

CHAPTER 6 SUPPORTING TRAILS

6.1 Introduction

Even before the build out is complete trails require support. Once the network is complete, trails will continue to require support so that they can become and remain a vital component of the recreation and transportation system in Guelph.

Support for trails has many facets. These include:

- Promoting trails to raise awareness and encourage more user participation, seek participation in trail building, annual programs and events, awareness and encouragement, and to recognize those who have contributed directly or indirectly to the development of trails;
- Educating users about the proper use of trails through public service campaigns, trail signing, information on trail etiquette, cooperative programs with agencies to deliver messages about trail use, teaching skills related to specific trail user groups;
- Managing risks to both the trail user and the owner of the trail;
- Taking care of the trails once they have been constructed (monitoring and maintenance).

6.2 Promoting Trails

Promoting trails to raise awareness and encourage more use is one of the key building blocks in supporting trails. The more success that the City and its trail development partners have with getting positive messages out about trails, the easier it will be to garner support and the will to proceed with subsequent phases of construction and other support programs. Messages about the trails can take a number of forms and be delivered by a number of methods as described below.

6.2.1 Establishing A Trail Advisory Committee

As one of the first steps following the completion of the GTMP and to ensure that the implementation plan moves forward, it is recommended that a Trail Advisory Committee be established. This committee should be composed of a broad cross section of individuals, similar in nature to the structure of the Steering Committee set up for development of the GTMP. The Trail Advisory would report to Council through a staff representative and the Community Services Committee. One of the first tasks for the Advisory Committee should be to establish a Terms of Reference defining their roles and responsibilities. Some of the suggested duties for the Trails Advisory Committee are to:

- Provide input to Staff and Council (through Community Services Committee) on trail user issues, policies and programs on an ongoing basis;
- Discuss trail issues and opportunities;
- Assist city staff in assessing annual priorities for the construction of city-sponsored segments of the trails as noted in the implementation plan;
- Monitor the implementation of the GTMP;

- Provide representation for the variety of trail user groups and other stakeholders they represent and in doing so, disseminate information to trail related groups;
- Identify and assist with the development of partnerships for implementation and management of the trail system;
- Assist with the organization of, and participate in trail action and event days such as trail cleanups;
- Assist with public relations and promotional programs where appropriate;
- Participate as volunteers in trail initiatives and programs;
- Prepare an annual report to Council (through Community Services Committee) summarizing accomplishments at the end of each year, set the work plan for the upcoming year.

A separate committee is preferred. However, if it is determined that this is not appropriate, an existing committee may be an acceptable approach provided that the additional responsibilities can be managed effectively without compromising their primary role. The City should determine the appropriate structure and reporting relationship for a Trails Advisory Committee. This committee should become active as soon as possible as part of the ongoing implementation of the GTMP.

6.2.2 Awareness and Encouragement

The Heart Health Knowledge Attitude and Beliefs Survey (Wellington-Dufferin-Guelph Community Heart Health Network, 2002) provided some interesting facts about trail use as it relates to awareness of trails.

- In Guelph, 63% of respondents are aware of trails and use them more than once per year and 34% use them weekly or more than once per week;
- Of those respondents who do not use the trails, 27% said that this was due to a lack of time and 26% noted that they were unaware of trails;
- Only 57% of respondents were aware of the availability of any maps and guides.

Therefore, it is reasonable to assume that increasing awareness of trails and availability of trail related materials will lead to an increase in trail use. The following are some potential avenues for raising awareness and educating users about trails.

Partnering with Private Businesses

Employers can play a key role in influencing decisions made by their employees regarding how they travel to and from work every day. Corporate policies and operations can encourage or discourage certain travel choices. For example, as part of the Region of Waterloo's Transportation Demand Management initiatives, partnerships have been developed with several large employers to offer an entire range of travel options. This has resulted in programs to develop commuter cycling routes, the encouragement of traveling groups, the provision of parking and end of trip facilities, and the development of training programs for employees who are interested in cycling to work as well as incentives to those that participate in the program. In Guelph, there are several large businesses that are easily accessible using the trail system. A pilot program with one of the larger businesses in the Hanlon Business Park may be a good starting point to working with private business to help their employees make alternative choices about how they travel to and from work.

A second less direct method of partnering with private business is to work with selected landowners whose property may offer opportunities to create critical links in the trail system or to provide loops on or adjacent to their property to serve their employees. Wellington Laboratories participated in the creation of a critical link between the Hanlon Commuter Trail and Southgate Drive, making it much more convenient for pedestrians and cyclists to use the existing trail system to travel to and from work. Walker

Industries in Thorold, Ontario has recently designed and constructed a 1.8km trail loop on their property to provide trail opportunities for area residents as part of a “good neighbour” campaign, and to provide a venue for fresh air and exercise for their own employees.

Using these as positive examples, the City should continue to seek opportunities to partner with private business.

