

RIVER'S EDGE TRAIL MAINTENANCE PLAN

FOR



**APRIL
2014**



PREPARED BY:



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1.0 EXECUTIVE SUMMARY

River's Edge Trail is one of the most popular community assets in Great Falls. It has grown from a 1989 conceptual plan into a 50 mile network of commuter and recreational paths and trails today. Rivers Edge Trail hosts over 100,000 users per year and is one of the highest rated attractions in the region. Good maintenance is the key to protecting the investment in this asset, to maximizing its service life, and to keeping it safe and enjoyable for all users.

The trail has evolved a segment at a time as the result of 25 state, federal, corporate and foundations grants. It has been kind of an orphan to the Park and Recreation Department over the years because additional maintenance dollars were not provided as each new segment was added to the system. The non-profit trail support group Recreational Trails, Inc. has tried to help provide funding and manpower to fill the gaps, and for the most part, the trail system is currently in good condition.

With the impending retirement of the current Trail Manager and the advancing age of the earliest trail segments, it is an opportune time to discuss and decide future maintenance procedures, alternatives and funding mechanisms. This plan provides a snapshot of current trail segments, components and amenities. It provides consensus recommendations for future maintenance management, staffing, and funding from the actively involved trail agencies and support groups.

Many agencies and individuals provided funding for and input to this document. Their interest and information will help insure that this Maintenance Plan becomes a living, working road map that guides the cost efficient, dedicated maintenance that this outstanding facility deserves.



2.0 INTRODUCTION

River's Edge Trail is the result of a public and private investment of millions of dollars and many thousands of hours of volunteer time. This investment has yielded a nationally recognized community asset that continues to grow in popularity, giving our citizens something they can be truly proud of. Protecting the quality and usefulness of this asset is of paramount importance to the continued safety and popularity of the Trail. This Plan aims to provide the tools needed to accomplish this goal.

The Maintenance Plan provides an inventory of Trail components in Appendix A. The Plan identifies current maintenance procedures and their associated costs, and presents options and recommendations for future trail maintenance. It provides detailed task descriptions and projected costs for trail maintenance activities. Maintenance checklists and implementation procedures are included in Appendix B. These are intended to be incorporated into daily, monthly, annual, and long term Trail maintenance activities.

A detailed discussion of current maintenance procedures and a summary of the last 3 years of associated costs are presented to help establish a baseline for future maintenance requirements. Trail maintenance is currently performed by the City of Great Falls, Montana State Parks, and a variety of contractors and community volunteers. Informal agreements between trail stakeholders currently guide maintenance activities. Total annual maintenance costs are presented and discussed.

Development and maintenance of RET has been an ongoing public/private partnership since the first segments were paved along Broadwater Bay in 1991. A Trail Maintenance Plan was first developed for the trail in 1995. Although not formally adopted by the City of Great Falls, it proposed having the City Park & Recreation Department annually provide \$5,218 and the City Public Works Department annually provide \$4,735 in materials and services, for a total City contribution of \$9,943. \$5,000 per year was budgeted by the City for trail maintenance. As of 2013, that separately budgeted amount of \$5,000 per year has not increased to keep pace with inflation or the expansion of the Trail.

In 1995 the City owned portion of RET was 5 miles long. In 2013, the City is responsible for maintaining 19 miles of paved asphalt and concrete trails as well as short segments of gravel and earth trails.

In 1995 the Montana State Parks owned portion of RET was 2 miles long. In 2013, Montana State Parks is responsible for maintaining 3 miles of paved asphalt trail, 3 miles of gravel trail and 26 miles of earth trail. Total: 32 miles.

Trail planning and maintenance efforts since that time have been guided by decisions of the Trails Working Group (TWG), an association of City, State, and citizen stakeholders. In 2012, the TWG determined that an updated comprehensive Maintenance Plan was needed. The Group obtained funding to pay for preparation of a Plan and selected TD&H Engineering to assist with drafting the Plan.

Specific services provided by TD&H included coordinating plan preparation team members, synthesizing available information, facilitating public input, recommending Level of Service goals, inventorying the trail network and related improvements, developing maintenance task schedules, developing a maintenance budget including staffing and funding needs, recommending long term pavement maintenance steps, and preparing a Plan summarizing this information.

