



DISTRICT OF HIGHLANDS

ROADSIDE TRAIL & CYCLE NETWORK

MASTER PLAN - JUNE 30, 2010



ROADSIDE TRAIL & CYCLE NETWORK MASTER PLAN - JUNE 30, 2010

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1. OVERVIEW

District of Highlands Council has authorized the preparation of a roadside trails master plan.

Municipal trails can serve an important role in connecting residents with each other and with nearby parks and municipal facilities. They encourage outdoor activity and provide health benefits to all residents. In recent years, there has been a movement towards improving universal accessibility, so that trails are designed to serve the needs of all users, including parents with strollers, people in wheelchairs, or other residents with mobility difficulties.

Highlanders are proud of the system of parks and trails in our community. There are trails within provincial and regional parks, and some designated trails in road rights-of-way and municipal parks. On routes without roadside trails, Highlands roads are often used as trails.

This plan, which focuses on municipal road rights-of-way, provides a planning framework, an assessment of resident opinions, an evaluation of trail standards, routes, and costs, and implementation recommendations.

The proposal is to establish trails along Millstream Road, Millstream Lake Road south of Munn Road, most of Munn Road, and Woodridge Place, as shown on the map in Appendix A.

2. PLANNING FRAMEWORK

OFFICIAL COMMUNITY PLAN

The Highlands OCP (Section 4.4) states that;

- “The District of Highlands will create a network of recreational trails that will be publicly accessible for designated non-motorized modes of travel. The public will be consulted regarding proposed new trails.”
- “The District will develop an overall plan for Highlands trail acquisition, development and maintenance, including a budget and a statement of priorities.”

Highlands Official Community Plan Map 4.1 shows a number of roadside trails within municipal rights of way, including along Stewart Mountain Road, Highlands Park Terrace, upper Millstream Road, Hazlitt Creek Road and Old Mossy Road. These trails are now typically difficult to locate and/or overgrown. Some may have been planned but not constructed. The 2009 trails survey confirmed low use of these trails.

SUSTAINABILITY TASK FORCE

The Highlands Sustainability Task Force Report (Recommendation 8) states that;

- “The Sustainability Task Force recommends that Council prioritize a multi-use trail near Millstream Road from Caleb Pike House to the border with Langford, preferably away from the road, the primary purpose of which is to provide non-motorized commuting alternatives.”

2001 DISTRICT OF HIGHLANDS PARKS AND RECREATION MASTER PLAN

The 2001 District of Highlands Parks and Recreation Master Plan recommended the following related to trails (Principle 4.3.4);

- The system of recreation facilities and trails should address the needs and desires of all age-groups of Highlands residents, including youth and seniors
- Trails should be designed as multi-use or hikers, equestrians and cyclists where possible

2002 DISTRICT OF HIGHLANDS TRAILS MASTER PLAN

In 2002, The Highlands Trails Advisory Committee prepared a Trails Master Plan identifying goals, principles, and objectives for a trail network in the municipality. The report also identified guidelines for single use and multi-use trails to accommodate pedestrian, equestrian and bicycle use. Proposed Trail Network Map 2 shows existing and proposed trails throughout the Highlands.

Recommendation 6.4 Roadside Trails states:

- “Develop roadside trails along all major roads in the Highlands”
- “Build roadside trails along Millstream Road, Millstream Lake Road to Munn Road, Munn Road and Woodridge Place”
-

2000 CAPITAL REGIONAL DISTRICT PARKS MASTER PLAN

The 2000 CRD Parks Master Plan identifies trails within regional parks as well as the section of the regional trail system through the Highlands. The master plan is currently under review.

1996 GOWLLAND TOD PROVINCIAL PARK MANAGEMENT PLAN

This plan identifies the trail system within Gowlland Tod Park and park trailheads.

3. PLANNING ISSUES

CONNECTIONS TO OTHER TRAILS

The proposed Highlands roadside trail system connects to a number of regional and provincial parks, as well as the regional trail system. The Millstream Road trail links to the Caleb Pike trailhead, Lone Tree Park and the Emma Dixon trail in Gowlland Tod Provincial Park, and the Munn Road trail connects with the south trailhead for Mount Work Regional Park and trails south into Thetis Lake Regional Park. The Woodridge Road trail ends at an existing access trail serving Mount Work Park.

TRAILS OVER PRIVATE LAND

It is an objective to have roadside trails located off road edges, where possible. In many cases, this can be accomplished within the road right of way. In some cases, it would be desirable to locate the trail over adjacent private property in order to provide separation between the trail and road.

There are certain major corridors where roads exist without an actual right of way and the right of public passage ends at the road edge. The only potential trail route is across private land.

There are several ways in which trails can be located over private lands:

1. where the owner is willing, a trail easement can be created. The owner would agree to allow a public trail over their property, and the municipality would build and maintain the trail. In such case, the owner would be indemnified, and the municipality would assume all liability.
2. the owner and municipality can negotiate a lot line adjustment to add land to the road right of way for an off road trail.
3. lands for a municipal off-road trail corridor can be acquired at the time a property is rezoned or subdivided.

4. TRAIL USER SURVEYS

The 2001 District of Highlands Parks and Recreation Master Plan survey questionnaire indicated that the majority of respondents (69%) supported more trails. It was considered important to cater to all age groups and, where possible, to design trails for multi-use by hikers, horse riders, and cyclists. Issues cited were improving roadside safety for children and linking different areas of the Highlands.

In 2009, a resident survey was conducted to obtain information on present trail use and trail objectives. A summary of responses is presented in Appendix B.

In April and May 2010, a survey was undertaken to evaluate response to Open House displays. A summary of responses is presented in the Appendix. Residents were invited to view plans of the proposed trail system along Millstream Road, lower Millstream Lake Road, Munn Road and Woodridge Place, and complete a questionnaire survey. Almost all of those attending expressed their support for the proposed trail plans and trail standards, and were in favour of multiple use by pedestrians and horse riders, and bike lanes along lower Millstream Road. Most were interested in having trails located off the road edge as much as possible. Almost all respondents indicated that they or members of their family would use the proposed trails, if they were built.

In terms of priorities, support was highest for a trail along the Millstream Road corridor and for bike lanes south of the Millstream Lake Road junction. There was also support for trails along lower Millstream Lake Road and Munn Road, and, to a lesser extent, Woodridge Place.

Some the issues addressed by residents were the need for more loop trails and east-west connector trails within the municipality, and the value of the District of Highlands working with landowners to acquire trail corridors or easements. Some residents expressed uncertainty over the status of some present trail routes, and the need to integrate municipal, regional and provincial trail planning within the Highlands. Appendix C presents a summary of responses.

5. TRAIL ROUTE ANALYSIS

An assessment was undertaken of the first priority routes identified in the 2009 survey, namely Millstream, south Millstream Lake and Munn roads, as well as Woodridge Place, which already has a roadside trail. The assessment involved an initial overview of the routes to determine the preferred side for a trail, considering the road shoulder width, distance and slopes beyond the shoulder, drainage requirements and adjacent rock outcrops. Objectives were to select a route with the greatest potential for an off-road trail, and to minimize the number of road crossings due to safety considerations.