Recognizing Private Partners

It is important to recognize the efforts of private business when they partner with the City. Recognition through the media for efforts that encourage more trail use is a very positive way of showing partners that the city appreciates their contribution and is free advertising for the trail system. The City of Toronto hosts an annual “Bicycle Friendly Business Awards” program, which is an excellent public relations event that helps to encourage private businesses to participate in promoting cycling. Winners are presented with a plaque and are recognized in the local media for their participation.

Where contributions are made that improve conditions of the trail (e.g. providing trail amenities, creating links across private properties etc.) the city should investigate methods of recognizing this effort at the location it is made. This can be done with donor signs and plaques. Tastefully designed and located, these can provide recognition of efforts without creating visual clutter. There are several potential partners that have expressed a sincere interest in improving the trail system in exchange for recognition of their efforts. Many trails across the country have been built this way.

The City should develop and implement programs to recognize private partners that contribute to trail development in Guelph.

Partnering with Agencies and Public Service Campaigns

Opportunities also exist for the City to develop partnerships with private businesses that provide services to a large sector of the population. City staff have begun a media campaign in partnership with the Wellington-Dufferin Health Unit to deliver important messages on healthy living choices and activities that residents can participate while using the trail system. The campaign is to include radio spots, regular articles and special features in local papers.

Partnerships with agencies can include jointly produced promotional or educational literature in magazines, materials distributed through offices, materials on or linked to corporate/agency websites.

Partnerships with agencies can also include co-participation in annual events related to trail use. Events such as the Terry Fox Run and other fundraisers, and events such as Ride to Work Week, the Clean Air Campaign and Earth Day are natural matches for Guelph’s trails. Allowing staff time to contribute to the organization of these events that use parks and trails is a simple, cost effective way to spread the word about using the trail system. The Manulife Ride for Heart in Waterloo and the Tour de Grande in Cambridge for example, attract thousands of cyclists to one-day fundraisers that use trails extensively, providing visibility through extensive media coverage at essentially no cost to the owners of the trail.

The City should take advantage of opportunities to develop partnerships with agencies as a method of spreading the word about trails and encourage greater trail use in Guelph.

Links to Other Modes of Travel

Many municipal and regional governments have successfully linked their trail and bikeway systems with other modes of travel such as bus, rail and air. The GTMP route network does provide connections with transit stops, and rail nodes. Trail amenities, in particular properly designed bicycle parking facilities should be provided at main nodes such as rail stations, major city bus transfer points, and intercity bus stations.

To enhance travel by bus, many Ontario cities have added bicycle racks to some or all buses. Ottawa, Toronto, Windsor and the Region of Waterloo are a few examples. As demand for trail and bicycle use in Guelph increases, the city should examine the feasibility of a bicycle racks on buses program.

Trail Ambassador Program

Many municipalities have successfully implemented trail ambassador programs. This program involves teaming a staff leader with summer students who attend events and functions organized by private businesses and agencies, camps and related recreation programs, where they promote the use of the trails and in some cases teach certain skills such as cycling. In addition, ambassadors ride the routes and trails, hand out trail brochures, provide assistance to users, and monitor the condition of facilities.

Trail patrols travel the entire trail system on a regular basis and can be trained to take note of, and report observations related to trail surface conditions, vandalism, user-conflicts, environmental degradation and overgrown vegetation to Parks Operations staff. In addition, the ambassadors are available to the public and can gather important data on user satisfaction, and can educate trail users about proper trail etiquette.

A trail ambassador program is more typical of a mature trail system. As the trail system in Guelph continues to grow and mature, the City should investigate the opportunity to implement a trail ambassador program. In the interim, training park maintenance staff (including seasonal staff) to carefully observe and take note of trail conditions as part of their day-to-day maintenance role is an effective way to assist Parks Operations in keeping track of trail conditions.

6.2.3 Education

Interpretive programs and signs, either self guided or as part of a wider natural and cultural heritage education program, offer endless opportunities to raise awareness about the privilege of using trails. More importantly, the need to educate users about their obligations as responsible trail users is an integral part managing the network. Posting signs is a useful way to get messages out to trail users and can be a good tool for building positive relations where neighbours have raised concerns about trail use. They help to send the message to trail users and neighbours that the city is aware of concerns, the situation is being monitored and action has been taken.

Trail Maps

During the public consultation process for the GTMP, the Study Team had many requests for trail maps. This request is not unique to Guelph. In fact trail maps are one of the most overlooked opportunities to spread the word about trails. Maps inform users where the routes are, plus they provide an opportunity to educate trail users through messages such as “rules of the trail” and trail user etiquette. Though expensive to produce initially, maps can be updated with the release of new additions as the system grows, making the initial investment pay for itself over time. The City should investigate the development and production of a trail map/trail and bicycle route map, with a goal to produce a first addition over the short term. Many other municipalities have produced local trail maps and have used a variety of techniques such as selling advertising space to offset the cost of production and distribution.

6.3 Liability and Risk Management

Risk management must be addressed in a proactive manner. Adjacent landowners share many of the same concerns as the trail owner. Some of the questions commonly asked include:

- What third party liability will be incurred if I own or manage a section of public trail and a trail user hurts themselves?;
- What is the liability of the adjacent landowner if a public trail is their neighbour?

