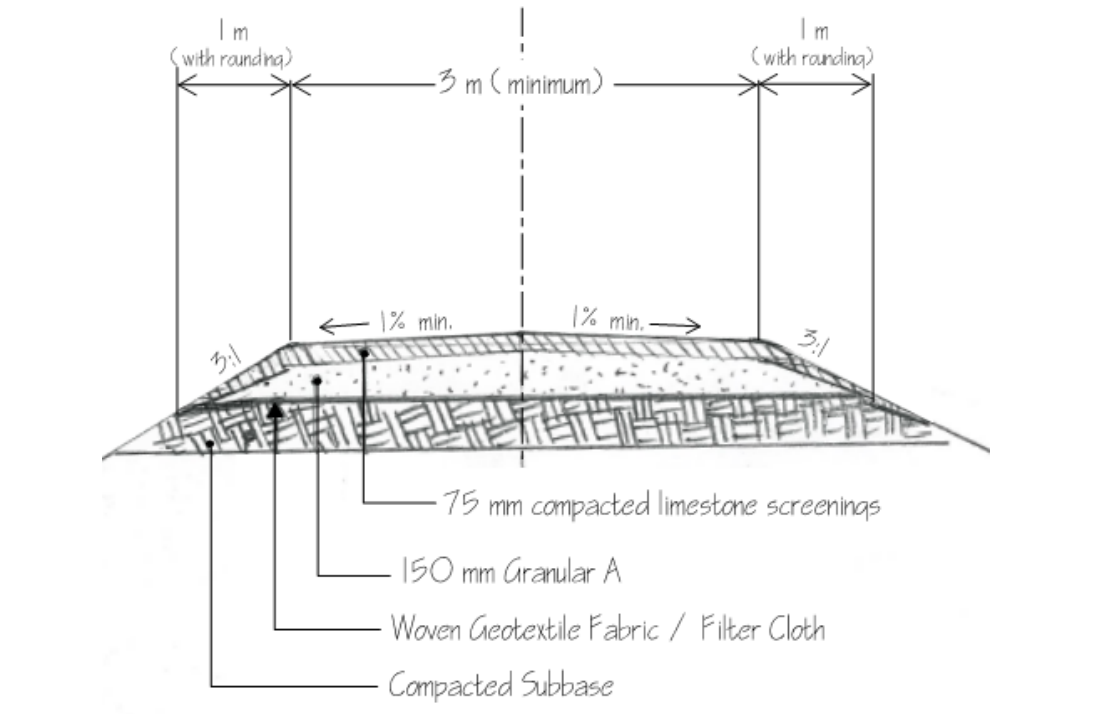

Figure 4.11: Limestone Screenings Surface Cross-Section, Abandoned Rail Lines Application

4.7 Signage and Markings

Signs on trails should be understated and used only when necessary. In general, there exist three categories of signs:

- Regulatory and warning signs on trails.
- Regulatory and warning signs for motorized vehicles on roads and at trailheads.
- Informational signs on trails and at trailheads.

Signs that are intended exclusively for trail users should have 150x150 mm (6x6 in.) nominal treated timber posts, installed at a minimum depth of 600 mm (2 feet) below finished grade. Installation standards and placement of signs along the trail is shown in Figure 4.12. Additionally, signs should be placed along the trail so as to be clearly visible from a minimum of 15 m (50 feet). Regulatory and warning signs should always be installed on the user's right, with informational signs being acceptable on either side.

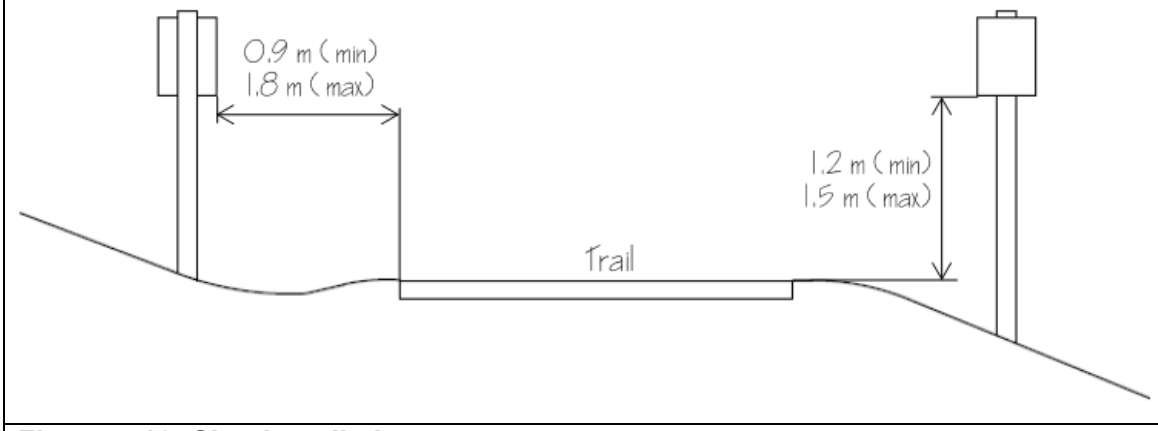

Figure 4.12: Sign Installation

4.7.1 Regulatory and Warning Signs on Trails

STOP signs are to be located at points on the trail where users are required to come to a complete stop. Care should be taken so that the sign is visible only to trail users to whom it applies.

YIELD signs are to be used when trail users, primarily cyclists, are able to see approaching traffic and are in a position where they must yield the right-of-way to the approaching traffic. Adequate sightline visibility must be provided to permit the trail user to stop or take other measures to avoid traffic. Yield signs are not recommended for use between intersecting trails, as it causes unnecessary sign clutter and detracts from the natural trail landscape.

STOP AHEAD and YIELD AHEAD signs are to be used in circumstances when an intersection cannot be seen upon approach, or to emphasize the right-of-way at busy or dangerous intersections.

DRIVEWAY CROSSING should only be used in instances where an intersecting driveway is not visible upon the approaching trail, or used to emphasize busy or potentially dangerous driveway crossings.

A variety of warning signs may be applicable to given conditions on the trail. Examples of such signs are Slippery When Wet, Trail Narrows, Steep Grades, Sharp Curve, Winding Trail, and Caution. These signs are to be installed on a case-by-case basis depending on prevailing trail conditions.

Trail signs should be scaled down from regular highway-type signs when used on trails only. In instances where the trail shares space with a road, standard sign dimensions apply. Appendix F provides details from the US Manual on Uniform Traffic Control Devices (USMUTCD) for guidance on appropriate signage dimensions for a variety of sign types. This list has been appended with the applicable Ontario Traffic Manual (OTM) standards.

4.7.2 Special Usage Regulation Signs

It may be necessary to restrict trail uses and actions, such as prohibited trail users or intermittent trail closures for maintenance. Small special regulatory signs can be used to alert trail users to these conditions. They should be used sparingly at sites known to experience user abuse, or potential sites for such regulatory abuse. It is ideal that the reasons for the closure or restriction is obvious to the trail user and that prohibited users have a reasonable alternative.

The two main locations for such signs are:

- At a trailhead to indicate or emphasize trail closure to certain user groups; and
- At intersections between trails where a mode of use is allowed on one but not the other trail.

Prohibitionary signs should have black symbols on a white background with prohibition indicated by a red backslash across the image (see Figure 4.13). Customized signs with a verbal message indicating trail conditions or closures should bear the Township of Ramara logo and use the suggested standard colours of dark green text and features on a white background. Closure signs should attempt to inform and educate users on the reasoning behind the closure in as much detail as necessary for users to understand and agree with the closure.

Figure 4.13: Prohibitionary Signs

Special usage regulation signs are to be placed as close as possible to the start of the trail and to the side so that they are highly visible but do not interfere or detract from the trail experience. It is recommended that no more than three signs be posted on the same signpost, and that signs grouped on the same post should be of the same size.

4.7.3 Regulatory and Warning Signs for Motorized Vehicles on Roads and at Trailheads

Signs intended for motorized vehicles on roads and at trailheads are to conform to OTM standards and be mounted at standard heights for vehicular signs. Signs placed at trailheads should be mounted on 100x100 mm (4x4 in.) nominal posts for small signs (e.g., parking regulatory signs) and on 150x150 mm (6x6 in.) nominal posts for larger signs, in order to remain consistent with suggested signage standards of the trail network.

Recommended OTM advance warning signs are Pedestrian Crossing Ahead and Bicycle Crossing Ahead. The USMUTCD also has specifications for a Trail Crossing warning sign which is also a suitable option for municipal roadways only.

4.7.4 Information Signs and Signs on Trails and at Trailheads

Signs depicting trail names, mileage markers and trailheads should be made specifically for the Ramara trail network. These signs are intended to unobtrusively identify the trail as public use, and intentionally differ from the standard OTM sign guidelines so as to highlight the difference between trails and roads.

Signs on trails and at trailheads should strive to match the trail environment through colour selection and sizing. A suggested colour scheme for informational signs is a dark green background with white features and text for larger signs. Smaller signs would have the opposite colour scheme, with white backgrounds and dark green text and features.

4.7.5 Trail Markers and Informational Signs

Trail marker signs inform trail users of distances to various destinations and provide direction at major trail intersections.

Mileage signs are typically located near major trailheads, with the closest destination listed first. It is recommended that each destination be on its own separate sign so that changes to and rearrangements of signs is made easier. Destinations can be communities, districts, roads, other trails, public or private facilities of general public interest, and community resources such as parks, beaches and river accesses. Distances less than 1 kilometre should be posted in metres; all other measurements should be given in kilometres.

Directional signs should be installed at major trail intersections and at intersections that have spur access to destinations of general public interest. These signs provide identification of a destination, its direction on the trail, and distance to that location. It is recommended that distances be omitted for destinations less than 500 metres away. If the destination is visible and obvious, directional arrows can also be excluded. For T-intersections or where a spur access meets a major trail, a sign identifying the main trail may be provided for users accessing the trail by way of the secondary trail or spur.

4.7.6 Educational Markers

At locations where a trail passes close to or through an area of historical, archaeological, geographical, cultural or natural significance, the trail experience can greatly be enhanced through the use of educational markers. These points of interest may also be used as a tourism strategy, enticing more visitors and residents to explore Ramara through the trail system.

For sites of important historical, archaeological, geographical, cultural or natural significance, the Township may consider collaboration with Ontario Heritage Trust's Local Marker Program. This program aims to team with communities with their own heritage marking projects by assisting with writing the plaque text and by providing fifty per cent or up to $400 for such costs as translation, manufacture and/or installation. An application is required for each plaque, and the program limits its participation to one project per year.

If there are a number of significant sites that the Township would like to highlight on their trails, then a Township-specific program is more suitable. For signs displaying text and simple line work, either etched or cast metal plaques are acceptable. These plaques can be produced in brass, aluminium or stainless steel for etched metal, and most commonly in bronze or brass for cast metal. The base metal materials have a very long service life and are attractive in their simplicity. Etched metal plaques may require re-application of the enamel inks every 4-7 years depending on local conditions.

For educational signage that incorporates rich graphics with text, vitreous (porcelain) enamel signs are recommended. Sign imagery is silk-screened in vitreous inks onto pre-formed enamelled steel bases approximately 1.6 mm (1/16 in.) thick.

Signs should be mounted on 150x150 mm (6x6 in.) nominal wooden posts at least 900 mm (36 in.) above ground, with the sign installed at 40 degrees from the horizontal to create a comfortable reading angle. They should be located as directly in front of the feature as possible.

4.8 Trail Amenities

The types of trail amenities to be installed on a trail—such as benches, shelters, trash and recycling receptacles—depend on a variety of factors: the setting and proposed uses of the trail, intensity of trail use, the level of service that the amenities require and the utility of the features. Trail amenities need to be planned for from the design stage so that adequate space is reserved for such uses. While it is desirable to install all necessary trail amenities from the very beginning, it is sometimes more prudent and cost-effective to plan for larger features such as washrooms and shelters during initial trail design, and install these amenities at a later date once trail usage and demand can be properly assessed.