Based on this assessment, a more detailed log was made of each trail route to determine where trails could be off-road or adjacent to the road edge, and where additional site works would be required. Road right of way locations were assumed based on CRD cadastral information and evidence on the ground. This information has been plotted onto the air photo mosaics for the four trail routes shown in Appendixes D and E. More detailed assessment of all routes will be required at the trail design stage.

In terms of disabled accessibility, survey respondents indicated that priority should be given to the Millstream trail, Caleb Pike Homestead and Twinflower Park. Attention will be required in detailing design plans for the Millstream trail with regard to meeting disabled accessibility requirements. Improvements have recently been made to the

trail width and surfacing within Caleb Pike Homestead, and there are proposals to provide a disabled accessible trail in Twinflower Park.

Routes were also examined to determine the potential for bike lanes. Millstream Road south of the Millstream Lake Road junction is the only route with a continuous paved shoulder on both sides of the road, and the potential to add bike lanes on other roads is limited.

MILLSTREAM ROAD TRAIL

The proposed trail along Millstream Road runs from the south boundary of the Highlands to the Gowlland Tod Park trailhead east of Emma Dixon Drive. The total trail route is 6.5 kilometers long.

The preferred route for the trail is the west side of Millstream Road. It is estimated that approximately 84% of the trail can be located off the road edge.

The intent is to connect with the existing roadside trail along the west side of Millstream Road in Langford. Major portions of the southern section within Highlands can be located off-road within parks and municipal property.

South of Millstream Lake Road, Millstream Road has paved shoulders, separated from the driving lanes by white lines, allowing the potential for minor widening to accommodate bike lanes. This section is 3 kilometers in length.

North of Millstream Lake Road, a trail bridge crossing will be required across Millstream Creek.

At Caleb Pike Road, there is potential for an off-road trail on the north side west from Millstream Road to the existing trail accessing Gowlland Tod Park. This trail could also serve a proposed disabled accessible trail within adjacent Twinflower Park.

The Millstream trail ends at the Emma Dixon Road trailhead to Gowlland Tod Park.

MILLSTREAM LAKE ROAD TRAIL

The proposed trail along Millstream Lake Road runs from the junction with Millstream Road to the junction with Munn Road. The total trail route is 0.95 kilometers long. It is estimated that approximately 89% of the trail can be located off the road edge.

The preferred route for the trail is the south and east side of Millstream Lake Road. This trail ends at Munn Road.

All of the trail section between Davies Road and Munn Road is proposed to be off the road edge.

MUNN TRAIL

For 1.4 kilometers east of the junction with Millstream Lake Road, Munn Road crosses private property, and there is no road right of way beyond the road edge. In order for this section to be undertaken, the District would need to try to negotiate permission for public access. The trail route from the 1.4 km point to the east boundary is 5.9 kilometers long. It is estimated that approximately 82% of the trail can be located off the road edge.

The preferred route for the trail is the south side of Munn Road for 492 meters, then crossing to the north side near the Mount Work trailhead. The proposed trail remains on the north and east sides of Munn Road to the Highlands east boundary. At Woodridge Place, the Munn trail connects with the Woodridge trail.

The Munn trail connects with regional trails leading south into Thetis Lake Park, and north into Mount Work Park. There is no trail linkage along Munn Road in Saanich between the proposed Highlands trail and existing off-road trails in Francis/King Regional Park. However, an off road trail which runs south from Munn Road through View Royal along the Highland Road right of way connects with trails in Thetis Lake Park and Francis/King Park.

WOODRIDGE TRAIL

The proposed trail along Woodridge Place runs from the junction with Munn Road to the junction with Blue Valley Road. The total trail route is 1.2 kilometers long. All of the trail is along the road edge.

The preferred route for the trail follows the existing road edge trail along the north and west side of Woodridge Place for 461 meters, then crossing to the east side on the location of the present trail. Recommended improvements to the present trail include some additional surfacing and widening, and minor trimming of edge vegetation.

The trail provides access to Eagles Lake municipal park, and a local trail along Eagles Lake Road and through municipal land connects to the regional trail which runs north/south along the power line access road on the Highlands east boundary.

North of Blue Valley Road, an existing trail along the east edge of Woodridge Place connects with a public trail access to Mount Work Park.

6. TRAIL STANDARDS

Based on an examination of trails in other jurisdictions, the following standards are proposed for the roadside trails in Highlands (see Appendix F)

1. Roadside Trails

- trail width 1.5 meters
- maximum trail grade equal to road grade
- cross slope 2%
- trail surface crush gravel screenings
- curb separating trail from pavement
- railings where edge drop exceeds 0.6 meters
- trail route signs

2. Off-Road Trails

- trail width 1.5 meters
- maximum trail grade 15%
- cross slope 2%
- trail surface crush gravel screenings
- railings where edge drop exceeds 0.6 meters
- minimum separation from road edge 0.5 meters
- trail route signs

3. Disabled Accessible Trails

- trail width 1.5 meters (minimum 1.2 meters)
- maximum trail grade 10%
- maximum sustained grade 5%
- cross slope 2%
- trail surface crush gravel screenings or wood boardwalk
- wood curbs where edge drop exceeds 25 mm
- railings where edge drop exceeds 0.6 meters
- disabled access trail signs

4. Bike Lanes

- lane width 1.5 meters (minimum 1.2 meters)
- maximum grade equal to road grade
- bike lane surface asphalt
- white line separating bike lane from vehicle lane
- bike route signs and markings on road

7. TRAIL CONSTRUCTION

Once the best trail alignment has been determined, construction involves vegetation removal within the area of works, control of water runoff, preparation of a suitable base, and selection of the most suitable surfacing materials.

Choices of surfacing include asphalt, concrete, wood chips, gravel screenings and natural earth. For bike lanes adjacent to roads, asphalt is the most common surface in this area, and provides an even, safe surface. Wood chips is a suitable surface for joggers and horse riders, but requires frequent replenishment due to material degradation. Earth trails are common in wilderness parks.

In the Capital Region, the preferred material for multi-purpose trails is crushed gravel screenings. Pathway Screenings, produced by Basic Rock Products, is used extensively by CRD Parks and many municipalities, and comprises a specified fine angular rock which compacts to a smooth, stable and durable surface which allows pedestrian use, wheeled use and horse use. The compacted surface deters weed growth and sheds runoff water.

8. TRAIL MAINTENANCE

As with municipal roads, roadside trails must be maintained. A trail that is kept in good condition is both safer, and more likely to be used by the public.

Based on the standards set for each trail type, a log is made of each trail. A schedule of regular maintenance activities is identified. Regular inspections by municipal staff and the contractor identify the trail condition, as well as routine action items. Non routine work, such as fallen tree removal, is undertaken based on agreed upon hourly rates. This work is typically undertaken through a trail maintenance contract.