The experience in Ontario is that individuals will always have the ability to sue for damages incurred on a trail. Whether or not they are successful comes down to the design and implementation of an effective risk management strategy. Issues of liability are addressed in Ontario largely under the authority of the Municipal Act, for municipal lands, the Occupiers Liability Relief Act for public and private lands and the Highway Traffic Act and the Ontario Public Transportation and Highway Improvement Act for provincial highways. In addition, the Trespass to Property Act deals with illegal access to private lands.

The risk management strategy is developed by the owner of the trail, but requires some participation on the part of the trail user. Specifically, it is assumed that:

- Generally, users of the trails and bike routes are presumed to be personally responsible for their own safety and should be reminded of this through educational programs, including signing at trail access points;
- Where on-road bikeways are part of the system, the design and layout of such assumes that users have a fundamental knowledge of the “rules of the road” and etiquette;
- Users have the responsibility to educate themselves (and others) about appropriate trail use, including, but not limited to: codes of behaviour, use, ethics, user conflicts and policing/enforcement.

Most provincial trail organizations have worked with the insurance industry and developed policies for their member clubs and organizations. At this time insurance coverage is available to groups and organizations that hold membership with the Ontario Trails Council (OTC). The OTC comprehensive insurance package was developed in direct response to liability issues surrounding trails. The policy covers officers and directors of local trail management groups, the trail itself (structures, trail surface, amenities etc.) trail users, and there are provisions for adjacent landowners.

Many municipalities and conservation authorities cover their trails as extensions of their park and conservation lands systems. Coverage varies, but in many cases premiums have not been increased with the addition of the trails.

User safety is likely the highest priority for most trail network master plans and is closely connected to an education strategy and trail design standards. It also involves a comprehensive understanding of user needs and expectations balanced with the most appropriate design details and support mechanisms to create as safe a system as possible. Signage is one of the key ways to address the issue of risk management. Signs should identify designated uses, directions and warnings of potential hazards.

Reasonable care must be taken to ensure that trails are free from danger. Regular inspection and records showing the dates of inspection, the state of the trail, hazards, required repairs or remedies and the actions taken to correct the hazards should be pursued and the records maintained. Establishing and demonstrating an emergency response mechanism is an essential method of establishing comfort about landowner and user safety.

6.4 Monitoring and Maintaining Trails

6.4.1. Comparisons Among Municipalities

As part of developing maintenance recommendations for Guelph’s trails, interviews were conducted with representatives of over a dozen municipalities in southern Ontario to assess best management practices for trail maintenance.

The following is an outline of information requested/questions asked.

1. *What kinds of tasks are you currently performing for trail maintenance (during all 4 seasons) (i.e. are there weekly, monthly, and annual tasks)?*
2. *Do you maintain any trails in winter? If yes, how do you decide which ones to do, and how do you prioritize within that list?*
3. *How do you know where critical trail issues are? Do you perform safety audits, if so how often? Do you have trail patrols, do you rely on concerns raised by trail users and calling in to a "hot line"?*
4. *Do city forces complete all of the maintenance, are there some tasks that you contract out (not including construction of new trails)?*
5. *Do you carry a separate budget item for trail maintenance or do you have to squeeze this out of other budgets?*
6. *Do you know how much you spend per year on trail maintenance overall, or better yet averaged out by kilometre?*
7. *Do you use any specialized equipment for trail maintenance? If so, what?*
8. *Do you have written policies/standards for the maintenance of trails?*
9. *What are the most notable successes with trail maintenance, what are some of the things that continue to be a big challenge?*

The following is a summary of responses received:

- Mowing grass along edges of trails is performed on a regular basis. Depending on trail location this may be weekly, biweekly or monthly, width varies from 0.5m to 2.0m depending on municipality and location and helps to keep clear zone open. It can also help with weed control and the invasion of weeds into granular trail surfaces.
- There is regular garbage pickup (10 day cycle), with receptacles located at the ends of trail segments where they can be easily accessed for service vehicles.
- Some are experimenting with in-ground garbage receptacles in high use areas where they are finding the need to empty overflowing containers more often than their regularly scheduled pick-up. These are specially designed units that hold more, are set in vaults below grade. They don't blow or get knocked over, look better and don't need to be serviced as regularly.
- Grading/grooming surface of granular trails is done once per year or as required after heavy storm events in areas prone to erosion.
- Annual pruning of vegetation along the side of trails is important to stop woody vegetation from encroaching on the sides of trails and maintain sight lines which is especially important where number of users and speeds are higher.
- Many report that erosion is a big challenge, and that "trail hardening" with asphalt on the slopes is the best way to prevent further erosion.
- Some have tried other soil binding compounds for trails on slopes that are constantly eroded. Mixed success is reported.
- Asphalt surfaces on trails have a life span of about 15-20 years. Many report that they are now having to go back and reconstruct many of their trails that were installed in 1970's and 1980's, they are finding them to be too narrow to meet today's volumes of use, variety of trail users and high demand for trails.
- Trails that were properly constructed in the first place (adequate base, well compacted, properly drained), have the fewest problems from a maintenance point of view.