Based on feedback from the Trail User Questionnaire, amenities that were highly desired were trail markers, educational markers, trash receptacles, recycling receptacles, benches, and washrooms. An additional number of respondents in the "other" category requested more tree cover. Trail and educational markers have been addressed in the previous section.

4.8.1 Trash and Recycling Receptacles

Trash and recycling receptacles are most effective at trailheads, access spurs and major intersections with other trails. Providing receptacles greatly reduces the amount of litter on a trail. They are not recommended for intermittent use along a trail as they may detract from the natural feel and appearance and do not generally provide a higher incidence of litter reduction than if installed only at major accesses.

4.8.2 Benches

Benches should be installed away from the trail circulation paths by at least 0.9 m (36 in.) from the edge of the trail, to allow sufficient room for outstretched legs, canes, and walking sticks. A 0.75 x 1.2 m clear area to the side of the bench is to be provided to allow adequate manoeuvring room for wheelchairs. It is recommended that benches be spaced at least 100 m apart (and preferably more) in order to reduce trailside clutter. Ideal locations for benches are at major trail intersections, trailheads, and sites that have significance such as a lookout point, an interesting geological feature, or an historical site.

4.8.3 Public Washrooms

Public washroom facilities are by far the most expensive to implement, and the most expensive to maintain. Utility connections must be made for running water and sewage. They must also meet local ordinance standards and accessibility codes. Due to the high cost and logistics of providing public washrooms for the trail network, such amenities are not recommended. Instead, the network may be designed so that trails either end at or pass by public facilities with washrooms (e.g., libraries, community centres, etc.).

4.8.4 Additional Vegetation

If site conditions allow, consideration should be given to providing additional vegetation with trees, bushes or plant screenings to enhance the trail experience. Such features provide shade, aesthetic value, and in the case of certain trail corridors, buffers between trail users and busy roadways. Such additional plantings should not compromise sightlines for trail users or motorists, or encroach on the established trail clearance zones (3 m overhead clearance, 0.6 m side clearance at either side).

4.9 Trailheads & Access Points

Trailheads act as a transfer point from road to trail. They are important gateways and are the first impression of the trail network that a trail user experiences. They should be highly visible, provide necessary information, and be physically attractive and inviting.

Because trailheads can exist in a multitude of environments, both rural and urban, their overall appearance should complement their surroundings and blend in with their respective neighbourhoods. However, trailheads should be consistent in their signage in order to establish that it is part of the overall Ramara trail network.

The transfer point of a trailhead should firmly tie the trail and the road or parking area together. For all hard-surface trails, concrete ramps and tie-ins must be used adjacent to the vehicular space. The trail surface beyond this tie-in point may be asphalt or concrete, depending on the trail design.

Tie-in points should be treated as hazard zones, with the trail end flaring by an additional 0.6 m to 1.6 m (2 to 4 feet) to meet with the connection depending on the amount of trail user traffic.

It is recommended that the end of the trail have surface differentiation so that users with impaired vision can identify the change in path type. Directional lines commonly used on sidewalks at intersections are the proposed option, in order to conform to established standards. Four (4) directional lines shall stamped into the concrete 0.3 m apart and a minimum of 1.5 m long, arranged perpendicular to the tie-in to the vehicular space. Figure 4.14 illustrates transfer points and directional line configurations for a variety of circumstances.

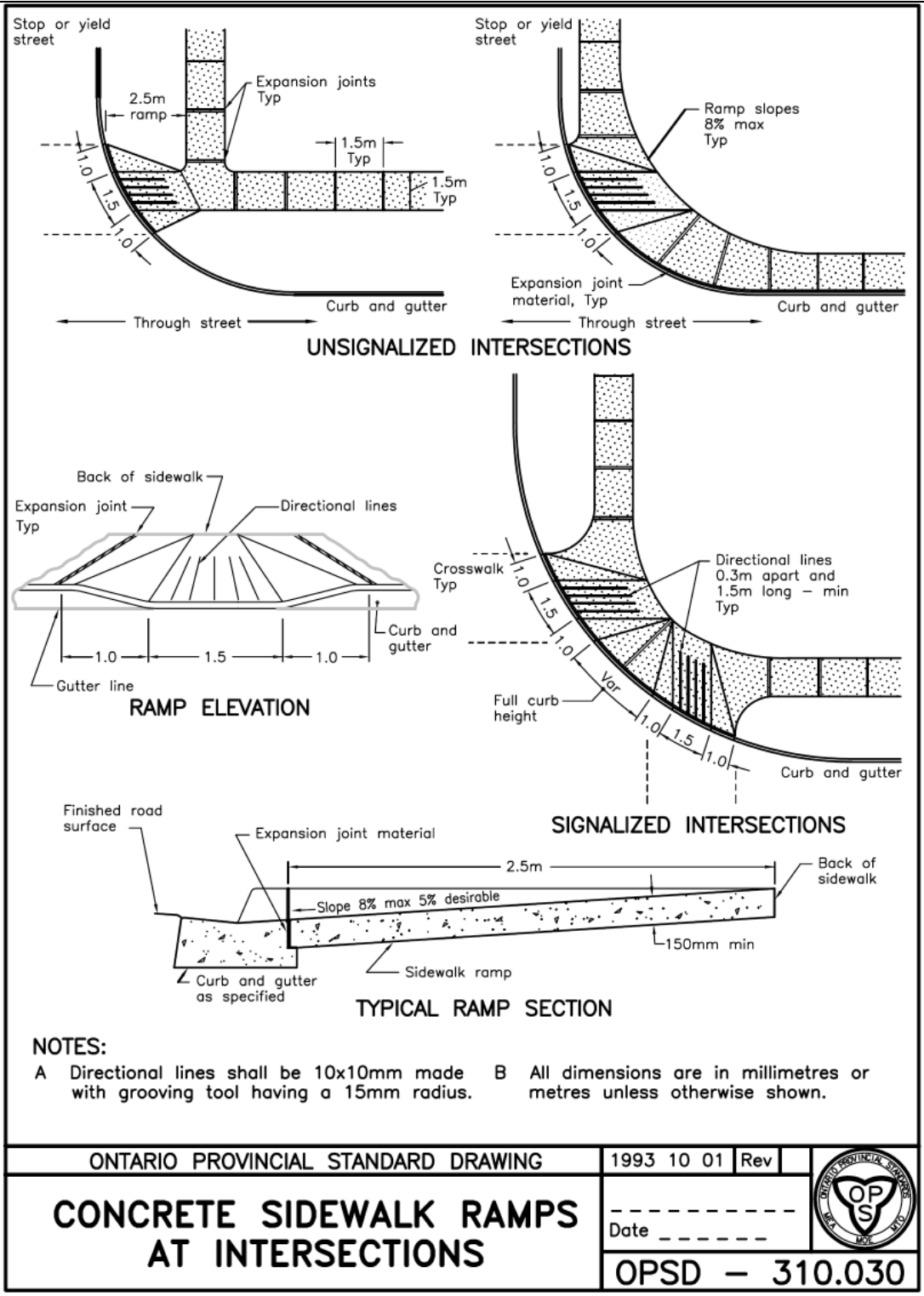

Figure 4.14: Transfer Points

If site conditions allow, visual anchors should be incorporated into the trailhead areas. These anchors serve as visual cues to users that this location is an access point and can be natural or man-made. Some examples of natural anchors are boulders, groupings of trees, or earth embankments. Man-made anchors are typically used when no natural vertical elements are present, or if the area is so developed that there is visual competition. These include fencing, bridges, signage, retaining walls or timber arches.

All trailheads should have a standard trail sign giving the name of the trail. This sign is to be installed as close to the trailhead transfer point as practical. For trailheads without parking or at grade crossings, trailhead signs should be visible to both trail users and adjacent roadway users. Since grade-crossing trailheads have two transfer points, only one sign is necessary at these locations, though a second may be considered for additional emphasis of the trail location.

Trailheads that are likely to experience frequent use, especially by visitors and tourists, should have highly visible user information areas depicting maps, trail rules, and other necessary and useful information through the use of bulletin boards. The user information area should have the bulletin board and standard trail sign placed side-by-side in a separate area immediately adjacent to the path. Signs should be oriented outwards to the path to attract users' attention.

On short spur trails that provide access to the main trail, user information areas can be located at the intersection of the spur and the main trail. This is particularly useful if there is insufficient space at the start of the access spur and also has the benefit of providing trail information to both access users and main trail users.

Trailheads can be classified in the following three categories:

- Trailheads with parking
- Trailheads without parking
- Trailheads at grade crossings

4.9.1 Trailheads With Parking

These are typically located at the entrances to trails that experience a significant amount of both pedestrian and vehicular traffic. Trail users should be able to move from the vehicular area to a pedestrian zone quickly and easily.

Trailheads with parking should be located so that they are easily visible from the road, with appropriate roadside signage notifying motorists. A simple way to attract users' attention is through fencing and vertical gateway anchors. Upon entering the parking area, the trail entrance and user information area should be easily located.

As parking capacity will change between trailheads based on trail popularity, the size of a trailhead parking area should be based on estimated demand. If necessary, roadside overflow parking may be considered. At especially busy trailheads, a pedestrian-only walkway should front the parking area, with the trail entrance and transfer point located away from the parking spaces so that it is never blocked by parked vehicles.

In order to preserve the natural feel of the trail system, parking signage should be minimal. As an alternative method of guiding motorists to parking spaces, timber wheelstops or pre-cast concrete curbs are recommended. Timber wheelstops should be weather-treated to prevent rot and mould. Pre-cast concrete curbs should conform to OPSD603.020. In most instances, timber wheelstops are preferred over pre-cast concrete curbs. An exception to reduced signage is for designated accessible parking for persons with disabilities. When providing accessible parking, wider parking spaces should be created as close as possible to the trail entrance, with appropriate signage.

Parking area lighting should not be generally required, as most trail use takes place during daylight hours. However, lighting requirements may be reviewed on a case-by-case basis.

For winter trail use, the parking area should be designed so that there is adequate space for snow removal and storage. This space is preferably a well-drained portion at a low elevation point in the parking lot.

4.9.2 Trailhead Without Parking

Trailheads without parking typically occur at a simplified entrance to the trail network such as an access spur at a local roadway. These trailheads should be designed to attract users from the roadway through signs, vertical landscape elements and possibly other landscape options such as fences or earth cuts and fills. The trail entrance should have adequate sightlines to both the road and adjacent sidewalks, if present (see Section 4.5 – Intersections and Access Points). Depending on the amount of user traffic at the access point, an optional user information area may be provided.

4.9.3 Trailheads at Grade Crossings

These trailheads exist at the trail at either side of an at-grade road crossing. They are typically minimalist in their design though still serve to attract users to the trail system. Both sides of the grade crossing need to form a unified trailhead that is attractive and inviting, though one side should not be a mirror image of the other. To accomplish an asymmetric balance, naturalistic elements in the trailhead areas of either side of the grade crossing should be fairly similar in materials and colours, but dissimilar in size, placement, and numbers. Odd numbers of elements are preferred over even numbers.

If necessary, crosswalk markings or road surface differentiation (textured or coloured pavement) may be used to increase safety at grade crossings. Upstream warning signs are strongly recommended for both the trail and road to alert users of the upcoming grade crossing (see Section 4.7 – Signage and Markings).

4.10 Drainage and Watercourse Crossings

At all times, surface water should be avoided on trails regardless of trail surface type. Excessive water on trails leads to erosion problems and accessibility and safety issues. To facilitate surface drainage away from the trail, the trail should be crowned with a minimum cross-fall of 1%.

For small drainages that have little to no flowing water except during and just after rain or snowmelt, a culvert crossing is recommended. These drainage paths should be identified prior to trail construction; however not all drainage paths are immediately apparent, and further site investigation may be required after trail construction. Where wash-out areas appear due to drainage paths, efforts should be made to provide additional culvert crossings.