Development of this Plan has been a collaborative effort between the City of Great Falls Park & Recreation and Planning Departments, Montana State Parks, Recreational Trails Inc, and outside consultants. Key individuals and their affiliation include Marty Basta and Giles Salyer of the Park & Recreation Department, Andrew Finch of the Planning and Community Development Department, Matthew Marcinek of Montana State Parks, Doug Wicks and Bruce Pollington of Recreational Trails Inc, John Juras of TD&H Engineering, Bob Searns of The Greenway Team Inc, and Bruce Bugbee of American Public Lands.

3.0 PUBLIC INPUT – LEVEL OF SERVICE

Understanding what a Community wants from its public facilities is a big factor in prioritizing the limited public funding available to maintain those facilities. River's Edge Trail is widely recognized as a key Great Falls recreational asset. It has perhaps the highest public support and recognition of any City managed asset. A 2012 survey of City residents showed that 70% of 876 respondents say that the paved trail system is the City's most utilized recreational asset.

What is less recognized is the public's expected Level of Service or quality of maintenance of the trail. A public opinion survey was therefore developed and promoted to obtain public input about trail maintenance. A detailed report of the survey results including more than 250 responses is in Appendix C, Public Opinion Survey Results. A brief summary follows.

Most respondents were frequent trail users who generally like the way the Trail is currently maintained. People felt that paying for trail maintenance should follow current funding schemes and showed very little support for User Fees or Special Assessments. Pavement repair was the highest priority among other maintenance tasks and had the most respondents indicating more attention is warranted. Many respondents had glowing praise for the Trail and offered useful suggestions for maintenance, improvements, and safety.

Responses indicate that the Level of Service (the combination of management, financial, economic, engineering, and operational practices applied to a physical asset) currently applicable to the Trail is nearly optimum in most respects. Different respondents wanted either more or less maintenance but most were supportive of current practices.

Respondents were also invited to provide comments and suggestions regarding trail maintenance. Considerable information was provided and is presented in Appendix C. Since the surveys were analyzed, trail managers have addressed a number of the concerns expressed. Two short segments of asphalt repairs were needed and paving costs of one of them used almost all of the City's annual trail maintenance appropriation. Fortunately, RTI was able to fund the second asphalt repair area and a number of other maintenance tasks and costs.

Agencies and private sector supporters must continue to work together to effectively maintain an acceptable level of service.

4.0 TRAIL SYSTEM IMPROVEMENTS INVENTORY

4.1 Trail Inventory

River’s Edge Trail is more than just a strip of asphalt or concrete. The Trail includes:

Many hundreds of acres lands and vegetation owned and managed by agencies.	Many hundreds of acres of lands under easement to agencies for trail purposes
15 bridges	17.2 miles of asphalt trail
6 tunnels	4.0 miles of concrete trail
13 underpasses	2.7 miles of gravel trail
3 miles of yellow centerline	22.6 miles of earth trail
19 paved or gravel surfaced trailhead parking areas	13 Trailhead information kiosks with weather resistant maps and trail information
8 vault toilets, 4 flush toilets	26’ gazebo, public telescope and binoculars
15 trash can, containers	9 composite/wood benches
4 seasonal drinking water fountains	3 composite tables
5,260’ of 4’ chain link fencing	Sculptures and special landscape features
2,335’ of guardrail	Interpretive panels
535’ of steel tube fencing	Miles of drainage swales
1,284’ of wood fencing	Dozens of culverts
765’ of heavy post and timber railing	14 At-grade crossings
18 locking bollards	96 memorial benches
18 wood picnic shelters	57 memorial concrete tables
Hundreds of signs	Dozens of Stop, Yield and directional signs

Cost effective maintenance of all these trail components is the goal of this Plan.

A much more detailed **GIS based inventory** of all trail assets is a work in progress to be included in Appendix A, to this Plan as it becomes available. The inventory will catalog all types of Trail improvements/assets, their history, and other important attributes. The inventory will be an assembly of the most pertinent information known for each trail asset.