It is proposed that an annual budget be identified for each completed trail section in the Highlands, to ensure that the trails remain in good repair and a safe condition.

9. TRAIL COSTS

Victoria Contracting and Municipal Maintenance Corporation has constructed many kilometers of trails in the Capital Region. Based on their costs for other municipal trails in the region, the following are the approximate unit costs for trail construction and maintenance, assuming the trail standards proposed for the Highlands:

TRAIL TYPE CONSTRUCTION MAINTENANCE

1. Roadside	\$ 110 /meter	\$ 7 / meter/yr
2. Off-Road	\$ 126 / meter	\$ 6 / meter/yr
3. Disabled Access	\$ 140 / meter	\$ 7 / meter/yr
4. Bike Lanes	\$ 25 / meter	\$ 1 /meter/yr

The above are basic construction costs, and do not include major rock fills, railings, boardwalks or bridges, and assume no changes to existing road alignments. More accurate costs will depend upon detailed trail designs for each route. Maintenance costs are approximate, and will be finalized once trail maintenance standards are set.

10. RECOMMENDATIONS

1. Trail Routes

The plan is for trails along the following roads;

- a. Millstream Road from the Langford boundary to the Emma Dixon trailhead including bike lanes south of the Millstream Lake Road junction
- b. Millstream Lake Road from Millstream Road to Munn Road
- c. Munn Road from 1.4 kilometers east of the Millstream Lake Road junction to the Highlands east boundary
- d. Woodridge Place from the Munn Road junction to Blue Valley Road
- e. Caleb Pike Road west from Millstream Road to the existing off road trail
- f. other roads as user demand warrants

2. Trail Priorities

The proposed Highlands roadside trail system totals approximately 15 kilometers. It will be important to prioritize and phase construction of trails to meet annual budget allocations.

Based on 2009 and 2010 resident survey responses, trail priorities are;

1. Millstream Road south of the Millstream Lake Road junction including bike lanes (3.0 km)
2. Millstream Road north of the Millstream Lake Road junction (3.5 km)
3. Munn Road from 1.4 km east of Millstream Lake Road to the east boundary (5.9 km)
4. Millstream Lake Road between Millstream Road and Munn Road (1.0 km)
5. Woodridge Place (1.2 km)
6. Other routes as warranted

3. Trail Standards

The standards for Highlands roadside, off road, disabled accessible trails and bike lanes are as described in Section 6 of this report, and as shown in Appendix F.

4. Routes Across Private Land

Negotiations should be undertaken between landowners and District of Highlands to obtain formal trail easements where there is no or insufficient road rights of way for trails along designated road corridors. Priority should be given to the 1.4 kilometer section of Munn Road east of the Millstream Road junction.

District of Highlands should take opportunities when they arise through rezonings and/or subdivisions to obtain lands and/or easements for off road trails along road corridors designated in this plan.

5. Coordination with Other Agencies

District of Highlands should make regional and provincial park agencies aware of Highlands trail plans, and obtain up to date plans of trails in regional and provincial parks within Highlands.

Trail map information and signage should be coordinated to allow trail users to know what users are permitted or not permitted on trails that intersect with Highlands trails.

6. Next Steps

In order to proceed with trail construction, it will be necessary to complete detailed design plans of the first priority trail section, Millstream Road south of the Millstream Lake Road junction. This will include establishing the road right of way boundary, preparing cross sections, determining the extent of fill and boardwalks, railings, bike lane widening, etc.

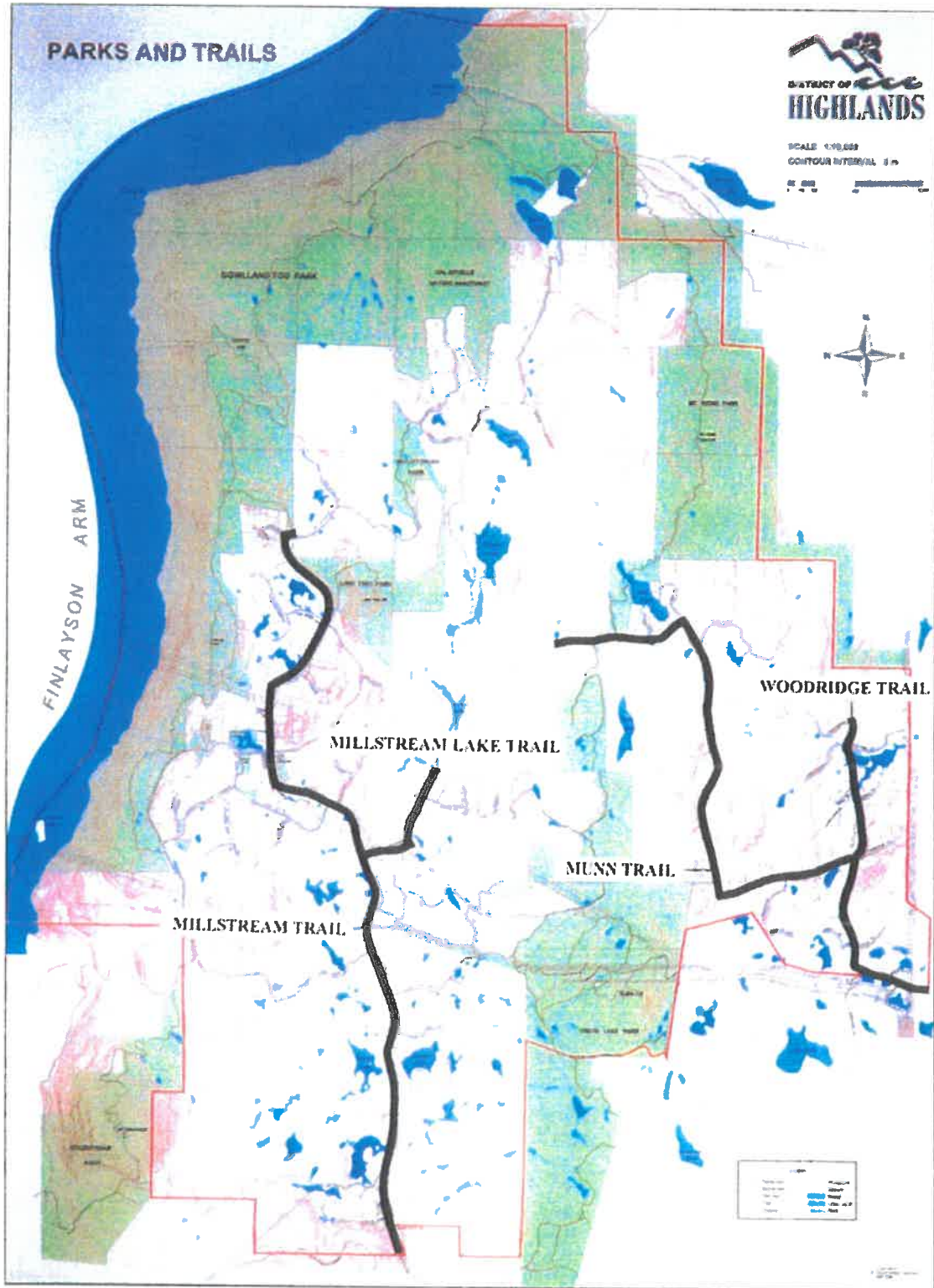
From these detailed designs, accurate cost estimates can be prepared to establish a budget and possible phasing plan.