- Most do not use chemicals for weed control, occasionally “Round-up” is used under special circumstances or for problem areas. Some have been experimenting with alternatives such as steam and close mowing.
- Most have trail patrols or supervisors (often by district) that review the trail conditions on a regular basis (as often as weekly) to assess conditions and prioritize maintenance tasks/keep an eye out for problem areas.
- Most have a call in/hot line for areas requiring emergency repairs, or areas where garbage containers are heavily used (pick up garbage within 48 hours of call in). None of the hot lines are trail specific, most often included with a parks or even citywide hotline for parks, roads, infrastructure.
- Several have trained their mower operators to be more observant while mowing to take note of problem areas.
- Some have a maintenance logbook to set out a schedule of tasks, priorities, standards to be achieved and method of tracking that the work has been completed. They report that this also helps in being able to predict which trails require the most maintenance.
- Several reported having written policies that define how different types of trails will be maintained (what the maintenance goal/standard is, how that will be achieved etc). For those that do not have written policies, most are working toward this.
- Most conduct an annual safety audit, not necessarily specific to trails, often covered under the required general annual safety audit for parks, playgrounds and recreation facilities, personal security and safety.
- Tasks performed on a seasonal basis include culvert cleanout and trailside pruning.
- Tasks performed on a 3-5 year cycle include refurbishment of signs, cleaning and refurbishment of benches.
- Tasks performed on an as-required basis include moving or marking obvious hazards within 24 hours of their identification, inspection/monitoring of trail areas prone to damage following heavy storms, repair to vandalized items, minor repairs to structural elements such as bridges, trail surfaces, railings, benches, gates and signs.
- Major renovation/replacement of large items such as bridges, kiosks, gates, parking lots, and asphalt trail surfaces was generally described as a 10-20 year replacement item.
- Preventative or proactive maintenance, especially with regard to trail surface condition, signing, trash and vandalism (including graffiti) were cited as a key success factor.
- In most cases, parks crews, as part of their regular park maintenance role performed trail maintenance. Where extensive maintenance programs were reported, additional seasonal labour was added to the workforce (often summer students). For some cases volunteer “adopt-a-trail” programs were identified as useful for basic trail cleanup and monitoring.
- The most common complaints regarding trail maintenance included the condition of the trail surface, vandalism, broken glass on trail surfaces and litter.
- Most do not light their trails. Lighting is costly to install, costly to maintain, and can create the perception of false safety. Some “target light” specific problem areas where there are nearby observers to report inappropriate activities.
- Most do the work with their own forces, only “contracting out” new trail construction or major trail upgrades (i.e. asphalt placement where specialized equipment is required).
- The only special equipment noted for trail maintenance was a trail grader/groomer to level out the surface, and define trail edges.
- A few maintain their trails in winter. Of those, none reported that they maintain all of their trails in winter, rather they choose to plow only their asphalt trails, and only in areas that are heavily used

or are main connections for utilitarian purposes (connections to schools, main bicycle/pedestrian commuter routes). A reported average cost to maintain trails during winter was approximately \$350/km/winter, a cost that is very close to that for maintaining sidewalks during the winter months.

- Maintenance is generally handled under Parks Operations budgets, sometimes tracked as a separate trail maintenance budget, most often grouped in with other parks maintenance budgets. Those that track and are generally satisfied with the level of service provided to their citizens report about \$340-\$370/km/year for urban trails (not including any winter maintenance). This can be as low as \$25/km/year for rural trails (i.e. rail trails). These budgets address regular maintenance and upkeep tasks (materials and labour), but not major upgrades. Major upgrades (rebuilding, asphaltting, re-asphaltting, adding parking facilities, signage etc.) are carried under Capital budgets.
- City of Guelph budgeted \$69,200 for maintenance tasks in 2004. Of this amount, approximately half is for materials, half for labour. This amount is to cover trail, parking lot and park road maintenance for all parks.
- In most cases, respondents felt that they could do a better job at trail maintenance, but were limited by resources (staff and time).

6.4.2 Recommendations for Guelph

A maintenance system provides the framework to plan, prioritize, schedule, and track maintenance work by:

- Setting specific maintenance goals and standards for levels of service;
- Developing the necessary maintenance programs that will provide those levels of service;
- Executing those programs using the most efficient combination of resources;
- Controlling and evaluating the effectiveness of the work in relation to the desired level of service;
- Furnishing cost data from which budgets can be built.

The first step in implementing a maintenance and management program is to determine its scope. Trail plans, maps, inventories, trail logs, traffic count information and condition surveys are all valuable sources of information for developing maintenance management systems.