The City of Great Falls Mapping Department has developed a GIS based trail map to visually illustrate the trail network that also serves to identify the locations of trail features and amenities. The map is currently being made available on the internet at <http://bit.ly/PrTUWb>. This GIS map could be expanded to facilitate planning activities as well as targeting maintenance activities. Combining the GIS trail map with the detailed Asset Inventory is one way to increase the usefulness of both efforts.

More detailed information about major Trail components can be found in Appendix A - Trail Segments Inventory.

5.0 EXISTING TRAIL MAINTENANCE PARTNERS AND PROCEDURES

In order to establish best practices for continued and future trail maintenance, existing procedures must be evaluated to determine what works well and should be continued or expanded upon, what will necessarily change when the current Trail Manager retires, and what can be improved. Learning from current practices will allow creation of an enduring, long term, sustainable program and mechanisms to adapt and improve standards over the years.

Current responsibilities for trail maintenance are shared by the Great Falls Park & Recreation Department, PPL Montana, and the Montana State Parks. Specific areas of responsibility are tabulated in Appendix D, Trail Segments Inventory. The current Trail Manager and RTI have historically assisted each agency by helping identify, fund and complete various maintenance tasks in the trail corridor.

Detailed cost estimates supporting the maintenance costs summarized below are in Appendix E, Historical Trail Maintenance Costs. A brief summary of maintenance responsibilities, by agency, follows.

5.1 Trails Working Group

The Trails Working Group is composed of representatives from key trail stakeholders including the Great Falls Park & Recreation, Planning, Police and Public Works Departments, Montana State Parks, Montana Department of Transportation, Recreational Trails Inc., and other groups as appropriate. City Planning is the designated lead agency for this group. The group has met monthly to coordinate trail development issues, trail maintenance and operations issues, and other trail activities since 1991.

5.2 Great Falls Park & Recreation Department

The Park & Recreation Department is ultimately responsible for maintaining most of the urban portions of River's Edge Trail and dirt trails between Whitmore Ravine and Box Elder Creek. The Department mows and trims the edges of the trail during growing season, plows and brooms snow during the winter and services the toilets, trash cans and Mutt Mitt dispensers year around. The Park & Recreation Department works with the current Trail Manager when some maintenance projects or issues are identified that could be performed with volunteers from the Pre-Release Center, or other community volunteers.

All projects and maintenance supporting River's Edge Trail are tracked through Park & Recreation's Work Order Program. All work order tasks associated with the Trail are assigned a location code number 0071. This allows accurate tracking of Trail related costs.

Specific costs which were reported under this tracking system are as follows: 2009 - \$4,087, 2010 - \$7,822, 2011 - \$10,175. These costs are in addition to the \$5,000 that is budgeted yearly for trail maintenance from the City General Fund.

5.3 Great Falls Planning and Community Development Department

Among other trails related services, City Planning assists with trail maintenance by planning for trail improvements, coordinating various trail activities including maintenance, and by providing funding for and managing the employment of the current Trail Manager, who is paid \$2000 per month from funds managed by the Planning Department. Planning also devotes significant staff time to trail related maintenance efforts.

5.4 Recreational Trails Inc. (RTI)

Recreational Trails Inc. is a public benefit corporation that assists trail managing agencies with development, funding, and maintenance of the Trail. RTI board members meet regularly to discuss maintenance strategies and priorities. Board members accomplish maintenance tasks including raising funds, identifying needs, and performing maintenance tasks.

RTI pays for significant trail maintenance efforts each year using funds donated by the public and grant funds obtained from various sources. Annual maintenance expenses were \$18,687 in 2010, \$18,540 in 2011, and \$23,058 in 2012.

The current Chairman of the RTI Board also recruits and coordinates with the Great Falls PreRelease Center community service workers who performed 600+ man hours of trail maintenance work during 2011 and 2012. RTI also funds Montana Conservation Corps crews, who perform trail maintenance along urban and rural trail segments.

In addition, RTI has written a number of successful grant applications to fund more extensive maintenance projects such as asphalt overlays on both City and MSP trail segments and shoulder repairs.