When trails cross natural or man-made drainages with continual running water, or are significant wildlife habitats or wetlands, a bridge is the most appropriate option. Bridges may be as long or as short as necessary, and provide aesthetic value to the trail and is an interesting trail feature for user enjoyment.

Bridges should be aligned along the path so that users do not have to make sharp turns at the ends of the bridge. Steep grades should be avoided by providing grade transition areas (see Section 4.3 – Grades). It is important to design the bridge to specified spans, load limits and the drainageway characteristics (water levels, flooding, clearance, wildlife, etc.).

4.11 Accessibility

All recommendations contained in this report have taken accessibility into consideration. The following section is intended to summarize basic accessibility accommodations. Further information on each recommendation can be found in their respective sections.

The subsequent recommendations can apply to all trails regardless of trail surface type.

- Avoid trail grades over five per cent (5%). At grades in excess of five per cent, it becomes difficult to push or manually move wheeled devices such as wheelchairs and strollers.
- Break up long grades. If a section of trail requires a significantly long grade climb, it is recommended that they be interrupted with occasional grade breaks of level ground and rest areas to the side of the trail.
- Keep accessibility features inconspicuous. Try to avoid using special ramps and other features that are obviously intended only for wheelchair users; instead, trails should be designed so that they are fully accessible without special features.
- Take user's eye level into account. Features visible to a standing person may not be visible from a wheelchair; fences, railings and retaining walls should be adjusted where feasible so that they do not impair visibility from a seated position.
- Minimize grades at drainage crossings. Sharp dips and climbs at drainage crossings should be eliminated by smooth, gradual grade transitions.
- Provide rest areas to the side of trails. Rest areas should be relatively level, adjacent to the trail and free of barriers such as slopes and swales.
- Provide adequate parking at trailheads through reserved accessible parking spaces, as well as spaces designated for users with strollers or small children if space allows.
- Maintain at a minimum 3.0 m (10 feet) trail width at all times for trails that accommodate two-way traffic. A 3.0 m width ensures adequate space for users to travel beside or pass abreast of one another.

Though limestone trails are not as accessible as hard-surface trails made of asphalt and concrete, steps may be taken to improve accessibility for this surface type. The following trail design accommodations are recommended.

- Add extra lime to the surface material for limestone screenings trails. An addition of approximately 2-3 times the amount of lime to the screening mixture will help harden the trail surface over time, providing extra mobility and ease-of-use for wheeled devices such as wheelchairs and strollers.
- Consider broomed concrete on steep sections of limestone screenings trails. Where a steep section of trail is unavoidable, consider surfacing the steep section with concrete to provide a smooth, maintenance-free surface for both climbing and braking.
- Pay close attention to trail drainage. Keep excessive water runoff away from the trail surface. Excessive runoff erodes soft trail surfaces much more quickly than with hard surfaces. Such excess water causes rutting and potholes that are not only dangerous for users in wheelchairs, but other trail users as well.

4.12 Healthy Trails Initiative

A fundamental cornerstone of active transportation is the promotion of a healthy lifestyle. In keeping with this goal, it is recommended that the Ramara Trails Network emulates the smoke-free outdoors goals of the Simcoe Muskoka District Health Unit (SMDHU). The SMDHU Healthy Community Design initiative states that:

> A growing number of communities are passing local bylaws to prohibit or severely restrict smoking in and around playing fields, playground equipment, parks, and beaches. These bylaws have powerful prevention implications that will help keep youth from becoming tobacco users. […] There is indisputable scientific evidence that second-hand smoke is hazardous to everyone who breathes it. Walking through a group of people smoking outside of a public facility or sitting next to people smoking at the beach or on a park bench exposes residents to second-hand smoke. Research also continues to grow showing that outdoor tobacco smoke is hazardous at greater distances. A 2007 study undertaken in California found tobacco smoke levels could be detected at downwind positions greater than or equal to four meters from a single active cigarette. As the number of active cigarettes increase so does the distance at which the smoke is detectable.

A growing number of communities in Simcoe Muskoka have passed No-Smoking by-laws for outdoor spaces. An example of these by-laws can be found on the SMDHU website (see Appendix E, Resources for more information). By reducing or eliminating smoking on the trails system, the impacts of second-hand smoke are decreased or altogether eliminated, as well as the possibility of cigarette butt litter on the trails.

5.0 Maintenance Strategies

Trail maintenance programs are designed to identify and fix all problems while they are still small and manageable. Frequent inspections are recommended, especially in the first year of trail implementation.

The following items are recommended observations that should be made on each trail during every inspection.

Inspect hard surface trails for cracks or damage. Examples of such damage include potholes, crumbling edges or excessive surface dryness which indicate a lack of adequate asphalt sealing. Evidence of water and sediment deposits should be noted as these locations may require drainage improvements. If trail sweeping is required to remove deposited debris, it should be documented along with the times it was done so as to build a sweeping schedule for the trail.

For soft-surface trails, check the entire trail surface for any signs of washouts or water damage, regardless of how small or trivial. Such minor issues can become major and costly problems if not addressed. If any washout or water damage is encountered, identify the source of excess water and add appropriate drainage features. Trail regrading and resurfacing may be necessary to rehabilitate the surface to original conditions after significant washouts or water damage.

Inspect culverts for poor drainage, too much water or too much sediment. If a culvert is beginning to fill with leaves or sediment, it should be cleared of debris as soon as possible before more serious blockages develop. If sediment deposits are an issue, the sediment source upstream should be located and the flow reduced if possible. If the deposits are predominantly limestone screenings from the trail, the washout source should be found and corrected.

Trail structures such as bridges, drainage crossings, railings, signs, fences and retaining walls should be carefully inspected for any damage caused by trail users or natural elements. Damage that has compromised the structural integrity of any feature should be addressed immediately. In such instances, trail closure may be necessary to ensure the safety of trail users. Aesthetic and other minor issues should be repaired before they become larger problems.

Inspect landscaped and re-vegetated areas to ensure that all plantings are at their appropriate stage of growth. Stunted or struggling plantings should be identified and monitored for improvement. If erosion is a problem in these areas, control measures such as erosion control blankets, straw or hay bales, diverted site drainage or other appropriate methods should be employed to solve the erosion problem.

Perform general clean-up repairs by clearing fallen branches, removing live or dead trees likely to fall on the trail, removing any accumulated litter and fixing or removing graffiti or vandalism.

Investigate the trail area for “social trails”—that is, unofficial trails created by users. Social trails are most often created by shortcutting, but may identify an attracting feature or access link that is currently not accommodated in the trail system. The reason behind such social trails should be examined, and if there is a sound reason for the trail to exist, it should be incorporated as an official trail into the system. The integrated social trail should conform to the trail design and construction standards recommended in this report. If it is found that the social trail is detrimental to the system and is not suitable as an addition, closure measures should be implemented. Such closures should be appropriately signed, and further enforcement measures such as barricades may be necessary. Such barricades should blend in with the overall landscape of the trail by using natural features such as relocated rocks, plantings, or natural-looking man-made elements like wooden fences.

Maintenance in the first year after trail construction is crucial to finding and solving potential design and construction issues before they become major problems. As a result, the first year of maintenance demands frequent inspections. Inspections may be combined if they fall within six weeks of each other.

The following schedule is recommended for first year maintenance.

After the first hard rain

Most problems will begin to materialize after the first heavy rainfall that produces significant runoff. Since limestone screenings do not reach their full potential hardness until after they have been thoroughly saturated and subsequently dried, they can experience more erosion at this time than during subsequent rains of equal intensity.

As soon as possible after the first substantial rainfall has occurred, a full trail inspection should be performed, with special attention paid to water damage on the trail surface or problems at culverts and water crossings. Some new construction may be necessary, including but not limited to the addition of new drainage features, or increased surface material.

After two months, or several moderate rains

A full maintenance inspection should be conducted after two months, or after several moderate rains, whichever comes first. The inspection should be done no later than early Fall to allow adequate time for repairs. Like the first inspection, special attention should again be paid to drainage features, as well as trail structures and re-vegetation efforts. At this time social trails may begin to appear. These trails should be evaluated and addressed as recommended.

Every 6-8 weeks during the usage season

During the usage season, or the time period that experiences the most user traffic, a complete inspection should be performed every six to eight weeks. Any damage found should be repaired while it is still minor. It is important to address problems with trail drainage and structures immediately during this maintenance stage, as issues left until the next inspection may become more difficult and costly to fix.

Beginning of fall every year

A complete inspection and maintenance operation should be undertaken in early fall in preparation for the winter season. All problems should be addressed well before any snowfall. Drainage problems should be given careful attention in order to prepare it for its first highly-erosive spring snowmelt.

The maintenance program for the second year is not as intensive as the first, though it is no less important. The following timelines are recommended for inspections in the second year.

During spring snowmelt

The most adverse conditions for soft-surface trails are during the spring snowmelt, where the trail surface can become saturated and making it easier for washouts to occur. Additionally, heavy runoff can create drainage patterns and channels not initially anticipated during snow-free months. A complete inspection should be performed during the spring snowmelt, with special attention given to soft-surface trails. Some items to pay attention to are adverse drainage patterns, blocked culverts, puddles on the trail, ruts from erosion, holes in the surface made by footprints, trail surface erosion, or damage to cuts and fills. All damage should be repaired as much as practical.

In the spring

A full inspection should be held once most of the snow has melted, but before vegetation emerges. The inspection should cover all aspects of the recommended maintenance list, with special attention given to preventative maintenance and trail drainage.

Every 6-8 weeks during usage season

During the usage season, or the time period that experiences the most user traffic, a complete inspection should be performed every six to eight weeks. Any damage found should be repaired while it is still minor. It is important to address problems with trail drainage and structures immediately during this maintenance stage, as issues left until the next inspection may become more difficult and costly to fix.

Beginning of fall every year

A complete inspection and maintenance operation should be undertaken in early fall in preparation for the winter season. Site improvements and repairs should be completed to prepare the trail for winter use and the spring snowmelt.

Routine maintenance after the first two years of trail construction should become easier and less extensive. Most major issues with the trail surface should have been corrected through frequent inspections and repairs, with culvert maintenance always being an on-going operation. New landscaping should be well-established by the third year of trail implementation.

Trail surfaces will eventually level out and lose their crowning. Continual minor adjustments should help keep the trail surface in its original condition. Barring complete washouts, only minor repairs or the addition of extra material should be required for most trails.

Trail structures such as fences, railings, signs and bridges may need more extensive maintenance as they age and settle. This maintenance should be done as it is required to preserve the quality of the trail system. Signs may require replacement every 10 years, depending on their condition.

6.0 Enforcement Strategies

As trails become more popular with visitors and residents who make up a diverse cross-section of trail users with contrasting values and risk tolerances, an increase in liability is unavoidable. Enforcement of rules for trail usage and promotion of trail safety can greatly mitigate this risk and result in a pleasant and safe trail experience for everyone.

The following strategies are intended to reduce user conflict and trail abuse:

Post user guidelines at trailheads

Trail guidelines and rules of etiquette should be posted at trailheads and user information area so that all trail users entering the system are aware of the established code of conduct. A summary of these guidelines, adopted from the Ontario Trails Council, can be found at the end of this section.

Distribute literature on trail etiquette

Aside from posting trail guidelines at trailheads and access points, rules of etiquette can be included in promotional material either in print media or available online. Consider including trail rules of etiquette with maps, brochures and guidebooks published for the Ramara trail system.

Volunteer patrol groups

As trail users take pride in their trail system, self-governance often emerges as a beneficial consequence. Consider establishing a volunteer patrol program with focus on public relations, education, information and voluntary compliance.

Law enforcement patrol

Obtaining the assistance from law enforcement should be done as a last resource when trail conflicts become a serious issue and in cases of frequent violation of trail use rules and restrictions.