Negotiations should proceed on establishing a trail easement along the 1.4 kilometer section of Munn Road east of the Millstream Lake Road junction.

Meetings should be held with regional and provincial park agencies related to trail plans, permitted users, and public information on maps and signs.

FOR ALL APPENDICES
PLEASE CONTACT THE
DISTRICT OFFICE

APPENDIX A OVERALL HIGHLANDS TRAILS MAP



APPENDIX B 2009 TRAILS SURVEY

1. *Do you or others in your family use public trails in the Highlands?
(if yes, please check)*

	Checked	Total Respondents	
Roadside trails	25	43	58.1%
Regional or Provincial park trails	37	43	86.0%
Highlands park trails	33	43	76.7%
Trail easements across private land	26	43	60.5%

Survey respondents indicate high use of provincial, regional and municipal park trails, and, to a lesser extent, Highlands park trails.

2. *Which Highlands roads or trails do you currently use for non-vehicle travel?*

Roads

Millstream (21)
Millstream Lake (15)
Munn (15)
Stewart Mt. (9)
Ross-Durrance (9)
Caleb Pike (6)
Davies (5)
Woodridge (4)
Taylor Way (2)
Other Roads (20)

Other Trails

Gowlland Tod (14)
Mt. Work (8)
Thetis Lake (6)
Lone Tree (4)
Bellamy (4)
Corry Road (2)
Other Trails (17)

Roadside Trails

Munn (6)
Woodridge (4)
Millstream (3)
Caleb Pike (3)
Highland Park Terrace (3)
Other Roadside Trails (4)

Respondents indicate that most Highlands roads are used for non-vehicle travel. Millstream, Millstream Lake and Munn roads are the most heavily used (brackets indicate number of responses).

3. *What is your purpose in using trails? (check applicable purposes)*

	Checked	Total Respondents	
Exercise / Recreation	42	43	97.7%
Visiting friends	15	43	34.9%
Travel to park, mailbox or a municipal facility	19	43	44.2%

Almost all respondents say that exercise and recreation are the main reasons they use Highlands trails. Fewer people indicate a social or other purpose.

4. *Do you use Highlands roads for non-vehicle travel? (if yes, please check)*

	Checked	Total Respondents	
Walking	41	44	93.2%
Running	13	44	29.5%
Cycling	25	44	56.8%
Horse Riding	4	44	9.1%

The survey indicates that most people use Highlands roads for walking and cycling. A minority use roads for running and horse riding.

5. *Are you or others in your family unable to use Highlands trails, parks, or facilities due to mobility difficulties?*

	Checked	Total Respondents	
Yes	4	44	9.1%
No	40	44	90.9%

Less than 10% of survey respondents report having mobility difficulties which prevent use of Highlands trails, parks and other facilities. Some residents indicate that existing trails are not suitable for people with disabilities.

6. *Which Highlands trails, parks, and facilities would be most important to make fully accessible?*

Preferences for accessible facilities included the following (brackets indicate number of responses):

Twinflower Park (4)	All facilities (3)
Gowlland Tod Park (4)	Lone Tree Park (2)
Pike House, School House & grounds (3)	Eagles Lake (2)
Millstream Road (3)	Other facilities (5)
Thetis Lake Park (3)	

7. *Are you concerned about the safety of pedestrians, cyclists or horse riders using roads you travel on?*

	Checked	Total Respondents	
Yes	38	44	86.4%
No	5	44	11.4%
(neither)	1		

A high percentage of respondents were concerned about roadside safety. The main safety issues raised by the survey were high traffic speed and inadequate road shoulders. Respondents expressed concerns primarily for pedestrians and cyclists and, to a lesser extent, for horse riders.

8. *In your opinion, would it be desirable to have a roadside trail along the road(s) you travel?*

	Checked	Total Respondents	
Yes	35	44	79.5%
No	7	44	15.9%
(neither)	2		

Of survey respondents, a large majority would like to see roadside trails along the roads they travel. A number of people who responded “yes” also indicated the importance of trails along major roads and concerns about trail costs and maintenance. A number of people who responded “no” indicated that roadside trails were not needed where traffic volumes were low.

9. *In your opinion, should roadside trails be:*

	Checked	Total Respondents	
Single purpose (pedestrians only)	3	44	6.8%
Multiple purpose (pedestrians, cyclists, horse riders)	39	44	88.6%
(neither)	2		

A large majority of survey respondents were of the opinion that roadside trails should be multi purpose. Among the reasons cited were the need to be inclusive of all user groups, and increased safety by having all users off the road. Six respondents who supported multi use trails had concerns about cyclists; of these, four respondents believed that cyclists could use roads, particularly if there was a paved shoulder.

10. *How important is it to have roadside trails located off the road edge, where feasible?*

	Checked	Total Respondents	
Important	30	44	68.2%
Not Important	10	44	22.7%
(neither)	4		

Over 2/3 of survey respondents believed that roadside trails should be off the road edge. Safety was cited as the main reason. Some residents indicated that off road trails were most important along main roads. Respondents who checked “not important” cited concerns about cost and maintenance.

11. *Which specific routes in the Highlands should be priorities for roadside trails?*

#1 priority route

Millstream* (24)

Munn (3)

Millstream Lake (3)

Ross Durrance (2)

Other routes (4)

*Seven respondents recommended particular sections of Millstream Road, particularly the area south of Twinflower Park.

#2 priority route

Munn (7)

Millstream Lake* (9)

Millstream (7)

Other routes (2)

*Most responses did not differentiate between Millstream Lake Road north or south of Munn Road.

#3 priority route

Munn (4)

Millstream (3)

Millstream Lake (2)