5.5 Montana State Parks

The Montana State Parks Department maintains over 5 miles of hard surfaced trails, some South Shore single track and all of the soft surfaced trails along the North Shore Trail. Park managers coordinate with local bicycle club volunteers to maintain the extensive single track trail system on both sides of the river. Montana State Parks performs day to day maintenance tasks with their own forces. No separate trails funding is designated for these efforts.

Montana State Parks estimates annual paved and single track maintenance is \$27,800 for typical efforts performed by State Parks staff to maintain the trail. In addition to the \$27,800, it is estimated that 500 hours of volunteer time is utilized each year to maintain the single track trails on lands managed by State Parks. Most work completed on single track trails is performed by volunteers, supported by State Parks staff and equipment.

Most work is performed by volunteers supported by park staff. It is estimated that 500 hours of volunteer time is utilized each year to maintain the single track trails on FWP, PPLM, and City land.

5.6 PPL Montana

PPL Montana currently owns Black Eagle Memorial Island and the majority of the land that the rural (unpaved) portions of the trail cross on the North shore, as well as several tracts crossed by the trail on the South shore. As part of the federal license for the dams they own, PPL Montana provides easements for the trails and contributes significant financial resources to trail maintenance. PPL Montana's public recreation funds and efforts are coordinated by American Public Lands. The facilities are managed by Montana State Parks under a cooperative management agreement.

In late 2013, PPL Montana announced the sale of their 12 Montana hydro developments to North Western Energy (NWE). The planned sale is working its way through FERC and Montana PSC regulators as the Maintenance Plan is being written. Completion of regulatory reviews and decisions are expected in late 2014, followed by sale closure. As part of the FERC license transfer from PPL Montana, NWE would continue to implement FERC license conditions and associated agreements at all hydro developments, including current trail and management agreements.

5.7 Cascade County

Cascade County's weed control crews spray noxious weeds along City owned parts of the trail. The County does not perform any other Trail maintenance.

5.8 Current Staffing

Trail maintenance is currently completed by a mixture of part and full time individuals from City, State, and volunteer organizations. This maintenance staff includes:

1. Trail Manager, a $\frac{3}{4}$ time employee of the City of Great Falls
2. Park & Recreation employees perform day to day tasks, which require roughly one half of a full time position or 80 hours per month for routine maintenance.

3. Montana State Parks estimates 50 hours per month of their staff time.
4. RTI board members spend 40 hours per month on average.
5. Community volunteers spend approximately 1000 hours per year maintaining the Trail system.

5.9 Conclusions

Current maintenance procedures work quite well except for the uncertainty of maintenance funding levels. Continued active pursuit of private donations and governmental funding commitments is vital to continued proper trail maintenance. Having an overall trail coordinating group is very important to seamless interagency maintenance efforts.

If a single individual who is primarily responsible for all trail segments maintenance was not available, then the responsible agencies would have to increase staff efforts to maintain current maintenance quality. Staff efforts would have to be balanced with competing priorities, increasing the possibility of lower quality maintenance.

Current City and State Park managers make trail maintenance a priority despite challenging budgets, limited staff time and competing priorities. Future managers may not be as focused on the quality of trail maintenance. If so, maintenance efforts would likely suffer if a structured system of trail maintenance management was not in place.

6.0 FUTURE MAINTENANCE MANAGEMENT PROCEDURES

The following discussion presents a preliminary concept for future maintenance management. This preliminary concept is the result of brainstorming sessions with current agency trail managers. A variety of alternative scenarios were discussed, further developed, or discarded. Examples of the alternative management brainstorming concepts are briefly listed below.

- No action, recruit a similarly talented and dedicated individual to fill the Trail Manager's position when he retires.
- Hire a contractor to provide maintenance and management services.
- Expand volunteer maintenance efforts. Have volunteers perform certain management functions.
- Give Montana State Parks the primary responsibility for trail system management.
- Assign other City Departments (Public Works or Planning) management responsibility.
- Create a Park & Recreation position and/or Division dedicated to trail maintenance management.
- Create a City multi-departmental management group.