The use of bollards or other physical barriers to deter prohibited vehicles from entering the trail system is not encouraged. Such barriers do not lend themselves to the natural feel of the trail, can create safety hazards for trail users, and can greatly reduce the accessibility of the trail system for permitted trail users.

The Ontario Trails Council has developed user guidelines for shared-use trails. In order to remain consistent with other trails in Simcoe County and elsewhere in the province, the following codes of conduct should be applied to Ramara's trail system.

General Rules of Etiquette:

- Expect and respect other trail users.
- Keep to the right to allow other users to pass on your left. When stopping for a break, move to the side to allow others room to pass.
- Stay on the trail! Don't make new trails or use unmarked (unsigned) trails.
- Respect neighbouring landowners by staying off private property, and avoid excessive noise.
- Leave the trail as you found it; whatever you pack in, pack out. Leave the wildflowers and wildlife for others to enjoy.
- Maintain control of your pets. Carry a leash for your dog and be prepared to use it. "Stoop & scoop" near residential areas and when waste is on the trail path.
- Use trails only according to the permitted uses indicated on the signage. Some trails are user specific i.e. hiking or snowmobile only trails.
- Some trails may close seasonally. Obey trail closure signs.
- Most trails experience problems in the spring. Check the trail conditions. If you are leaving tracks over 1/2" deep don't use the trail. If there are no signs posted, but weather conditions have been bad, do not use the trail.

Walkers & Hikers

Remember that on shared use trails there are a variety of other users enjoying the trail with you. If you have children in your group make sure they are aware of any horses, dogs, bicycles or snowmobiles passing.

When passing horses say "hello" to help the horse know you are not something scary. If approaching from the front, stop and let the horse and rider pass unless the rider indicates otherwise. When approaching from the rear, ask if it is OK to pass then proceed on the left. (Keep dogs leashed and close to you.)

If you have a walking stick, do not raise it in the air, as the horse may think you are going to hit it.

Keep control of your pets, particularly when sharing the trail with cyclists, children, horses or snowmobiles.

Limit your group size to 20 hikers to keep from overwhelming other users. If you have a large group, let the other users know its size when passing them, e.g. “Passing on the left, 15 hikers and 2 dogs, may we go by?”

Don’t walk in groomed cross-country ski tracks.

Equestrians

Ride at a leisurely pace. Keep to a walk unless safety is certain and ground conditions are good so that no trail damage will occur. Never gallop.

When your vision of the trail ahead is restricted, slow down and control of your mount. Always assume that there may be another trail user ahead.

Ensure your horse is well mannered. Kicking, biting and excessive spooking are not safe on shared use trails. Train your horse to accept various experiences and other users. Ride with an experienced horse if your mount is nervous.

Keep to the right to allow other users to pass on your left. Help other users by telling them the safest and easiest way by.

Pass other users on the left in single file, after receiving their permission. Allow them to get control of any pets, and be especially alert for children.

Kick the manure off the trail. Users on foot or bicycle really appreciate this.

Limit your group to six or fewer. Large groups of horses intimidate people. If you have a large trail ride in progress, pass other trail users in groups of six with spaces between. Inform the user you are passing of your group size, e.g. “4 horses and 3 dogs, passing to your left, may we come by?”

Use the bridges for waterways. If your horse refuses, dismount and lead it across the bridge.

In winter months, stay off groomed ski trails. Only use groomed snowmobile trails where permitted.
Children love to pet horses. Tell them how to approach your horse safely.

Never leave horses unattended.

Cyclists

Keep your pace leisurely and slow down to pass other trail users.

Slow down if your vision of the trail ahead is restricted. Always assume there may be another user ahead, and be prepared to stop.

Yield the trail to hikers and horseback riders. Use your bell or speak when you are about 30 feet away to alert them. Be careful when passing children or dogs, especially from behind. Allow the owner to control their dog before passing.

Some horses may be frightened by moving objects rapidly approaching them, so slow down and ask how to pass safely. The rider may indicate to continue at your present speed. If the horse reacts, stop and wait for the rider to regain control.

Limit the size of your group to six cyclists. If you have a larger group, ride in groups of six with spaces between. When riding in a large group and passing other users let them know your party size, e.g. “We are a party of 18 cyclists in three groups of 6, may we pass on the left?”

Always use the bridges supplied for crossing waterways.

Some trails are for hikers only; respect those trails by only riding on trails for cycling.

Use extra caution at access points and when crossing roads.

X-Country Skiing

Use common sense and personal awareness, particularly in intense cold or when sharing the trail with snowmobiles.

Keep to the right to allow other users to pass to your left. Be alert for other trail users and ski in control, particularly when your vision of the terrain ahead is restricted. Always assume that there could be someone up ahead, and be prepared to stop.

Do not ski late in the day. Plan to be off the trail by dusk.

Carry sufficient wax, food, drink, and clothing for unexpected eventualities.
Keep track of your progress and where you are. For remote areas, leave your itinerary and expected return time with someone. Obey all posted signs and warnings. Keep off closed trails.

Do not stop where you obstruct the trail or are not visible from above or at a bend.

Before merging onto a trail, look both ways (particularly uphill), and yield to others. When going downhill or passing others, ski in control to avoid the persons below and beside you.

The motion of X-C skiing may startle a horse. Do not scare horses by approaching silently, rapidly or waving your poles. When approaching from the front, stop and let them pass unless the rider indicates otherwise. If approaching from behind, alert the horse and rider from about 30 feet away with a friendly “hello”. Ask the rider the best way to pass.

Snowmobile Riders

Be safety conscious. Be aware. Ride with care.

Stay on the designated trails. Off riding can injure vulnerable plants, crops and wildlife.

Enjoy wildlife viewing opportunities, but avoid stressing any species.

Avoid sudden stops and starts and quick directional changes with acceleration.

Slow down when your vision of the trail ahead is restricted, at night or over unfamiliar terrain.

Always assume there could be other trail users ahead, and be prepared for a controlled stop.

Keep your speed and engine rpm low and steady when approaching and passing other trail users, homes, etc.

Slow down and be courteous when approaching or passing other trail users. Communicate with the riders of horses and those walking pets.

Your machine may scare a horse. When approaching from the front, stop and let them pass unless the rider indicates otherwise. Approach slowly from behind, and allow the rider to signal when it is OK to pass. If the horse reacts, stop and wait for the rider to regain control.
Park and dismount from your machine and walk to sensitive, scenic, historic and cultural areas.

Remove your helmet when talking to other trail users.

Don’t ride on groomed XC-ski tracks.

When parking along a trail, park machines in single file over to the right as far as possible to avoid obstructing the trail. Ensure you are visible and turn off your machine.

Obey all regulations and by-laws regulating the operation of your snowmobile.

7.0 Opportunities

7.1 Funding & Partnerships

As communities shift towards active transportation and providing healthy transportation and recreation facilities, financial support for these initiatives is also becoming more available. There are a number of funding organizations throughout Ontario that will support trail development initiatives. Below are a number of potential funding organizations. Links to the respective organizations can be found in Appendix E, Resources. Note that each program has its own eligibility policies and deadlines, and grant application and approval processes.

Trans Canada Trail

The Trans Canada Trail is a non-profit charitable organizations dedicated to facilitating the development and promotion of the Trans Canada Trail (TCT). When completed, the TCT will be the world's longest recreational trail with a continuous route through every province and territory in Canada.

For the Township of Ramara, the TCT route has been identified as the County Road 44 / Rama Road corridor to Washago, and from Washago to the TCT staging area at Cooper's Falls. The Trail is designed to accommodate six preferred activities: walking/hiking, cycling, horseback riding and canoeing, as well as cross-country skiing and snowmobiling in the winter.

The Trans Canada Trail provides funding for a portion of the capital construction costs (i.e., trail construction, interpretive signage, amenities, trailheads, etc.) and studies and engineering costs.

TCT provides their identification signage for free once the trail is registered. The route requires a council resolution to endorse the route, as well as a submission to TCT including necessary forms, mapping, resolution and insurance. Once TCT receives this information, they will review to ensure the route connects and meets criteria. If successful in its application, the trail is then recommended to be included in the system. TCT Director of Trail will approve the final route, and then it officially becomes part of the TCT.

Ontario Trillium Foundation

The Ontario Trillium Foundation is an agency of the Government Ontario and is one of Canada's grant making foundations. Their mission is to build healthy and vibrant communities throughout Ontario by strengthening the capacity of the voluntary sector through investments in community-based initiatives. The Community Program provides grants for activities that take place in one catchment area and have a local impact in one or more communities within that catchment area.

Ontario Rural Economic Development Program

The Rural Economic Development (RED) Program is a community development initiative that helps rural communities remove barriers to community development and economic growth and develop the tools and flexibility they need to become strong rural communities. Through the program, rural residents, business people and municipal leaders can co-ordinate their activities, resources and expertise to work towards common community development goals. The coordinated actions undertaken as a result help to build revitalized rural communities that work better for the people who live in them.

The objectives of the RED Program are to create diversified business climates in rural Ontario; the creation and retention of long-term jobs; a strategic and coordinated local and regional approach for economic development, the creation of alliances and partnerships; and the development of information, tools and resources to enhance rural economic development.

TD Friends of the Environment Foundation

The TD Friends of the Environment Foundation (TD FEF) is a national organization, formed by TD Bank Financial Group, with a grassroots focus that funds local projects dedicated to preserving the environment. The TD FEF works with Canadians who are committed to protecting the environment in their own community and across the country, with funding focus areas including protecting and preserving the Canadian environment, assisting young Canadians, supporting urban renewal such as environmental projects to rejuvenate smaller or at-risk neighbourhoods and "main streets" and enhancing cooperation among Environmental organizations. Eligible organizations must be Canadian, using the funds in Canada and they must be either not-for-profit with a Charitable Registration Number, Schools, municipalities or First Nations groups.

Ministry of Health Promotion - Healthy Communities Fund

The Healthy Communities Fund provides funding to community partnerships to plan and deliver integrated programs that improve the health of Ontarians. The Healthy Communities Fund plays a key role in helping the ministry achieve its vision of Healthy Communities working together and Ontarians leading healthy and active lives.

The goals of the Healthy Communities Fund are to create a culture of health and well-being, build healthy communities through coordinated action, create policies and programs that make it easier for Ontarians to be healthy and enhance the capacity of community leaders to work together on healthy living. The grants project stream of the Healthy Communities Fund aims to fund local/regional and provincial organizations to deliver health promotion initiatives that address two or more of the ministry's priority areas - physical activity, injury prevention, healthy eating, mental health, reducing tobacco use and exposure, and preventing alcohol and substance misuse.

Recreational Infrastructure Ontario

Through the Recreational Infrastructure Canada (RInC) Program in Ontario and the Ontario Recreation Program (Ontario REC), the governments of Canada and Ontario are working together to support Ontario's communities and to create jobs through upgrades and improvements to recreational infrastructure. Beyond economic stimulus and job creation, renewing, rehabilitating and modernizing recreational infrastructure has the added benefit of encouraging higher levels of participation in physical activity and community building.

The RInC program has important construction and funding deadlines to be aware of. The construction deadline for projects has been extended to October 31, 2011. In order to qualify for this extension, construction on a project must have started before March 31, 2011. As well, any project seeking an extension must have submitted a claim for all costs incurred up to March 31, 2011. This claim must be submitted no later than April 30, 2011.

Ontario Heritage Trust – Provincial Plaque Program

Originally established by the Ontario Heritage Foundation Act in 1967, the Ontario Heritage Foundation began to carry out its mandate to identify, preserve, protect and promote Ontario's rich and varied heritage for the benefit of present and future generations. In 2005, the Ontario Heritage Act was amended and, along with an enhanced mandate and increased responsibilities, the agency changed its name to the Ontario Heritage Trust. The Trust remains the province's lead heritage agency.

The Provincial Plaque Program is the Trust's oldest and perhaps best-known activity. Over 1,200 provincial plaques have been unveiled – including 22 international plaques. The plaques make Ontario's history come alive by telling stories of the people, places and events that helped shape our province. The Trust has also assisted communities to erect over 600 local markers across Ontario.