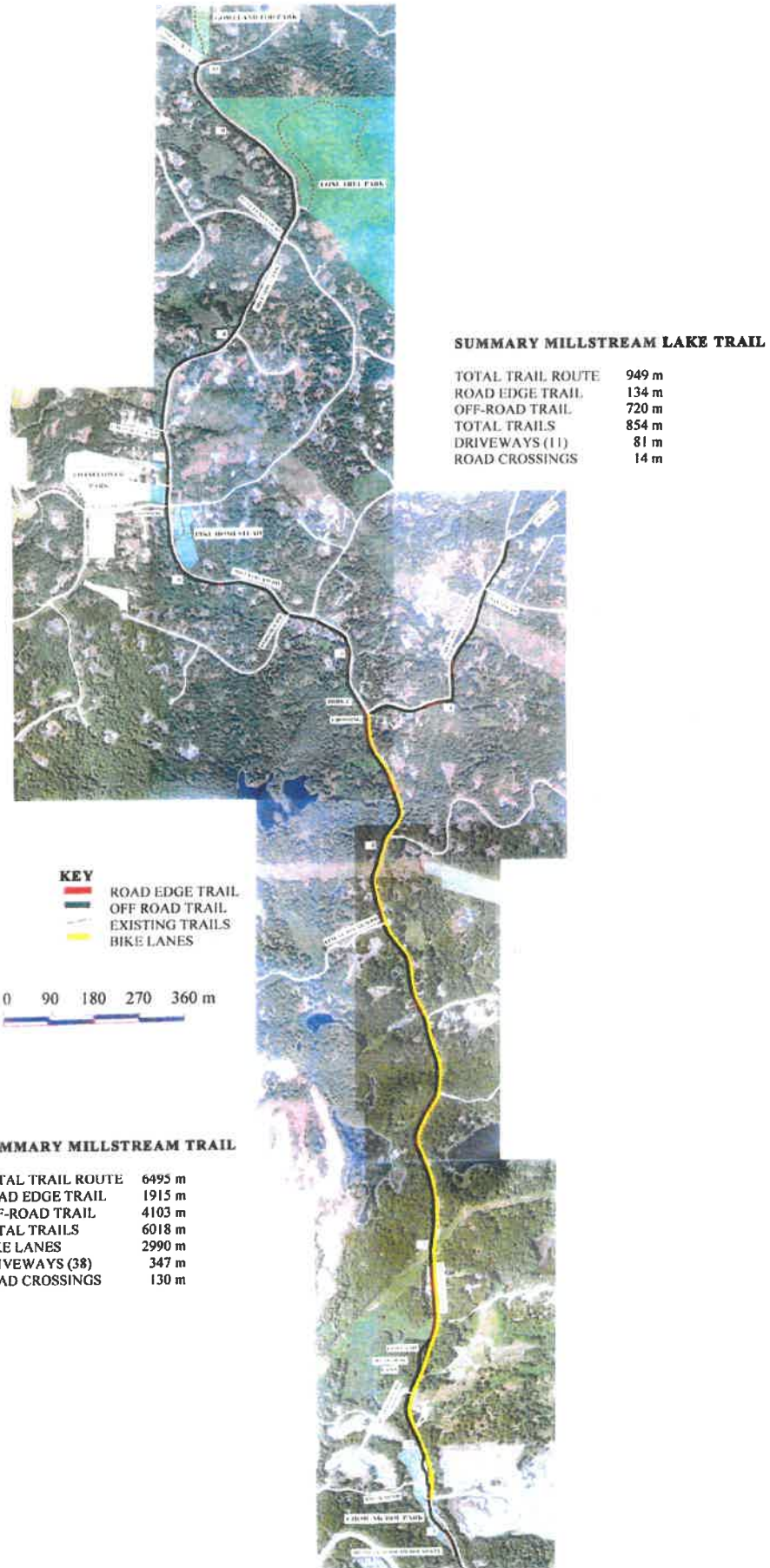
Ross Durrance (2)

Finlayson Arm (2)

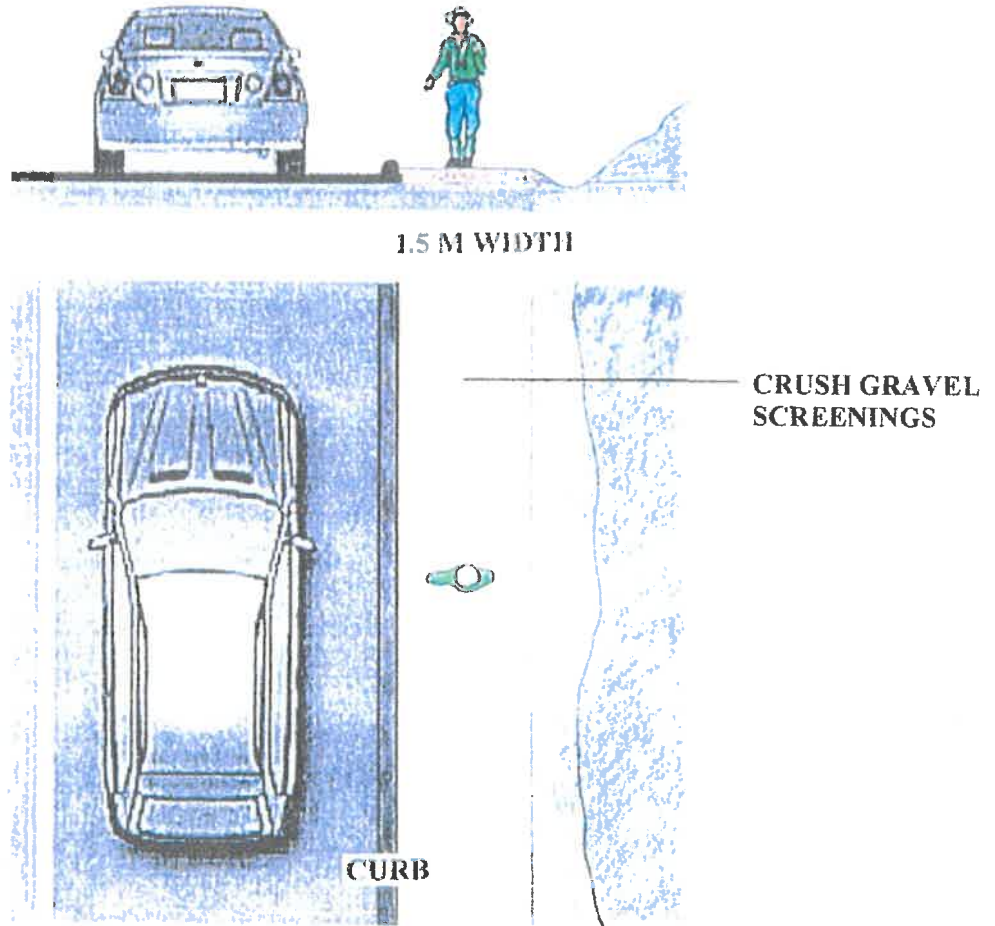
Other routes (16)

From the above, 2/3 of respondents recommended Millstream Road as first priority for a roadside trail. Second priority was for trails along Munn and Millstream Lake roads. (brackets indicate number of responses)