6.1 Recommended Management

Future trail maintenance procedures would essentially mimic current procedures except that a better defined financial commitment from land managers and private sector partners would be in place. A maintenance planner/coordinator/performer (Trails Manager) for the entire "River's Edge Trail System" would be designated. A preliminary Job Description for the Trails Manager would read - Assist Park & Recreation Department by identifying, coordinating and completing maintenance tasks recommended in this Plan along the River's Edge Trail system on City owned and managed segments. The Trails Manager would also assist and coordinate trail maintenance activities with Montana State Parks, the USFS and other agencies. The position would be for 8 months of the year. Day to day tasks such as mowing and rest room maintenance would be completed independently by appropriate agencies.

The Trails Manager would be hired by the Park and Recreation Department and paid for by a combination of City, Montana State Parks, RTI, and other public/private sector and grant funds. Ideally the Trail Manager would be selected from the current full-time Park & Recreation maintenance staff in order to be fully familiar with Department resources, capabilities and procedures.

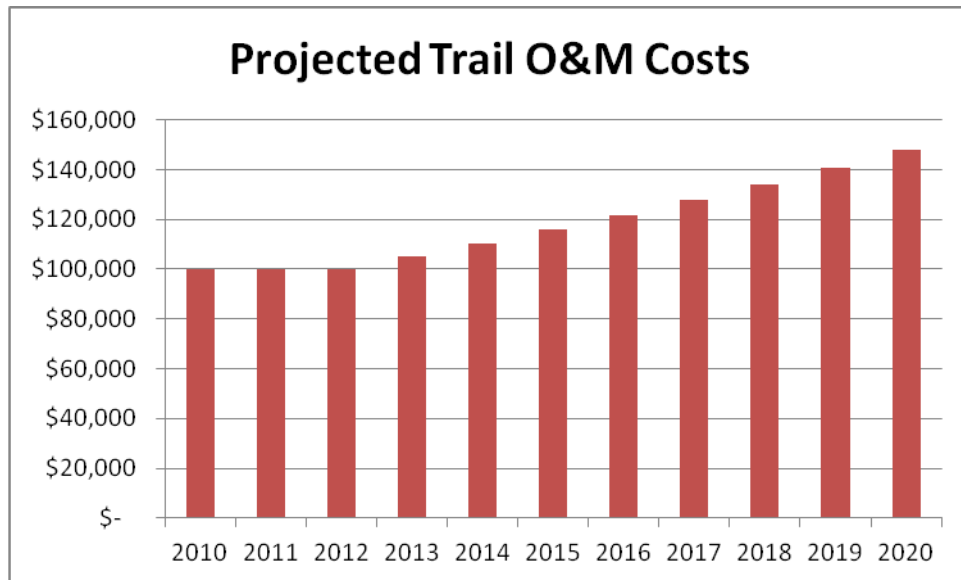
RTI is in the process of developing a Maintenance Capital Fund to help fund this position and other maintenance activities. The City would designate specific funds and commit to a period

those funds would be available. Montana State Parks and PPL Montana are firmly committed to continue to perform necessary trail maintenance out of established O&M budgets and to work with trail partners to pursue grant opportunities when appropriate.

7.0 OPERATIONS AND MAINTENANCE BUDGET OPTIONS

Documented trail operations and maintenance costs have averaged around \$80,000 per year for the last few years. This figure does not include staffing costs to manage and administer the Trail, general overhead costs of responsible agencies, and costs to purchase, own, and repair mechanical equipment. Adding these harder to quantify costs to the documented costs yields an estimated annual cost to operate and maintain the Trail to approximately \$100,000 for the past 3 years. This equates to around \$4,000 per paved mile. This cost is only slightly lower than the typical national average maintenance cost of \$5,000 per paved mile.

Future costs to maintain the trail can be expected to increase due to inflation, continued asphalt pavement aging, possible staffing challenges, and possible trail extensions. Given these considerations, an annual 5% inflation factor should be used to project future Trail O&M costs as shown in the table below.



The source of Trail O&M funds is not projected to change dramatically in the next several years. Private donors, City funds and State Parks funds will likely continue to provide the bulk of funding. If one of these sources were to shrink or dry up, a significant short fall would soon result in decreased trail maintenance. Continued Trail health requires a continued commitment to adequate O&M funding.