Other partnerships (snowmobile clubs, other recreational clubs)

There are a variety of recreational clubs throughout the region that may be amenable to forming partnerships with the Township for funding and promotion of the trail network. Snowmobile clubs in particular tend to be excellent trail stewards, provided that permissive use of snowmobiles in the winter is granted for the trail system. A listing of recreation clubs in the region can be found in Appendix E, Resources.

7.2 Promotion

An important component of any trail system is public awareness—the trails cannot be used if trail users don't know they exist. There are a variety of strategies to distribute information to potential trail users. Below are a few examples, with further information available through the respective websites found in Appendix E, Resources.

Printed Media

The Ramara trail network can be promoted through trail maps, brochures and guide books. These materials can be made available at municipal offices, public libraries, community centres and other public gathering places. As the trail system evolves and becomes more complex and connected, consideration can be given to making specialty guidebooks that provide trail information, background and historical sites, among other features, available for purchase.

Online Media

Through the Township of Ramara website, maps and guides can be made available for public viewing and download. The Township's website can also promote trail activities, such as recreational club trail days, volunteer services or new trail openings.

Simcoe County Geographical Information Systems Mapping

The Simcoe County Geographical Information Systems (GIS) Mapping service is an invaluable tool for drawing attention to the trail system through their online interactive mapping service.

Ontario Trails Council

The Ontario Trails Council (OTC) is a charity that promotes the development, preservation, management and use of recreational trails in Ontario. The OTC brings together trail user groups with landowners, health units, active living programs, conservation authorities, municipalities and provincial parks. As a collective voice, the OTC is a source of trail information and support, creating awareness, providing education and advocating for changes to improve the visibility of Ontario's trail industry.

Ontario Heritage Trust - Trails Open Ontario

This province wide natural heritage program – an initiative of the Ontario Heritage Trust – promotes trail use and education, natural heritage conservation and stewardship, and physical activity and a healthy lifestyle.

Modeled after the successful Doors Open Ontario program, Trails Open Ontario provides an opportunity for all Ontarians to access and celebrate the remarkable trail systems that exist throughout the province. Among the province's greatest treasures, trails comprise more than 88,000 km (54,680 miles) of walking, hiking and cycling opportunities throughout Ontario.

Huronia Trails and Greenways

Huronia Trails and Greenways (HTG) was founded in 1992, following the recommendations of a Simcoe County Greenways study, which suggested that abandoned rail lines be kept in the public domain and be developed as recreational corridors. HTG lobbied for the preservation of those corridors, and the development of a comprehensive trails network in Simcoe County. HTG values and promotes the safe and responsible use of trails, inclusiveness of all user types wherever possible, and the involvement of all stakeholders in achieving their goals. HTG is locally also coordinating the development of the Trans Canada Trail in Simcoe County.

Hike Ontario

Hike Ontario provides province-wide hiking information and services. Hike Ontario's main focus is on the representation and promotion of pedestrian based trails and their benefits, focusing specifically on connectivity, economics, education, environment, health, heritage, recreation and transportation.

Simcoe Muskoka District Health Unit

The Simcoe Muskoka District Health Unit offers a wide range of programs and public health services focused on promoting and protecting health, and preventing disease, disability and injury. Health unit staff works with individuals, groups, community partners and coalitions to help people to make healthy choices and changes.

Ministry of Health Promotion - Healthy Communities Fund

The Ministry of Health Promotion's vision is to enable Ontarians to lead healthy, active lives and make the province a healthy, prosperous place to live, work, play, learn and visit. Health Promotion and Sport sees that its fundamental goals are to promote and encourage Ontarians to make healthier choices at all ages and stages of life, to create healthy and supportive environments, lead the development of healthy public policy, and assist with embedding behaviours that promote health.

In addition to providing funding assistance for the trails system, the Healthy Communities Fund also offers a partnership stream that links planning with community action by ensuring alignment between the community's priority areas of focus and programs funded under the Grant Stream.

Provincial Recreation Organizations

There are opportunities for the Township to form partnerships with provincial recreation organizations (PRO). They are non-profit incorporated organizations with a mandate to provide recreation programs and/or leadership and skills training for the recreation sector.

PROs provide a wide range of recreation opportunities throughout the province. They ensure that recreation activities and programs are available at reasonable cost, physically accessible to all, environmentally friendly, safe, cost effective and meet the needs of Ontarians. A list of Provincial Recreation Organizations can be found in Appendix E, Resources.

National Trails Coalition

The National Trails Coalition (NTC) is the operating name for the Coalition of Canadian Trails Organizations, a federally incorporated not-for-profit organization. The NTC was formed in 2007 to bring the broad spectrum of trail-based activities together in a collaborative manner to build, maintain and promote trails and trail use across Canada.

One of the founding principles of the Coalition is building new partnerships between trail disciplines; fostering more multiple-use trail development; and providing a trail-based platform on which private enterprise and volunteer groups alike can generate economic activity.

Other partnerships (snowmobile clubs, other recreational clubs)

There are a variety of recreational clubs throughout the region that may be amenable to forming partnerships with the Township for funding and promotion of the trail network. A listing of recreational clubs in the region can be found in Appendix E, Resources.

8.0 Summary and Conclusion

This active transportation study examined the existing trail facilities and future trail development programs for the Township of Ramara. Recommendations were made to:

- Expand and connect the current trail system with a selection of proposed on-road, road-adjacent and off-road trail facilities;
- Maintain a high degree of accessibility for all existing and future trails;
- Protect abandoned rail lines, unopened road allowances and public right-of-ways for future trail connections;
- Acquire private lands as they become available in order to further expand the trail system;
- Develop a maintenance program that addresses such issues as drainage, trail damage, etc.; and
- Co-ordinate public awareness campaigns through various local, provincial and federal partners.

New trails should be designed and constructed according to established guidelines. The Township should also consider revisiting existing municipal trails for upgrades and trail improvements so that they meet these guidelines. The following planning and design considerations were relevant to the Township of Ramara trails network:

- Multi-use, road separated—either within the road corridor or completely separated on unopened road allowances, abandoned rail lines, etc.—should be designed to appropriate geometry and materials so as to maximize the amount of potential trail users and provide the best possible user experience.
- On-road facilities for low-volume, low-traffic residential streets will improve mobility throughout established communities. On-road facilities may be multi-use paths where there exists insufficient right-of-way for sidewalk installation. Where sidewalks exist or can be installed, on-road facilities should be signed for cyclists only. A minimum lane width of 1.5 m (5 feet) in both directions is recommended for exclusive bike lanes, with multi-use on-road facilities requiring widths of at least 2.5 m (8 feet).

- The proposed trail network was built using existing road right-of-ways, unopened road allowances and abandoned rail lines. There exists potential for a more integrated network through the purchase of private lands to complete trail loops or link to proposed trails. This is especially true for locations that can only be accessed off of busy roads (i.e., the Ramara Centre off of Highway 12). The Township should consider pursuing any private land acquisition opportunities that may arise that can better serve the trail network.
- Trail amenities should be provided to ensure that the user experience is enjoyable and convenient. Benches and signage should be installed at regular intervals along the trail, and trash and recycling receptacles should be provided at all trailheads and other major trail intersections.

The involvement of the Township and the community was instrumental in the development of the Ramara Active Transportation Plan. A Joint Public Consultation Session was held to introduce the proposed recommendations to the public, as well as solicit feedback on the plan. Comments and concerns were incorporated into the draft report to be presented to the Township of Ramara Leisure and Recreation Committee for review, with Township administrative comments integrated into the final report submission.

A connected and distinct trail network provides numerous health benefits and tourism opportunities. Appealing, well-maintained and highly visible trails will encourage active transportation and recreation in the Township of Ramara by providing safe, direct and enjoyable route alternatives to motorized transport.

9.0 References

Pitkin County Open Space and Trails Program, Colorado. 1994. *Trails Design and Management Handbook.*

United States Department of Agriculture, Forest Service, Technology and Development Program. 1996. *Trail Construction and Maintenance Notebook*.

Town of Collingwood, Ontario. 2006. *The Collingwood Trails Network Trails Design and Management Planning Handbook.*

United States Department of Transportation, Federal Highway Administration. 2003. *Manual on Uniform Traffic Control Devices for Street and Highways.*

Ministry of Transportation Ontario, 2001. *Ontario Traffic Manual Book 5: Regulatory Signs.*

Ministry of Transportation Ontario, 2001. *Ontario Traffic Manual Book 6: Warning Signs.*

Rails-to-Trails Conservatory. http://www.railstotrails.org/index.html

The National Center for Bicycling and Walking. http://www.bikewalk.org/

Simcoe County Trails. http://www.simcoecountytrails.net/index.htm

Ontario Provincial Standards for Roads and Public Works.
http://www.raqsa.mto.gov.on.ca/techpubs/ops.nsf/OPSHomepage

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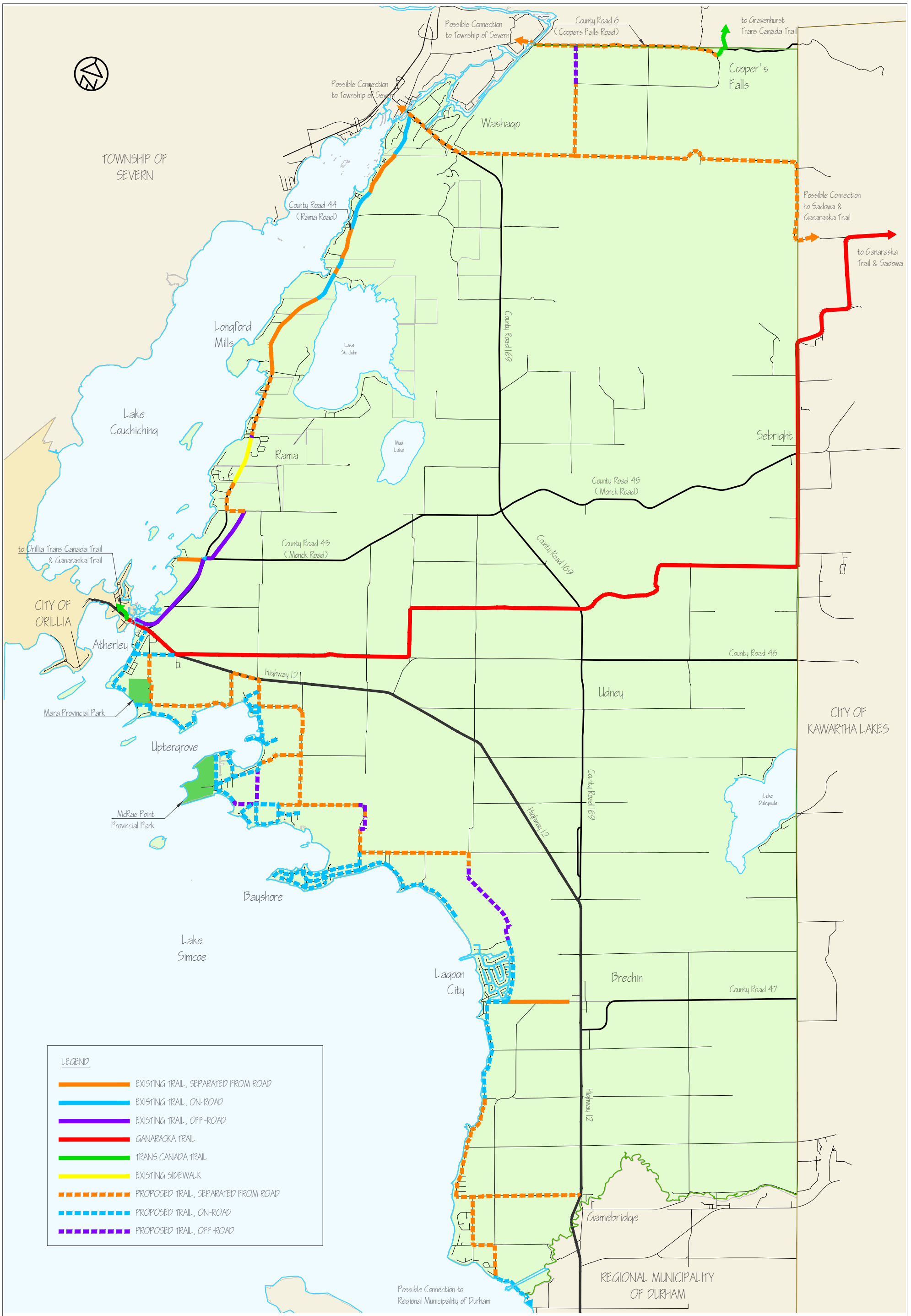
Appendix A
Proposed Trail Network