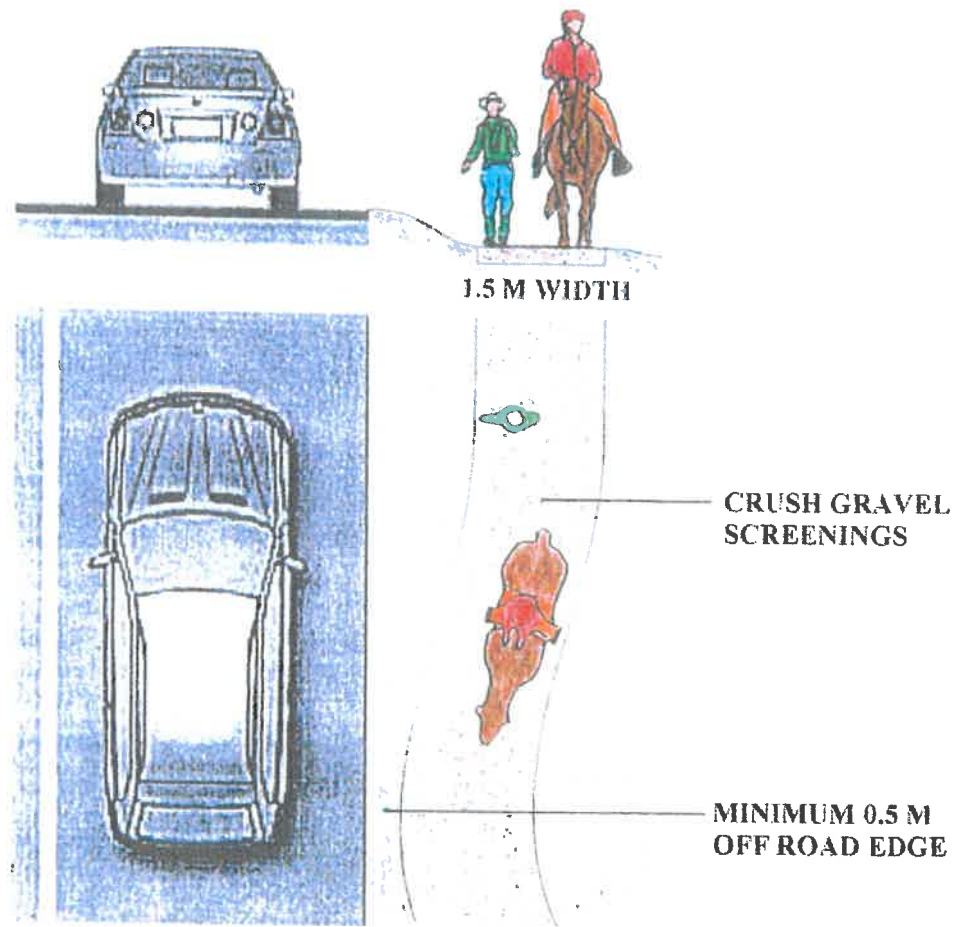
APPENDIX D – MILLSTREAM & MILLSTREAM LAKE ROUTES



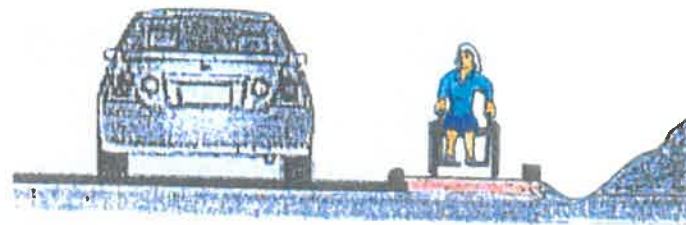
APPENDIX F TYPICAL TRAIL DETAILS



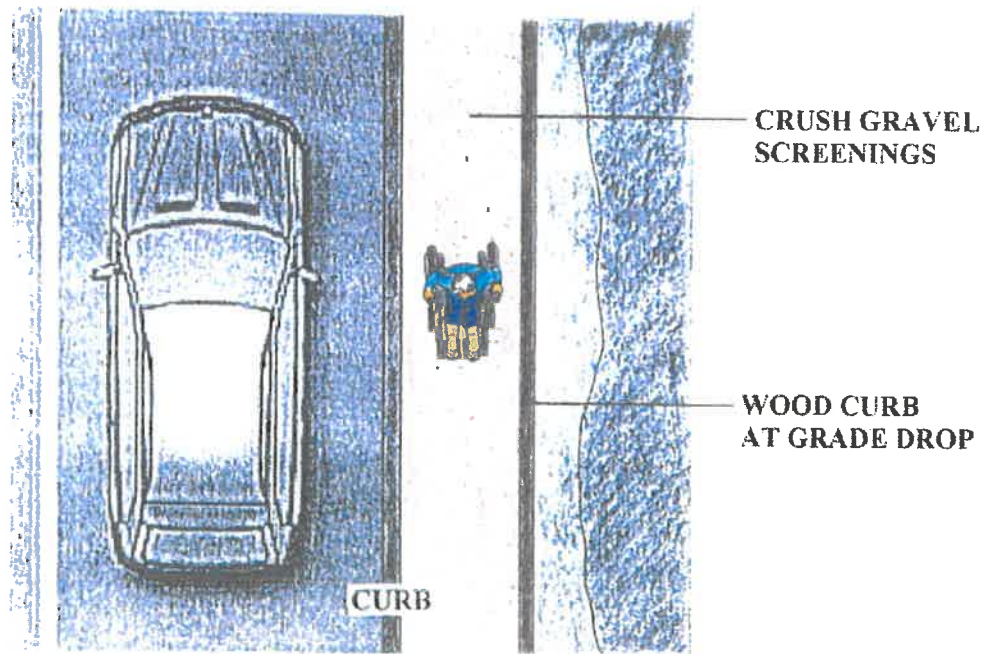
ROADSIDE TRAIL SECTION & PLAN



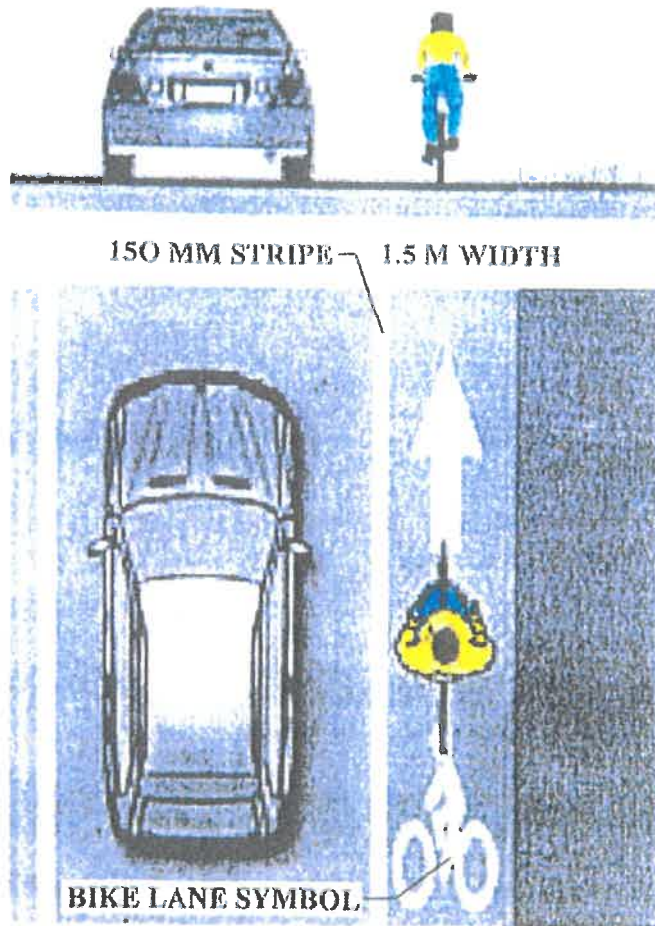
OFF ROAD TRAIL SECTION & PLAN



1.5 M WIDTH



DISABLED ACCESSIBLE TRAIL SECTION & PLAN



BIKE LANE SECTION & PLAN

APPENDIX G GRAVEL SCREENINGS SPECIFICATION

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PAGE 02/02

Project or Contract No. B. R. P. Sample No. 12.