A trail log will provide an inventory of the physical features on or adjacent to the trail. The log should be updated when inventoried features are modified, replaced, removed, or when other features are added. Trail logs are useful in the development of the maintenance budget and in determining the total to maintain the trail system. Maintenance logs are also useful when performing maintenance work by contract. If kept current, logs may be used to prepare documentation for contract packages, and show the location of structures and other features that require maintenance.

Maintenance Levels

Maintenance levels can be assigned to trails on the basis of criteria such as level of use, potential to affect resources, safety considerations, and tendency toward problems (vandalism, erosion etc.) Once maintenance levels are established, they should be reviewed and updated annually. When assigning maintenance levels, higher priority should be given to trails where use is significant. Trail counters can be used to collect and record traffic volume data. This data collection should proceed on a continuing basis to provide needed information for planning, developing, monitoring, and confirming maintenance levels. Guelph recently acquired a trail counter and intends to begin using it in 2005 to monitor trail participation rates in different parts of the city.

Maintenance Standards

Maintenance standards should be established to document work requirements to meet the acceptable physical standard, the acceptable end product for a maintenance level, or for a particular activity. The maintenance standard is met when all the work activities listed on the standard are completed.

6.4.2.1 The Maintenance Program

The objectives of the Trail Maintenance Program are to:

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

Approach

Maintenance tasks are written from the perspective of the end user. The perspective of the end user helps to define the expected outcome of the service action, how often it will be performed and what an acceptable response time is following notification of a problem (i.e. vandalism of trail sign) or event (i.e. significant rain event). Task descriptions are not intended to be prescriptive and will evolve with time. They are not meant to tell maintenance crews how to perform the task(s); rather the focus is on the outcome or result that is to be achieved when the task is complete.

Format

Outcome: *defines the main outcome- what is to be achieved (from the users' perspective).*

Description: *describes the intent and scope of the standard, and defines the outcome of the standard.*

Service Level: *defines the frequency or response time to achieve the desired standard.*

Trail Maintenance Classification (Priority):

Maintenance priorities are based on the relative importance of the facility within the scope of the entire network. Relative level of importance considers factors such as level of use by trail users (both utilitarian

and recreational), access and mobility requirements, and availability/proximity of alternate facilities that receive an equal or higher priority ranking.

Priority rankings are divided into Classes A, B and C depending on factors noted above, where A is given the highest priority and C is the lowest. Where site-specific conditions are known to cause maintenance concerns (i.e. more frequent maintenance required due to trouble spots), a Class B or C priority can be “bumped up” to a B or A.

Table 6 provides a summary of maintenance class priority ranking according to off-road route type and hierarchy within the network.

Off-Road Trail and On-Road Route Type (by Hierarchical Category)			
Maintenance Priority Class	Primary	Secondary	Tertiary
<p>Class A</p> <p>Highest priority for maintenance, most regular maintenance and shortest response time.</p>	<p>Off-road trails and on-road routes in special tourist or business areas.</p> <p>Off-road and on-road routes and trails that serve as major or community wide links to major destinations or direct access to key transit services (major recreation facilities, community centers, employment areas).</p> <p>Specific segments or locations (on or off-road) as determined, or site-specific cases where specific conditions or circumstances have historically resulted in the need for more frequent maintenance.</p>	<p>Off-road trails and on-road routes in special tourist or business areas.</p> <p>Off-road and on-road routes and trails that serve as major or community wide links to major destinations or direct access to key transit services (major recreation facilities, employment areas, community centers).</p> <p>Specific segments or locations (on or off-road) as determined on site-specific cases where specific conditions or circumstances have historically resulted in the need for more frequent maintenance.</p>	<p>Not given Class A designation.</p>
<p>Class B</p> <p>Moderate priority for maintenance, moderate period of time between regularly scheduled maintenance operations.</p>	<p>Off-road trails that serve as neighborhood wide links to local destinations such as schools.</p> <p>Other paved trails not included as part of Class A.</p>	<p>Off-road trails that serve as neighborhood wide links to local destinations such as schools.</p> <p>Other paved trails not included as part of Class A.</p>	<p>Off-road trails that serve as community wide links to major destinations.</p> <p>Specific segments or locations as determined on a site-specific case basis where specific conditions or circumstances have historically resulted in the need for more frequent maintenance.</p>
<p>Class C</p> <p>Lowest priority for maintenance, longest period of time between regularly scheduled maintenance operations.</p>	<p>Other off-road trails.</p> <p>Other granular surfaced trails not included as part of Class A or B.</p>	<p>Other off-road trails.</p> <p>Other granular surfaced trails not included as part of Class A or B.</p>	<p>Includes most tertiary trails.</p>

Table 6. Organization of Maintenance Priorities. The maintenance program is organized in a hierarchical manner. Class A priority is the highest, Class C is the lowest with respect to maintenance factors such as frequency of regularly scheduled maintenance, response time to non-emergency maintenance requests/situations, and tolerance of maintenance outcome or performance standard.

6.4.2.2 Trail Maintenance Tasks

Based on the system outlined in Table 6, a number of specific maintenance tasks are further described according to Outcome, Description, Standard, and Service Level.