BURNSIDE

R. J. Burnside & Associates Limited
3 Ronell Crescent, Collingwood, Ontario
telephone (705) 446-0515 **fax** (705) 446-2399
web www.rjburnside.com

Client

TOWNSHIP OF RAMARA

P.O. BOX 130
BRECHIN, ONTARIO
L0L 1B0

Drawing Title

RAMARA ACTIVE TRANSPORTATION PLAN
RECOMMENDED TRAIL PLAN - DRAFT
EXISTING AND PROPOSED TRAILS

Scale

0 1 km 2 km 3 km 4 km
500 m 1500 m

Designed By: J. HRYCAY

Project No.: MCG019083

Drawing No.: SK-1

W:/MCG019083_Appendix A Proposed Trail Network.pdf

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Appendix B
Trail User Questionnaire & Results

Appendix B: Trail User Questionnaire Results

1. What user group best describes you?

	Response Percent	Response Count
Member of a recreational club	25.50%	14
General trail user, local	58.20%	32
General trail user, visitor	5.50%	3
Member of Township of Ramara administration	5.50%	3
Other:	5.50%	3

1. Over taxed Taxpayer
2. Don't use the trail system at all.
3. both local trail user and Member of Ramara Admin

2. What mode of transport do you most often use on the trails?

	Response Percent	Response Count
Walk or run	63.60%	35
Bike	58.20%	32
Snowmobile	21.80%	12
Electric scooter/wheelchair	0.00%	0
Cross-country ski	16.40%	9
Snowshoe	14.50%	8
Other:	5.50%	3

1. Car
2. I don't use the trails.
3. atv

3. For what reasons do you use the trails?

	Response Percent	Response Count
Recreation	77.80%	42
Health & exercise	70.40%	38
Commuting	9.30%	5
Fitness training (marathon, triathalon)	3.70%	2
Dog walking	22.20%	12
Other:	5.60%	3

1. For my son to go to/from school
2. None.
3. geocaching

Appendix B: Trail User Questionnaire Results

4. What trails do you use in Ramara?

	Response Percent	Response Count
Ramara Trail (from Atherley Narrows to Mara Rama Boundary Road)	43.60%	24
Ramara Trail/Fern Resort (from Rama Road to Fern Resort)	34.50%	19
Rama Road Trail (from Longford to Washago)	10.90%	6
Lagoon City to Brechin trail link	15.10%	9
Snowmobile Trails	27.30%	15
Ganaraska Trail	16.40%	9
None	12.70%	7
Other:	25.50%	14

1. Walk in Mara and McRae Point Prov. Parks; Walk on the trail in Orillia near Tudhope Park; cycle on roads near Atherley; live near Mara Provincial park
2. There are several unofficial trails in the Plum Point area
3. New resident to Rama
4. Railbed from Lagoon City towards Concession 7. We used all trails as walkers/bicyclists, not snowmobilers.
5. Gordon Lightfoot, Uthoff
6. Gordon Lightfoot, Uthoff
7. Do not know where to go to find trail information!!
8. McCrae Prov. Pk & Mara Prov. Pk.
9. Lightfoot
10. There are no organized trails near Lagoon City except for the old railbed snowmobile trail and it is closed in the summer and not available for skiing in the winter, so we use trails within Bayshore - very limited
11. None.
12. I typically travel the Lagoon City-Brechin link but often don't use the trail because it is very poorly kept and I don't feel safe that low from the road with high grass.
13. I consider township roads as part of bike trail network
14. Orillia Trails

Appendix B: Trail User Questionnaire Results

5. On a scale of 1 to 5, what community trail connections would you most like to see?

	1 (not interested)	*2*	*3 (somewhat interested)*	*4*	*5 (very interested)*	Response Count	Rating Average
Brechin to Gamebridge	6	4	16	4	5	35	2.94
Brechin to Udney	8	3	9	8	8	36	3.14
Udney to Uptergrove	6	7	10	3	6	32	2.88
Udney to Sebright	10	6	10	4	3	33	2.52
Lagoon City to Bayshore	5	1	6	6	27	45	4.09
Concession 7 to Uptergrove	5	5	11	5	13	39	3.41
Atherley to Uptergrove	4	1	8	5	23	41	4.02
Rama to Longford Mills	7	5	10	2	12	36	3.19
Atherley to Rama	4	1	11	3	18	37	3.81
Washago to Sebright	11	3	8	3	4	29	2.52
Longford Mills to Washago	8	5	9	1	14	37	3.22

Other:

1. Any route to travel from Uptergrove to Brechin or all the way from Uptergrove to Washago without having to bike directly on the Rama Road
2. Public consultation important and connectivity
3. Rama to Coopers Falls for the connection to the Muskoka section of the Trans Canada Trail. Very critical to find a route through Ramara. Thanks for your consideration!
4. from a snowmobiler point of view it would be ice to see a trail that links all of these places
5. connection to TransCanada Trail on Cooper's Falls Rd
6. Only interested (5) in snowmobile trails . . .
7. Orkney Beach Road (broken concession) to Ramara Centre
8. Over the narrows in Atherley
9. Bayshore to Atherley
10. Bayshore to Lagoon CIty
11. Bayshore to snowmobile trail..Lagoon to Brechin

Appendix B: Trail User Questionnaire Results

6. Please Rate the Following Trail Features

	1 (Poor)	2 (Fair)	3 (Good)	4 (Excellent)	N/A	Response Count	Rating Average
Maintenance of Trails	4	15	17	1	7	44	2.41
Safety of Trails	2	15	17	2	7	43	2.53
Cleanliness of Trails	2	12	20	2	7	43	2.61
Accessibility of Trails for Persons with Disabilities	13	8	5	1	10	37	1.78
Clarity of Signage	3	20	12	0	7	42	2.26
Amenities (benches, trash receptacles, bike racks, etc)	9	19	4	0	8	40	1.84
Clarity of Municipal Trail Maps	11	13	8	0	7	39	1.91
Availability of Trail Information	12	14	7	0	6	39	1.85
Natural Views Available from the Trail	11	15	8	2	6	42	2.03
Surface of the Trail	5	13	8	6	6	38	2.47
Overall Design of the Trail	4	13	13	2	6	38	2.41
Overall Quality of the Trail	5	16	8	3	6	38	2.28
Other:	6	3	0	0	6	15	1.33

1. These ratings apply only to Lagoon City - Brechin Trail
2. Don't have alot of experience on the designated trails but haven't seen a lot advertised
3. Not enough experience with Ramara Trails to comment
4. Which trails would you like us to rate????
5. Have only used trail from Lagoon City to Brechin
6. from a snowmobiler's point of view, we pay attention to all of these features and or necessities
7. Trail from Brechin to Lagoon City has large gravel surface which is unsafe for bicyling.
8. Haven't used the trails here
9. Lagoon City to Brechin trail needs weeds cut--very poor for biking
10. This is yet another item for Ramara Township to raise taxes. As if they aren't high enough already. Ramara is good at wasting tax dollars on roads that don't need repaving, administration bldgs that are way larger than they need to be. The list goes on.
11. Integration to adjacent muni's trail network
12. Lagoon to Brechin Trail is lousy
13. what do you mean by safety of the trail

Appendix B: Trail User Questionnaire Results

7. As a trail user, please select which factors you perceive as barriers to the current trail system.

	Response Percent	Response Count
Connectivity	73.10%	38
Safety	19.20%	10
Accessibility	21.20%	11
Maintenance	30.80%	16
Trail surface	38.50%	20
Information availability (maps, markers, brochures, etc)	34.60%	18
None	1.90%	1
Other:	9.60%	5

1. Private landowners are the single largest barrier to an interconnecting trail system
2. no trails accessible from our location without using a car
3. Lack of trails in the south part of the township.
4. Other than OFSC trails I didn't know Ramara had a trail system, I don't think I've heard people talk of them and I doubt many people in the Township would use them.
   I also feel tax payers may NOT want money spent on developing and maintaining a trail network. Even spending money on this survey may be considered a waste of tax-payer money!
5. lack of paved trails suitable for road bikes whichlink to the north (washago) and southwest (to Brechin) which avoid Rama Road (12 to the Casino) and Highway 12,
   as traffic count makes these roads far too dngerous for road bike usage

8. What trail surface do you most prefer?

	Response Percent	Response Count
Asphalt pavement	48.10%	25
Concrete pavement	0.00%	0
Crushed stone	28.80%	15
Packed earth	11.50%	6
Other	11.50%	6

1. I've had flat tires from the crushed stone in the past, I prefer a hard surface that won't damage my bike tires
2. I think the current focus of any budget should be on acquiring more trails and not expensive surfacing.
3. snow
4. Packed & Groomed snow
5. snow
6. None

Appendix B: Trail User Questionnaire Results

9. On a scale of 1 to 5, what features would you like to see included in the trail system?

	1 (Not Desired)	2	3 (Somewhat Desired)	4	5 (Very Desired)	Response Count	Rating Average
Benches	6	8	18	4	7	43	2.95
Trail markers	3	3	8	10	24	48	4.02
Trash receptacles	5	7	13	7	15	47	3.43
Recycling receptacles	9	6	10	5	14	44	3.20
Water fountains	16	9	8	2	4	39	2.21
Washrooms	8	5	19	4	10	46	3.07
Bike racks	16	9	9	5	1	40	2.15
Telephones	19	11	4	0	2	36	1.75
Educational markers & signage	4	6	8	9	10	37	3.41
Other	7	0	0	2	2	11	2.27

1. it's counterproductive when being active and having to make your way through plumes of tobacco smoke. Having the trails smoke-free is also an important component of active transportation.
2. I would prefer more trails and less facilities (except benches and litter)
3. Paper trail guides along each path
4. heritage or history of area signs or markers
5. Many of these features don't seem to fit a wilderness type trail are unnecessary expenses.
6. Township in debt open up back road lagoon city toCon7 and save lives
7. Trees for shade along Lagoon City to Brechin trail
8. location and directional
9. Trail expansion that link together township's settlement areas
10. Washrooms in high density areas. At library, sttores, etc bicycle storage lockers.

10. Would you consider spending a part or all of your vacation exploring trails within the Township of Ramara?

	Response Percent	Response Count
Yes	86.80%	46
No	13.20%	7

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Appendix C
List of Contacted Stakeholders

Organization	Contact
Ramara Recreation & Leisure Advisory Committee	Ms. Cathy Wainman
Ramara Trails Committee	Ms. Annalynn Faulkner
Orillia Trails Committee	Mr. Jeff Duggan & Mr. Ray Merkley
Ganaraska Hiking Trail Association Inc	Mr. Mike Pidwerbecki
Huronia Trails and Greenways	Ms. Frieda Baldwin
Simcoe Muskoka District Health Unit	Ms. Lori Hunter
City of Kawartha Lakes Engineering Department	Mr. D. Kehoe.
Township of Brock	Ms. Cathy Gray
Town of Gravenhurst	Mr. G. Carleton
Township of Severn	Mr. C. Cameron
City of Orillia	Mr. Jeff Duggan
Orillia District Snow Mobile Club	*general contact*
Mid Ontario Snowmobile Trails	*general contact*
Carden Sno-drifters	*general contact*

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Appendix D
Displays from Joint Public Consultation Session

WELCOME TO THE PUBLIC CONSULTATION SESSION December 9, 2010

for

TOWNSHIP OF RAMARA ACTIVE TRANSPORTATION STUDY

You can participate in this project through the following activities:

- Please sign in at the attendance register
- Review the displays for the project
- Ask questions of the Township Staff/Consultants present
- Fill out a Trail User Questionnaire
- Let us know your opinions about the project
- Submit any comments you may have regarding the information presented (comment sheets are provided)

STUDY BACKGROUND

What is the purpose of this public meeting?