Job No. 26-250-6 Description _____

Pit Name MIDSTREAM ROAD. Location CRUSHER

Material G, 35mm (-) Source DISCHARGE.

Date Sampled 10/05/17 By TYLER.

Date Tested 10/05/18 By B.D.C.

MOISTURE DETERMINATION		Mass	WASH TEST		Mass
Container Tare	T		Tare & Dry Sample	T+S	2347.2
Tare & Moist Sample	T + Sm		Container Tare	(8) T	290.8
Tare & Oven Dried Sample	T + S		Mass of Dry Sample	S	2056.4
Loss of Moisture	m		AFTER WASHING AND DRYING		
Mass of Dry Sample	S		Tare & Washed Sample	T+Sw	
% Moisture	m/Sx100		Mass of Washed Sample	Sw	
			Mass Lost (Passing 0.075mm)	S-Sw	
			Passing 0.075mm on Dry Screening		
			Total Passing 0.075mm		

SIEVE ANALYSIS						
Sieve Size	Mass Retained	% Retained	% Passing	Spec's	Mass Retained	% Retained % Passing
25.0						
19.0						
12.5						
9.5	0.0	0.0	100.0			
6.3	467.4	22.7	77.3			
4.75	304.5	14.8	82.5			
2.36	521.2	25.3	74.7			
1.18	260.6	12.7	87.3			
0.600	132.3	6.4	93.6			
0.300	83.3	4.1	95.9			
0.150	55.9	2.7	97.3			
0.075	55.1	2.7	97.3			
Total:	176.1	8.6	91.4			

Signature

B.S.G. = 3.006

**APPENDIX H
TRAILS MAINTENANCE SPECIFICATIONS**



**CITY OF LANGFORD
LANGFORD TRAILS
MAINTENANCE
CONTRACT**

June 2005

MARCH 31 - 2010

SCHEDULE 2

Fee Schedule

PART I MAINTENANCE SERVICES - CONTRACT PRICE

- The Contract Price for Maintenance Services will be paid by the City of Langford to the Contractor by the way of one twelfth of the following payments of the Contract Price each month for those months of the Term, (and a proportioned amount of the monthly rate for part months) upon delivery of a statement of account. The payments in Years 1, 2, 3, 4, and 5 will be adjusted by the previous year's Cost of Living Factor

The contact price for each 12 month period is as follows:

Year 1 =

Year 2 = xxx,xxx.xx (Year 1 multiplied by the 2004 Cost of Living Factor)

Year 3 = xxx,xxx.xx (Year 2 multiplied by the 2005 Cost of Living Factor)

Year 4 = xxx,xxx.xx (Year 3 multiplied by the 2006 Cost of Living Factor)

Year 5 = xxx,xxx.xx (Year 4 multiplied by the 2007 Cost of Living Factor)

Trail Surface Unit Pricing	Trail Class A Fully Developed		Trail Class B Developed/Improved		Trail Class C Undeveloped	
	Length (m)	Unit Cost	Length (m)	Unit Cost	Length (m)	Unit Cost
Concrete/Asphalt		\$6.00		\$6.00		\$6.00
Native Soil		\$5.00		\$5.00		\$5.00
Gravel		\$5.85		\$5.70		\$4.75
Boardwalk		\$9.25		\$9.00		\$8.50
1. Total Trail Surface Price						

Additional Trail Structures	Amount
Ed Nixon Trail Outhouses	
Ed Nixon Fishing Float	
Ed Nixon Swimming Float	
Lakewood Trail Irrigation	
2. Total Additional Structure Price	

1. Total Trail Surface Price	
2. Total Additional Structure Price	
Total Contract Price	

*unit costs will be used for additions and deletions of trails to the contract

PART II ADDITIONAL MAINTENANCE SERVICES - FEES

- Fees for Additional Maintenance Services authorized by the City of Langford will be based on the rates set out in Schedule 4 and will be payable to the Contractor during the period which the Contractor is engaged in providing Additional Maintenance Services:

3. The Contractor will submit to the City of Langford monthly, in arrears, on or after the first day of each month a written statement of account in a form satisfactory to the City of Langford:
 - (a) showing the calculation of all fees claimed for Additional Maintenance Services for the month preceding the month in which the statement is submitted; and
 - (b) listing, in reasonable detail with dates, any and all expenses claimed with receipts, where applicable, attached.
 - (c) itemizing all adjustments to the Contract under Section 5.03

SCHEDULE 5

Maintenance Services

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1. General

- .1 Present and maintain all areas for public use covered by this contract in a safe, clean and orderly manner.
- .2 Protect and maintain the entire trail systems covered by this contract.
- .3 Use only materials and workmanship of the highest industry standard.
- .4 Be responsible for disposing of material in a legal and safe manner whenever this specification requires that material be removed or disposed of.
- .5 Be responsible for repairing or cleaning up after acts of vandalism unless otherwise specified in the sections that follow. The City will consider the improvements to the trails to prevent acts of vandalism wherever this is practical and within the budget allotted for this. Suggestions by the Contractor are welcome.

2. Safety

- .1 Plan and conduct the work in a manner that will safe guard all persons from injury.
- .2 Obey regulations of the Workers' Compensation Board and all other applicable laws and regulations.
- .3 Make safe any dangerous situation within two hours when reported between 6 a.m. and 9 p.m. and otherwise by 8 a.m.. Where a situation cannot be remedied immediately, the provision of personnel on site to protect the safety of others will

fulfil this condition. Within twelve (12) hours, fax or hand deliver a full report to the Engineer.

- .4 Where the securing of the hazard is not work covered elsewhere in this specification, the Contractor is entitled to a payment in accordance with the terms of Part II of the Fee Schedule.
- 6 Take action on other reports under this section according to Section 13.

3. Public

- .1 Conduct the work so as to cause the least amount of interference to the public in their enjoyment of the trails.
- .2 Adjust maintenance scheduling, by mutual agreement with the City, to accommodate special community and sporting events.

4. Damage Caused by Others

- .1 Immediately report any malicious damage to the RCMP.
- .2 Preserve any available evidence as to the identity of the perpetrator.
- .3 By the beginning of the next business day fax a report to the Engineer describing the damage and the steps taken.
- .4 Co-operate with the RCMP and the City's Bylaw Enforcement Officer in providing evidence.
- .5 Ensure that the requirements under Safety take precedence over the requirements under this section.
- .6 Take action on repairing any damage under this section within 7 days of a report or request, unless the maintenance is described in other sections.