A. Routine Trail Patrols:

Outcome: To have safe and passable trails by monitoring and reporting on conditions that could pose a hazard to trail users.

Description: Routine Trail patrols include the visual monitoring and reporting of conditions.

Standard: Travel all trails in one direction to visually observe and report hazards. Patrols are to be carried out during daylight hours.

Service Level: As a minimum, all trails are to be inspected at least once per year, though more frequent inspections are recommended as follows:

- Primary with A maintenance level: once per week.
- Primary with B maintenance level: once per month.
- Primary with C maintenance level: once year.
- Secondary with A maintenance level: once per month.
- Secondary with B maintenance level: once per season.
- Secondary with C maintenance level: once per year.
- Tertiary with B maintenance level: once per year.
- Tertiary with C maintenance level: once per year.

B. Snow Removal, Snow and Ice Control (Optional for Consideration)

Very few municipalities maintain their trails during winter months. Those that do so tend to clear only certain trails that are primary commuter routes. Within this selection, some have a priority ranking system. The city should consider a winter trail pilot project to gain a better appreciation for the maintenance of trails in winter (how much it costs, how well it gets used, public perception of the effort).

Outcome: To create safe, passable trails by reducing the hazard(s) caused by the accumulation of snow and ice.

Description: The standard applies to city-owned trails that are a part of the network and that are designated for winter maintenance (under pilot program). The standard applies to the removal of snow and ice and to remove trapped water on the trail bed.

During weather periods subject to freeze-thaw cycles, monitor the conditions of trails and provide spot application of abrasives or deicing materials.

Service Level: To be undertaken as soon as practicable after becoming aware of the snowy/icy conditions.

- Primary with A maintenance level: 3-6 hours (ice) 16 hours (snow). Minimum depth of snow accumulation for deployment of resources 5-8cm.
- Primary with B maintenance level: not maintained in winter.
- Primary with C maintenance level: not maintained in winter.
- Secondary with A maintenance level: 12 hours (ice), 24 hours (snow). Minimum depth of snow accumulation for deployment of resources 10cm.

- Secondary with B maintenance level: not maintained in winter.
- Secondary with C maintenance level: not maintained in winter.
- Tertiary with B maintenance level: not maintained in winter.
- Tertiary with C maintenance level: not maintained in winter.

C. Hard Surfaces (including cycling facilities on-road)

Outcome: The outcome of maintaining hard surfaces is to provide safe hard surfaced trails and on-road cycling facilities by removing surface hazards and extending the service life of the component.

Description: The standard applied to distortions on paved surfaces such as paved trails and road surfaces (cycling lanes and signed routes that could create a risk to off-road trail and on-road connecting link users). Some operations cannot be carried out between November 30th and April 15th due to temperature limitations. Where these cases occur, temporary measures will be required if it is determined that the conditions create a safety hazard for the users.

Some maintenance aspects are unique to on-road cycling facilities that are included as part of the trail network. These include:

- Street Sweeping and Debris Removal: Sand left over from winter road maintenance and leaves allowed to accumulate in bike lanes can be hazardous to cyclists. Sweeping crews should be instructed to pay particular attention to the right edge of the road along designated bikeways. Another useful strategy is to organize the spring sweep so that roads with bike lanes and routes are swept first, recognizing the potential hazard to cyclists of not doing so.
- Snow Plowing: On-road routes should be cleared as part of the regular removal and de-icing of roadways. A priority-shift to include roads with bike lanes and routes that serve major origins/designations (e.g. Universities) should be considered.
- Pothole and Surface Irregularities: Catch basin covers, service covers and roadway edges are the first places that cracking, heaving and breakup of asphalt occur. A 2cm vertical ridge and a 1cm groove paralleling the direction of travel can be hazardous to cyclists. The condition of road surfaces particularly near the curb and at corners/intersections is one of the most common complaints about on-road cycling facilities. Patching and pavement overlay procedures may have to be increased to meet these tolerances within the traveled portion of the bikeway.
- Signing and Pavement Marking: Maintain on-road route and regulatory signs in the same manner that other roadway signs are maintained. Renew lane markings and symbols at the same time that other roadway lane markings are renewed.

Standards: The following criteria are used as maximums for allowable distortions in the surface:

- Bumps or depressions causing the ponding of water on at least one third of the width of the trail surface, or cycling surface where on-road links form the network connection;
- Drop-offs at the edges of pavement greater than 5cm in height over a horizontal distance of 20m. Vertical discontinuities greater than 2.5cm;
- Cracks (especially parallel cracks) greater than 5cm wide by 2.5cm deep by 2.5cm long;
- Potholes greater than 10cm in diameter and 2.5cm in depth.

Service Level: Distortions that pose an immediate hazard to the users are to be clearly marked as soon as practicable, but not greater than 4 hours from the time of becoming aware of the situation or condition.

Surface conditions are to be repaired within the following time periods of time identified and marked:

- Primary with A maintenance level: 14 days.
- Primary with B maintenance level: 14 days.