- This public meeting is intended to advise the public of the project and review the Consultant's recommendations for improving the existing trail network and establishing policies for the construction, maintenance and administration of a trail system.

- The public is invited to view the displays, ask questions of the Consultant and provide comments, either in writing, in person, or through the trail user questionnaire.

What is Active Transportation?

- Active Transportation Plans (ATP) seek to connect communities and enable efficient, direct routes between public spaces, residential areas, and commercial and institutional developments. An effective Active Transportation Plan encourages healthy transportation choices, increases physical activity, promotes safe, responsible transportation behaviour, increases community mobility and reduces air pollutants by replacing vehicle trips with walking and cycling trips.
- Active Transportation is designed to include all user types and ages, from cyclists to pedestrians, from children to the elderly.

How does this affect the Township of Ramara?

- The Township of Ramara Active Transportation Plan will provide recommendations on new trail systems, connections within the trail network, trail features and design standards and will address the following points:

    - Recommended policies for adoption into the Official Plan
    - Barriers and accessibility
    - Recommended trail standards for widths, surfaces, signage and features
    - Recommended enforcement strategies
    - Inter-regional connection opportunities

KEY ISSUES & PROJECT IDENTIFICATION

The Township of Ramara is looking to expand their trail network so as to encourage residents and visitors to make active lifestyle decisions.

Currently, the Township has 3 municipal trails…

- Ramara Trail
- Rama Road Trail
- Brechin – Lagoon City Trail

… and one inter-regional trail, the Ganaraska Trail.

ISSUE: Discontinuous Trail Network

SOLUTION:

- Using a phased implementation approach, connect all major communities and established areas through a variety of trails:
  - on-road extended shoulder (low volume / low speed roads only)
  - parallel and separate to roads
  - off-road (abandoned rail lines / unopened road easements)

ISSUE: Maintenance & Accessibility

SOLUTION:

- Design trails as per recommended standards to increase the range of potential users, including persons with disabilities
- Develop a regular and seasonal trail assessment and maintenance plan to keep ahead of problems before the arise

ISSUE: Under-utilization

SOLUTION:

- Make available comprehensive trail guides and information & actively advertise the network to improve awareness
- Print media: maps, guide books, informational brochures
- Digital media: online exposure through Township website, Simcoe County GIS mapping software, Ontario Trails Council, local and regional recreational clubs
- Provide trail improvements and facilities that encourage increased trail use (e.g., benches, informational/education signage, etc)

STUDY APPROACH

Study the Existing System

- Assess existing trail conditions
- Classify existing barriers to trail network
- Identify major connection needs and demands

Solicit Trail User Feedback

Through the online trail user questionnaire, the following trail topics were explored:

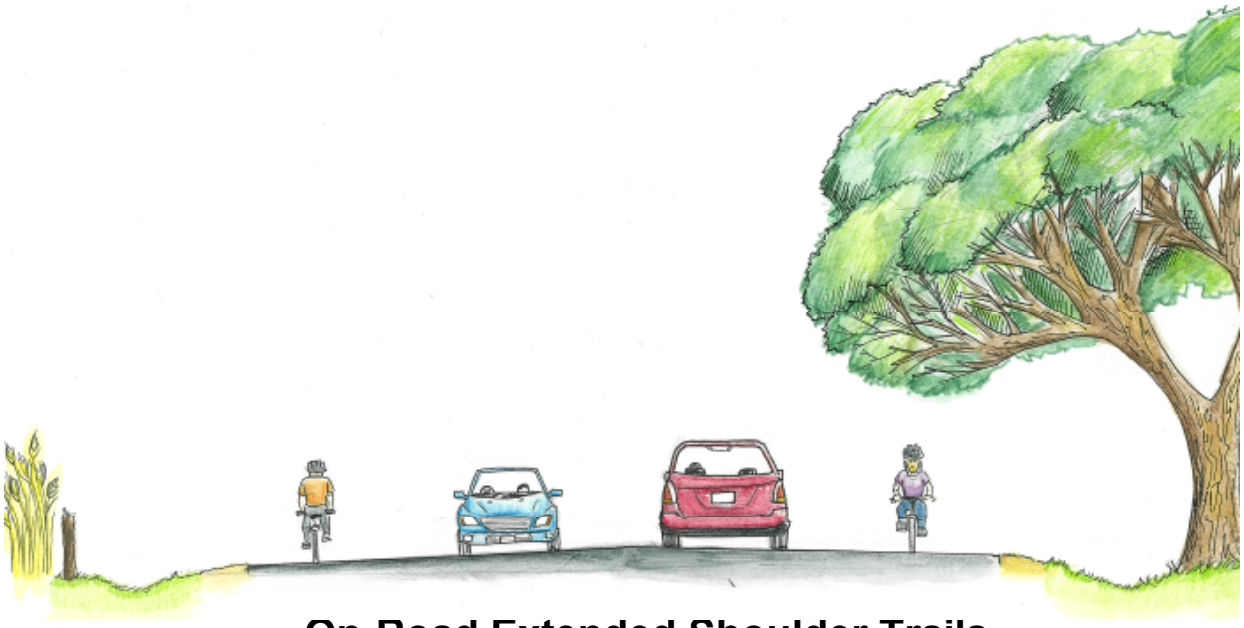
- User groups' interest
- Primary trail transportation modes
- Primary trail uses
- Existing trail network usage
- Connection preferences
- Feedback on existing trail system & perceived barriers
- Trail characteristics & features preferences

Propose Recommendations

Based on information gathered, develop recommendations regarding:

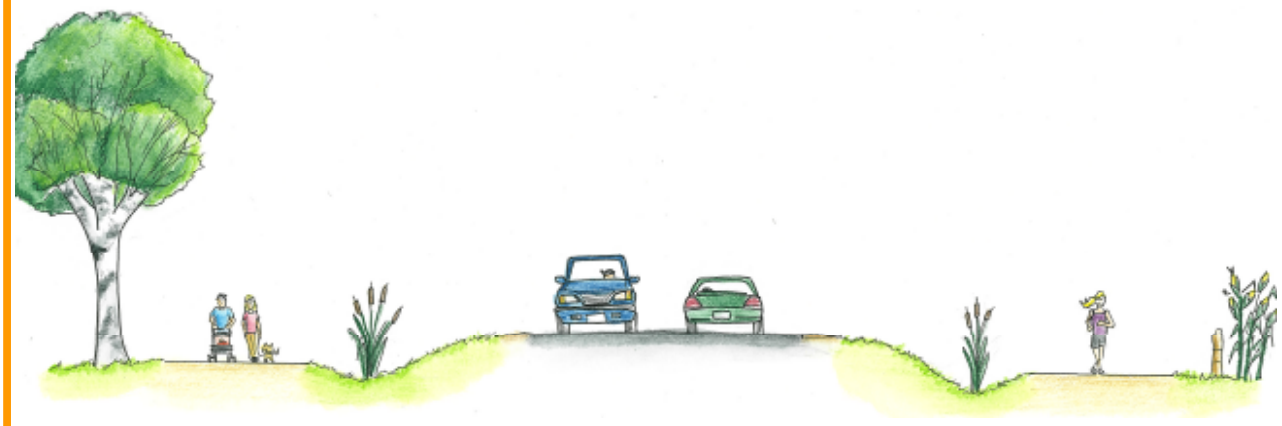
- Trail network connections within Ramara and connections to surrounding municipalities
- Design standards
- Policies for adoption into Ramara's Official Plan
- Funding strategies and partnerships
- Public education

TRAIL CORRIDOR TYPES



On-Road Extended Shoulder Trails

- Intended for low-speed, low-volume local roads
- Used where space is unavailable along the side of the road or where sidewalks are present for pedestrians
- Predominantly for cycling
- Trail surface matches adjacent paved road surface
- Recommended trail surface: asphalt



Trails Parallel and Separated from Roadway

- Can be used on any type of road (local, arterial, collector or highway)
- Trail surface can be asphalt, concrete, or limestone screenings
- Intended for all user types
- Recommended trail surfaces: asphalt or limestone screenings

TRAIL CORRIDOR TYPES

Off-Road Trails
(abandoned rail lines, unopened easements)

- Follow unopened road easements, utility corridors and abandoned rail lines
- Trail surface can be asphalt, concrete, or limestone screenings
- Intended for all user types
- Recommended trail surface: asphalt or limestone screenings

RECOMMENDED POLICIES

Amendments to the Township's Official Plan are suggested to implement various trail policies. These amendments include:

- Map identifying existing and future trail networks
- Trail corridor protection plan through unopened road easements, abandoned railways and right-of-way allowances
- Trail design standards (width, grades, materials, etc)
- Trails policies for new developments

TRAIL USER QUESTIONNAIRE

The public was invited to complete a trail user questionnaire regarding their use of and preferences for trails in the Township of Ramara.

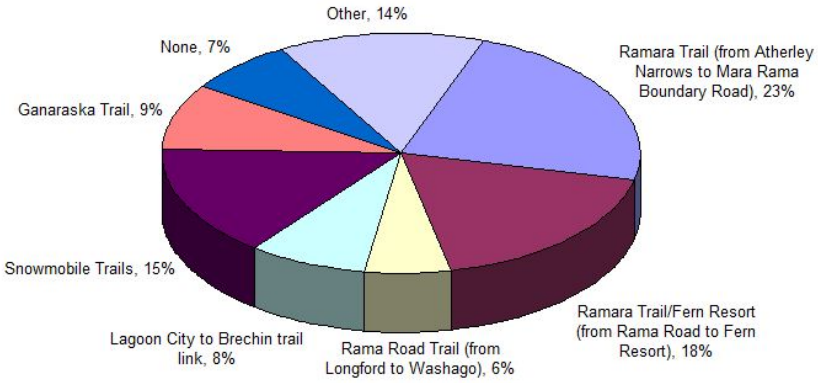
Questions were available on the Township website (www.ramara.ca) and were sent to area user groups. Questionnaires are also available at this public consultation session.