5. Communications

- .1 Provide a telephone number where City staff or the public may phone twenty-four (24) hours a day to report problems with the trail system. If there is no response at this phone number, the City may deal with the problem itself and deduct the cost of this from the Contractor's payments.
- .2 Be available for meetings with two working days notice to discuss complaints or perceived problems when requested by the Engineer. Meetings may include trail users, and other members of the public having a legitimate interest.

6. Weeding and Brushing

- .1 During May of each year, remove any new saplings growing within 1.0 metres of any trail surface; with the exception of Millstream Creek Trail from Treanor Ave to

2439 Selwyn Rd which is to be brushed to the edge of the trail due to its riparian location.

- .2 Clear any woody growth encroaching on the trail or within 1.0 metres of the trail in April and July of each year. Trees beyond the 1.0 metre setback which overhang the trail or the setback are permitted providing that at least a 3 metre height above the trail is kept clear.
- .3 Any trail with grass borders will be maintained to a height no greater than 15cm with the exception of the following trails which are to be maintained at a height no greater than 10cm: Robalee – Willway Elementary, Santana – Willway Elementary 1, and Santana Willway 2.
- .4 The use of herbicides on all trails will be strictly prohibited.
- .5 Remove indigenous and invasive species within 1.5 meters , whichever is closer, from any pathway, parking area or other developed areas unless instructed otherwise.
- .6 Take action on other reports under this section within 7 working days. (refer to Section 13)

7. General Maintenance

- .1 Remove graffiti on system components within two (2) working days of a report.
- .2 Remove litter and refuse and empty trash barrels according to the following table:

Trail	Frequency		
	Monday-Thursday throughout the rest of the year	Monday- May 1 st to Sept 30 th	Once a month from Oct 1 st to April 30 th
Cedarvale	X		
Cy Jenkins	X		
Ed Nixon (West end)	X		
Glen Lake Trail (Leigh to Glen Lake)	X		
Glenwillow to Jacklin	X		
Leigh Road Trail	X		
Millstream Creek Trail	X		
Strachan Trail	X		
All other trails		X	X

- .3 Be responsible for ensuring that all litter and refuse is disposed of in a legal and responsible manner
- .4 Where a trail is in a road right of way with a constructed road, the requirements of section 8.2 only apply to the right of way from the nearest boundary to the road edge. Where a trail is in an unconstructed road right of way or a walkway right of way, the requirements of section 8.2 apply to the entire right of way but not beyond

its boundaries. Where a trail is in a park, the requirements of section 8.2 only apply to the trail and 1 meter on either side measured from the edge of the trail but

do not apply outside the boundaries of the park. Where the trail is a boardwalk, section 8.2 applies to the boardwalk and 3 metres either side including water and marsh.

- .5 Keep trail surfaces smooth and free of trips or other hazards and as near to original condition as practical.
- .6 Apply a minimum of one coat of new paint to all painted surfaces by the end of May each year.
- .7 Keep drainage facilities open and functional.
- .8 Take action on other reports under this section according to Section 13.

8. Automatic Irrigation

- .1 Commission and test each irrigation system and perform any necessary repairs before the end of March each year.
- .2 Winterize each irrigation system before the end of October.
- .3 Adjust all irrigation systems as required to ensure complete coverage of planted areas by the end of April each year.
- .4 Submit all proposals for installation of irrigation equipment to the City to be reviewed to ensure that the system is designed for minimum future maintenance costs.
- .5 Adjust all irrigation controls to ensure the health of all plant material April to October.
- .6 Respond to reports of damaged, leaking or incorrectly adjusted irrigation systems within four (4) hours except between 10 p.m. and 6 a.m. (respond to reports received during those hours by 7 a.m.).
- .7 Respond to other reports within two (2) working days.
- .8 Back flow preventer valve will be tested once annually each spring on each system. Testing to be performed and certified by a qualified person and provide documentation as required.
- .9 Take action on other reports under this section within 2 working days. (refer to Section 13)

9. General Structural Maintenance

- .1 Maintain fencing, refuse containers, picnic tables, floats, benches, railings, signs, retaining walls less than 1.2 m in height, wooden structures (including boardwalks

and bridges), and bollards. Remove graffiti from buildings and include buildings in regular inspections.

- .2 The contractor is responsible for maintaining all trail structures, including handrails, which support the passage of trail users including seeking any required professional advice to ensure the safety of the public using the trails or associated structures.
- .3 Fully maintain outhouses including pumping and disposal of sewage when required. The outhouses will be thoroughly cleaned with disinfectant and re-supplied on a weekly basis.
- .4 Install or replace all top rails for boardwalks with #1 grade timber when replacement is required. Any floor boards or railings will be installed or replaced with three inch deck screws.
- .5 Take action on other reports under this section within 7 working days. (refer to Section 13)

10. Pedestrian Way Maintenance

- .1 All trip hazards shall be recorded according to the City of Langford Sidewalk Inspection Policy No. 5400-00 (Appendix A) and repaired within 7 days
- .2 Fill any depressions to eliminate ponding and to provide positive drainage
- .3 Keep trails free of branches, litter or other debris.
- .4 Clear all snow and ice from asphalt and concrete sidewalks
- .5 Take action on reports under this section within 14 days

11. Drainage, Ditch, Pond and Beach Maintenance

- .1 Inspect, clean and repair all watercourses including open ditches, culverts, drains including field underdrains by the end of October of each year to ensure that they are free flowing, free of accumulated debris or sediment or vegetation.
- .2 Rake sand beach areas to remove foreign material every two weeks May 1 to September 30 each year.
- .3 Make safe any dangerous situation reported under this section within 24 hours.
- .4 Take action on other reports under this section within 2 working days. (refer to Section 13)

12. Trail Maintenance Response Times

All maintenance reported by the City will be performed according to the following table:

CONDITIONS	RESPONSE TIME
Danger of injury to persons	2 hours
Graffiti	7 days
Litter	2 days
Trail surfaces	7 days
Signs	7 days
Drainage	2 days
General Structural Maintenance	7 days
Irrigation	2 days
Irrigation leak	4 hours
Weeding and Brushing	7 days

SCHEDULE 6

Trails Inventory

Definition of Trail Classes	Trail Class A Fully Developed	Trail Class B Developed/Improved	Trail Class C Undeveloped
Concrete	turf border, boulevard trees, high traffic, irrigation, sidewalk fixtures	high traffic, turf border, minimal sidewalk fixtures	undeveloped, native vegetation border
Ashphalt	turf border, boulevard trees, high traffic, irrigation, sidewalk fixtures	high traffic, turf border, minimal sidewalk fixtures	undeveloped, native vegetation border
Gravel	limited access, high traffic, frequent mowing litter and graffiti removal	accessible, native vegation border, medium/high traffic	undeveloped, low traffic
Native Soil	limited access, high traffic, frequent mowing litter and graffiti removal	accessible, native vegation border, medium/high traffic	undeveloped, low traffic
Boardwalk	observation platforms (benches), concrete walkways, high traffic	Wooden floor boards with 2 railings	wooden floor boards with one railing