- Primary with C maintenance level: 30 days.
- Secondary with A maintenance level: 30 days.
- Secondary with B maintenance level: 30 days.
- Secondary with C maintenance level: 30 days (hard surfacing applies only in special circumstances/conditions).
- Tertiary with B maintenance level: 30 days.
- Tertiary with C maintenance level: 60 days (hard surfacing applies only in special circumstances/conditions).

D. Granular Trails (Primary, Secondary and Tertiary)

Outcome: The main outcome of maintaining granular surfaced trails is safe and passable trails for all users by removing surface hazards and extending the facility's lifespan.

Description: The standard applies to distortions on granular surfaced trails. Some operations cannot be carried out between November 30th and April 15th due to temperature limitations. Where these cases occur, temporary measures will be required if it is determined that the conditions create a safety hazard for the users.

Distortions include: bumps, ruts, protruding large rocks and boulders, or potholes that result in water ponding, and other vertical discontinuities.

Standards: The following criteria are used as maximums for allowable distortions in the surface:

- Bumps, depressions or ruts causing the ponding of water on at least one third of the width of the trail surface;
- Drop offs or ruts at the edges of the trailbed greater than 10cm in height over a horizontal distance of 20m. Vertical discontinuities including protruding boulders greater than 5cm;
- Potholes greater than 10cm in diameter and greater than 5cm in depth.

Service Level: Distortions that pose an immediate hazard to the users are to be clearly marked as soon as practicable, but not greater than 4 hours from the time of becoming aware of the situation or condition.

Surface conditions identified as hazards should be repaired within the following time period of being identified and marked:

- Primary with A maintenance level: 14 days.
- Primary with B maintenance level: 14 days.
- Primary with C maintenance level: 30 days.
- Secondary with A maintenance level: 30 days.
- Secondary with B maintenance level: 30 days.
- Secondary with C maintenance level: 30 days.
- Tertiary with B maintenance level: 30 days.
- Tertiary with C maintenance level: 60 days.

Scheduled Grading for Granular Trails:

Granular trails will receive surface grading on a scheduled basis according to the Facility and Maintenance Class. Grading will include "topping up" of the surface materials where appropriate.

Minimum Frequency for Trail Grading:

- Primary with A maintenance level: once per calendar year.
- Primary with B maintenance level: once per calendar year.
- Primary with C maintenance level: once per calendar year.
- Secondary with A maintenance level: once per calendar year.
- Secondary with B maintenance level: once per calendar year.
- Secondary with C maintenance level: once per calendar year.
- Tertiary with A, B or C maintenance level- no regular grading, spot improvements only to remove distortions (based on observations by trail patrols).

E. Trail Drainage Systems

Outcome: The main outcome of maintenance to trail drainage systems is to permit their ongoing function as intended in order to reduce the potential for flooding and associated conditions that could present a safety hazard or that could degrade the quality of the infrastructure.

Description: This standard applies to all drainage structures associated with trails, including but not limited to culverts, drainage ditches, swales, dry wells and French drains.

For on-road routes, standards and service levels will correspond to those identified for the road(s) upon which they are located.

Standards:

Priority A: Obstructed drainage systems causing flooding that poses a hazard to the users or deterioration that poses an immediate safety hazard to the users.

Priority B: Partially obstructed drainage systems causing intermittent water backups that do not pose an immediate safety hazard but that if left unchecked over time will adversely affect the integrity of the trail and any other trail infrastructure or the surrounding environment (natural or urban settings, public or adjacent private properties).

Service Level:

Priority A: Clearly marked as soon as practicable, but not greater than 4 hours from the time of becoming aware of the situation or condition. Repair within 24 hours. Where repair is not immediately possible the damaged section of trail must be closed and signed immediately.

Priority B: Repair within 30 days.

F. Trail Furnishings and Amenities

Outcome: The main outcome of maintaining trailside furnishings and amenities is an enhanced quality of life by making these assets accessible to the public in a manner that is safe and that will maximize the lifespan of the asset.

Description: The standard applies to all furnishings and related amenities.

Standards:

Priority A: Damage/condition that presents an immediate hazard (public liability).

Priority B: Damage/condition that impairs the intended function of the asset.

Priority C: Damage/condition that will shorten the lifespan of the asset if left unchecked, and/or damage/condition that is unsightly (excessive dirt, graffiti).

Service Level:

- Priority A: Repair or removal as soon as practicable, not longer than 24 hours after becoming aware of the condition.
- Priority B: Within 30 days for repair, but remove damaged portion within 48 hours of becoming aware of the situation to prevent/discourage further damage or prevent the damage from becoming a hazard.
- Priority C and D. Schedule into planned maintenance and attend to as soon as is practicable. In the case of graffiti containing hate messages, this should be attended to within 24 hours.

G. Grass Cutting

Outcome: The outcome of grass cutting is to maintain aesthetic conditions along the edge of the trailbed and to maintain a clear zone along the edges of the trail that is free from obstacles and potential hazards.