Feel free to offer additional comments by:

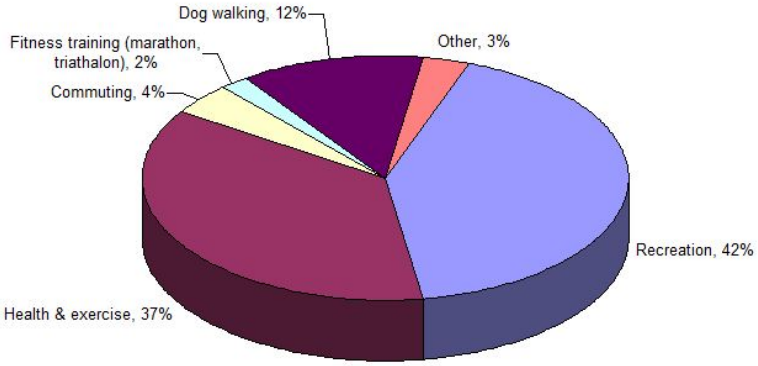
- Filling out a Trail User Questionnaire
- Submitting comment sheets
- Contacting the Consultant at:

Justine Hrycay, EIT
RJ Burnside & Associates Ltd.
3 Ronell Crescent
Collingwood, ON L9Y 4J6
Tel: 1-888 240 4508
Fax: 705 446 2399
E-mail: Justine.Hrycay@rjburnside.com

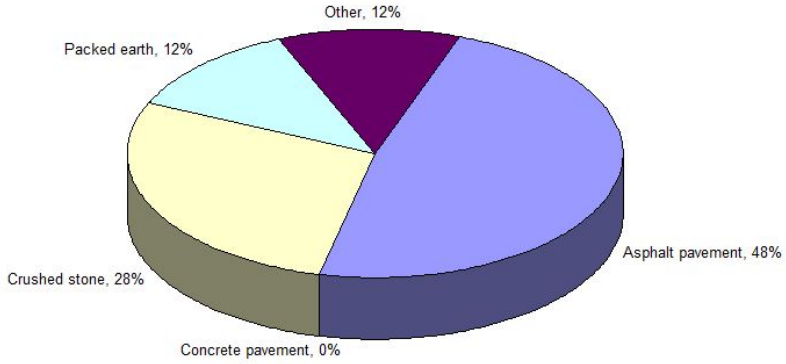
RESULTS TO DATE FROM TRAIL USER QUESTIONNAIRE



Existing Trail Use

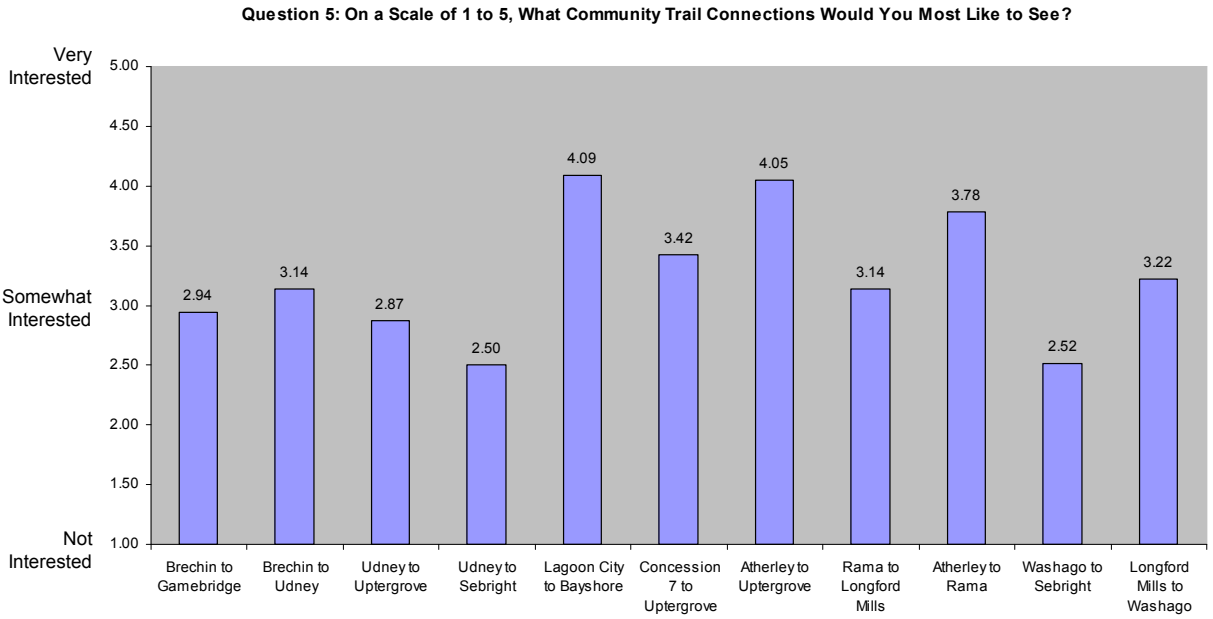


Primary Trail Uses

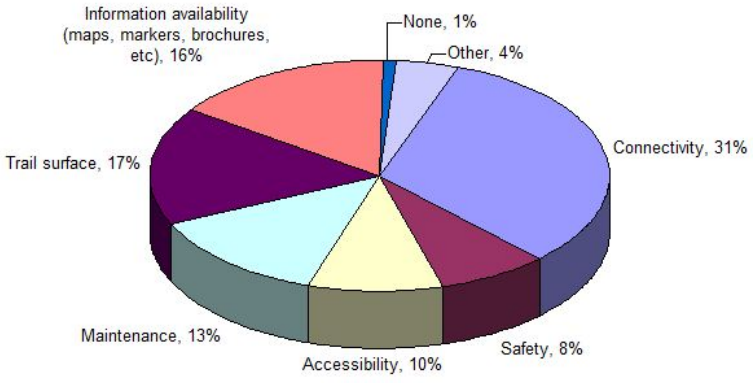


Trail Surface Preference

RESULTS TO DATE FROM TRAIL USER QUESTIONNAIRE



Desired Trail Connections



Perceived Existing Trail Barriers

NEXT STEPS

1. **Revise recommendations based on ongoing feedback from online questionnaire & public consultation session**

2. **Deliver final report for the Township's review**

Appendix E
Resources

The following is a list of resources and contacts that may be useful during the planning, funding and promotion stages of the Township of Ramara trail system network.

Hike Ontario: http://www.hikeontario.com/

Huronia Trails and Greenways: http://www.simcoecountytrails.net/

Ministry of Health Promotion – Healthy Communities Fund: http://www.mhp.gov.on.ca/en/healthy-communities/hcf/default.asp

National Trails Coalition: http://www.ntc-canada.ca/index.php

Ontario Heritage Trust – Plaque Program: http://www.heritagefdn.on.ca/userfiles/HTML/nts_1_2638_1.html

Ontario Heritage Trust – Trails Open Ontario: http://www.heritagefdn.on.ca/userfiles/HTML/nts_1_8764_1.html

Ontario Rural Economic Development Program: http://www.omafra.gov.on.ca/english/rural/red/

Ontario Trails Council: http://www.ontariotrails.on.ca/

Ontario Trillium Foundation: http://www.trilliumfoundation.org/

Provincial Recreation Organizations: http://www.mhp.gov.on.ca/en/active-living/recreation/organizations.asp

Recreational Infrastructure Ontario: http://www.ic.gc.ca/eic/site/708.nsf/eng/home

Simcoe County Geographical Information Systems Mapping: https://maps.simcoe.ca/

Simcoe Muskoka District Health Unit: http://www.simcoemuskokahealth.org/Home.aspx

TD Friends of the Environment Foundation: http://www.fef.td.com/

Trans Canada Trail Ontario: http://www.tctontario.ca/

Trans Canada Trail: www.tctrail.ca

Ganaraska Hiking Trail Association Inc.: www.ganaraska-hiking-trail.ca

Orillia & District Snow Mobile Club: www.sledorillia.com

Mid Ontario Snowmobile Trails (OFSC District 8): www.most.on.ca

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Appendix F
Signage Dimensions

The following is a list of suggested signage for the trail network. Signage posted for road users should comply with the Ontario Traffic Manual (OTM) regulations. Signs that appear in the USMUTCD but not the OTM are marked with an asterisk (*). Non-OTM signs may still be used where they are applicable, except for along Highway 12 unless special permission is granted by the Ministry of Transportation Ontario (MTO).

Table F.1: Dimension Guidelines for Signs on Trails

Sign	OTM Code	USMUTCD Code	Minimum Sign Size, mm (in)	
			Shared-Use Path	Roadway
Stop	Ra-1	R1-1	450 x 450 (18 x 18)	750 x 750 (30 x 30)
Yield	Ra-2	R1-2	450 x 450 x 450 (18 x 18 x 18)	750 x 750 x 750 (30 x 30 x 30)
Bike Lane	Rb-84,84A	R3-17	–	750 x 600 (30 x 24)
Bicycle Lane Supplemental Plaques	Rb-84t,85t	R-17a,b	–	750 x 300 (30 x 12)
Movement Restriction	Rb-25,31,33,34, 35,35t	R4-1,2,3,7	300 x 450 (12 x 18)	450 x 600 (18 x 24)
Begin Right Turn Lane Yield to Bikes*	–	R4-4	–	900 x 750 (36 x 30)
No Motor Vehicles*	–	R5-3	600 x 600 (24 x 24)	600 x 600 (24 x 24)
No Bicycles	Rb-67	R5-6	600 x 600 (24 x 24)	600 x 600 (24 x 24)
No Pedestrians or Bicycles	Rb-68	–	-	600 x 600 (24 x 24)
Snowmobile Route	Rb-64	–	600 x 600 (24 x 24)	600 x 600 (24 x 24)
No Snowmobiles	Rb-65	–	600 x 600 (24 x 24)	600 x 600 (24 x 24)
No Pedestrians	Rc-12	R9-3a	450 x 450 (18 x 18)	450 x 450 (18 x 18)
No Parking Bike Lane*	–	R7-9,9a	–	300 x 450 (12 x 18)
Bicycle Wrong Way*	–	R5-1b	300 x 450 (12 x 18)	300 x 450 (12 x 18)
Ride with Traffic Plaque*	–	R9-3c	300 x 300 (12 x 12)	300 x 300 (12 x 12)
Bicycle Regulatory*	–	R9-5,6	300 x 450 (12 x 18)	–
Shared-Use Path Restriction*	–	R9-7	300 x 450 (12 x 18)	–
Railroad Crossbuck*	–	R15-1	600 x 112 (24 x 4.5)	1200 x 225 (48 x 9)

Turn and Curve Warning	Wa-2,3,4,5,6	W1-1,2,3,4,5	450 x 450 (18 x 18)	600 x 600 (24 x 24)
Arrow Warning*	–	W1-6,7	600 x 300 (24 x 12)	900 x 450 (36 x 18)
Intersection Warning	Wa- 11,12,13,14,15	W2-1,2,3,4,5	450 x 450 (18 x 18)	600 x 600 (24 x 24)
Stop, Yield, Signal Ahead	Wb-1,1A,2	W3-1,2,3	450 x 450 (18 x 18)	750 x 750 (30 x 30)
Narrow Bridge	Wa-24,70t	W5-2	450 x 450 (18 x 18)	750 x 750 (30 x 30)
Bikeway Narrows*	–	W5-4a	450 x 450 (18 x 18)	750 x 750 (30 x 30)
Hill*	–	W7-5	450 x 450 (18 x 18)	600 x 600 (24 x 24)
Bump or Dip*	–	W8-1,2	450 x 450 (18 x 18)	600 x 600 (24 x 24)
Bicycle Surface Condition*	–	W8-10	450 x 450 (18 x 18)	600 x 600 (24 x 24)
Advance Grade Crossing*	–	W10-1	375 Dia. (15 Dia.)	375 Dia. (15 Dia.)
Bicycle Crossing Ahead / Bicycle Warning	Wc-14	W11-1	450 x 450 (18 x 18)	600 x 600 (24 x 24)
Pedestrians Ahead / Pedestrian Crossing	Wc-7	W11-2	450 x 450 (18 x 18)	600 x 600 (24 x 24)
Low Clearance	Wc-26	W12-2		
Playground	Wc-3	W15-1	450 x 450 (18 x 18)	600 x 600 (24 x 24)
Share the Road Plaque*	–	W16-1	–	450 x 600 (18 x 24)
Diagonal Arrow Plaque*	–	W16-7p	–	600 x 300 (24 x 12)
Bicycle Guide*	–	D1-1b	600 x 150 (24 x 6)	600 x 150 (24 x 6)
Bicycle Parking*	–	D4-3	300 x 450 (12 x 18)	300 x 450 (12 x 18)
Bike Route*	–	D11-1	600 x 450 (24 x 18)	600 x 450 (24 x 18)
Bicycle Route Sign*	–	M1-8	300 x 450 (12 x 18)	300 x 450 (12 x 18)
Bicycle Route Supplemental Plaques*	–	M4-11,12,13	300 x 100 (12 x 4)	300 x 100 (12 x 4)
Route Sign Supplemental Plaques*	–	M7- 1,2.3,4,5,6,7	300 x 225 (12 x 9)	300 x 225 (12 x 9)