Description: Grass cutting maintains turf at a uniform height which is beneficial to the grass plant, encourages a more dense turf, reduces thatch buildup and discourages the establishment of some weed species. Regular mowing also helps to slow down the process of vegetation invading the trail bed from the edges.

Not all trails will have mown edges. In woodland and wetland areas, pruning and brushing is typically the only vegetation maintenance to be undertaken.

Standards: The height of cut will range between 75 and 125mm depending on location, point of time during the growing season and the mowing standard being applied in the immediate surroundings (where applicable).

Service Level: To correspond to service level in adjacent area (where applicable). Where there is no mowing in the adjacent area (i.e. naturalized area), two cuts per active growing season should be applied, the first in late spring or early summer and the second in mid to late fall.

H. Pruning and Brushing

Outcome: The outcome of pruning is a safer trail environment for users through the removal of plant materials that obstruct trailside signs and block sightlines along the trail.

Description: Pruning involves the cutting of branches along trail edges that encroach into the clear zone and or operating area of the trail. All pruning is to be performed using trained personnel and correct horticultural technique.

Standards: Branches and brush are to be cut to eliminate sightline obstructions or encroachments that could impact on trail users.

Priority A: Assigned to trail intersections, trail crossings of roadways, sharp curves and all areas where branches pose an immediate hazard by encroaching significantly into the operating area of the trail.

Priority B: Assigned to straight sections of the trail and areas where branches may be encroaching into the clear zone of the trail, or slightly into the operating area of the trail. Priority B is considered to be more of a preventative maintenance operation.

Cuttings may be chipped on site and placed appropriately or used as mulch for new plantings. If not chipped on site, they should be removed except in the case of trails through woodlots or in environmental buffer areas. In woodlots, buffers and other naturalized settings, cuttings can be placed in a naturalistic manner away from the trailbed. Cuttings can also be used to discourage traffic on unauthorized side trails that are to be closed. Where invasive species are being pruned and/or removed, cuttings must be disposed of in an approved manner.

Service Level:

Priority A: Within 24 hours of becoming aware of the condition. Where this is not possible, signing should be erected in both directions along the trail at least 30m in advance of the obstruction followed by pruning and removal as soon as practicable after the signs have been erected.

Priority B: Within 72 hours of becoming aware the problem, or scheduled into the annual maintenance program, whichever comes first.

Summary

Parks Operations in consultation with Risk Management and Public Works should:

- Consider the program outlined above as a starting point for developing a trail maintenance program that is effective and within the City's means;
- Develop maintenance priorities for designated routes as part of the trail maintenance program;
- Continue to share trail maintenance experiences among area municipalities with the goal to develop consistent maintenance standards;
- Continue to develop and maintain a data management system based on the information collected as part of the GTMP inventory to track maintenance schedules, monitor problem areas, and assist with decision-making regarding trail maintenance;
- Regularly evaluate the results of applying the trail maintenance program with the goal to improve it over time. Part of this evaluation should involve feedback from the trail users in a structured format.

6.4.3 The Trail Management System

The Trail Management System is a method of collecting and managing information using Global Positional System (GPS) and Geographic Information System (GIS) technology. The type and accuracy of data collected will assist with decision-making for trail maintenance and new trail development. As part of the GTMP inventory, a number of attributes were recorded in the field. These included:

- Trail alignment;
- Trail width;
- Trail type (park, river, rail trails, etc.);
- Surface (asphalt, granular, earth, etc.);
- Surface condition;
- Longitudinal slope;
- Vertical clearance;
- Side clearance;
- Cross slope;
- Liabilities (steep slopes, trail erosion, etc.);
- Assets (seating, recreational amenities, trail markers, etc.);
- Junctions; and
- Signs (location and type).

The Trail Management System uses the City's GIS base map that serves as the framework for graphic information and the database created as part of the GTMP. Graphic data such as trail routing and data points were recorded with a GPS unit and imported into the GIS base map. Each data point is numbered and corresponds to the location where trail attributes were collected. Field data was then incorporated into the database, which allows it to be analyzed in a variety of ways.

The Trail Management System should be updated as new trail construction takes place and maintenance/repairs are completed. The database can be modified to suit the City's needs over time and will become a long-term management tool to help the City understand, organize and set priorities for the future.

6.5 Updating the GTMP

The GTMP is not intended to be a static document. It is to serve as a guide for the City in its effort to achieve the goal of a linked system of trails that is supported by appropriate policies and programs. It has been developed based on current needs, issues and priorities along with experiences from other municipalities having similar goals. The GTMP attempts to look into the future and predict where Guelph may be five, ten and twenty years from now. It is inevitable that needs, issues and priorities will change, therefore the GTMP must evolve to continue to be an effective planning tool.

In addition to the recommended annual review of projects completed, and the establishment of priorities for the coming year by Parks Planning (Section 6.2.1), the entire GTMP should be reviewed and updated every five years so that it will continue to be current with changing needs in Guelph and evolving trail practices, guidelines and standards at the regional, provincial and national level.