Replacing the Trail Manager role in Trail O&M may lead to increased O&M costs. Detailed staffing costs will not be known until a possible position is finalized as discussed above.

Possible sources of maintenance funds are listed and briefly described below:

- City of Great Falls General Fund – These funds are obligated by vote of the City Commission.
- Park District – The City could elect to create a Park District to collect tax revenue and dedicate it toward the maintenance and operation of City Parks, including the Trail network.
- Impact Fees – Although some types of impact fees have been ruled out by Montana court rulings, developers along trails may pay for a portion of trail maintenance.
- Bed Tax Revenue – Tourism related taxes could be obligated to keeping tourist attractions such as trails well maintained.
- Public Works Paving – Street departments are staffed and equipped to perform many maintenance tasks and are relied on heavily in some communities.
- Planning and Community Development Funds – Planning for maintenance of public facilities like trails can be paid for with targeted funds.
- MT State Parks Operations Funds
- Recreational Trails Program Grants – RTP Grants are available for trail maintenance.
- Missouri Madison River Fund – Competitive grant program that has historically paid for specific maintenance related Trail improvements.
- Sustained Private Giving – Non-profit groups such as Recreational Trails Inc can raise and dedicate funds to trail maintenance.
- State and Federal Grants – Continually evolving programs should be scrutinized and pursued when appropriate.
- Montana Department of Transportation – Although MDT resists maintaining separated trails along their system, there are instances where they fund and perform maintenance, such as along bridges and sidewalks.
- Other – Trusts, Foundations, and similar funding vehicles may award funds when asked.

8.0 PAVEMENT PRESERVATION AND REPLACEMENT

Pavement maintenance is the most capital intensive activity associated with the Trail network maintenance. Proactive maintenance will preserve asphalt surfacing, extending its useful life. Appropriate assessment of existing pavement conditions, pavement maintenance alternatives evaluation, short and long range planning, budgeting, and implementation are all vital to cost effective pavement maintenance. Recommended procedures for these activities are presented herein.

1. Pavement assessment should be conducted annually of all paved trail segments by an individual with experience in pavement evaluation and maintenance. Record pertinent information on an appropriate form such as the one contained in the Appendix F, River's Edge Trail Inspection Form.
2. Review assessment reports with planning and project management team. Evaluate available alternative maintenance techniques to address the identified problems. A good evaluation of available asphalt maintenance alternatives is in Appendix G, Asphalt Pavement Surface Treatment Guidelines. Include proactive pavement maintenance to extend the life of asphalt surfacing. Prepare a list of prioritized tasks and potential projects.
3. Develop short and long range plans to complete the recommended tasks. Plans must include specific tasks and projects, identify how those projects would be completed, and show how they would be paid for. Incorporate previous years planning in updated plans.
4. Prepare detailed task descriptions, statements of work, and/or bid packages for the various tasks as appropriate.
5. Execute selected tasks utilizing in-house forces, service contracts, or construction contracts.
6. Maintain records of all tasks completed and evaluate the effectiveness of completed tasks in future years.

8.1 River's Edge Trail Pavement Maintenance Recommendations

The Trail's asphalt surfacing has traditionally been maintained with a mixture of crack sealing and asphalt overlays. Crack sealing is completed annually, typically by a local contractor employed by RTI. These efforts should continue.

Asphalt overlays are traditionally completed when trail surfacing deteriorates significantly, if a funding package can be developed. As shown in the Trail Segments Inventory Spreadsheet in Appendix A, many segments of paved trail are approaching the age when more intensive maintenance, such as an asphalt overlay, will soon be needed.

As an alternative to previous practices, consider full depth replacement of deteriorated asphalt with more durable concrete. Costs to replace with concrete are considerably higher than asphalt but the added quality and durability are invaluable. The estimated cost to replace old asphalt trails with new concrete is \$100 per running foot of trail.

Raising the funds for such a replacement will require a long term capital campaign to raise private donations that can be matched with available grants, state, federal and local taxes, or other funding mechanisms.

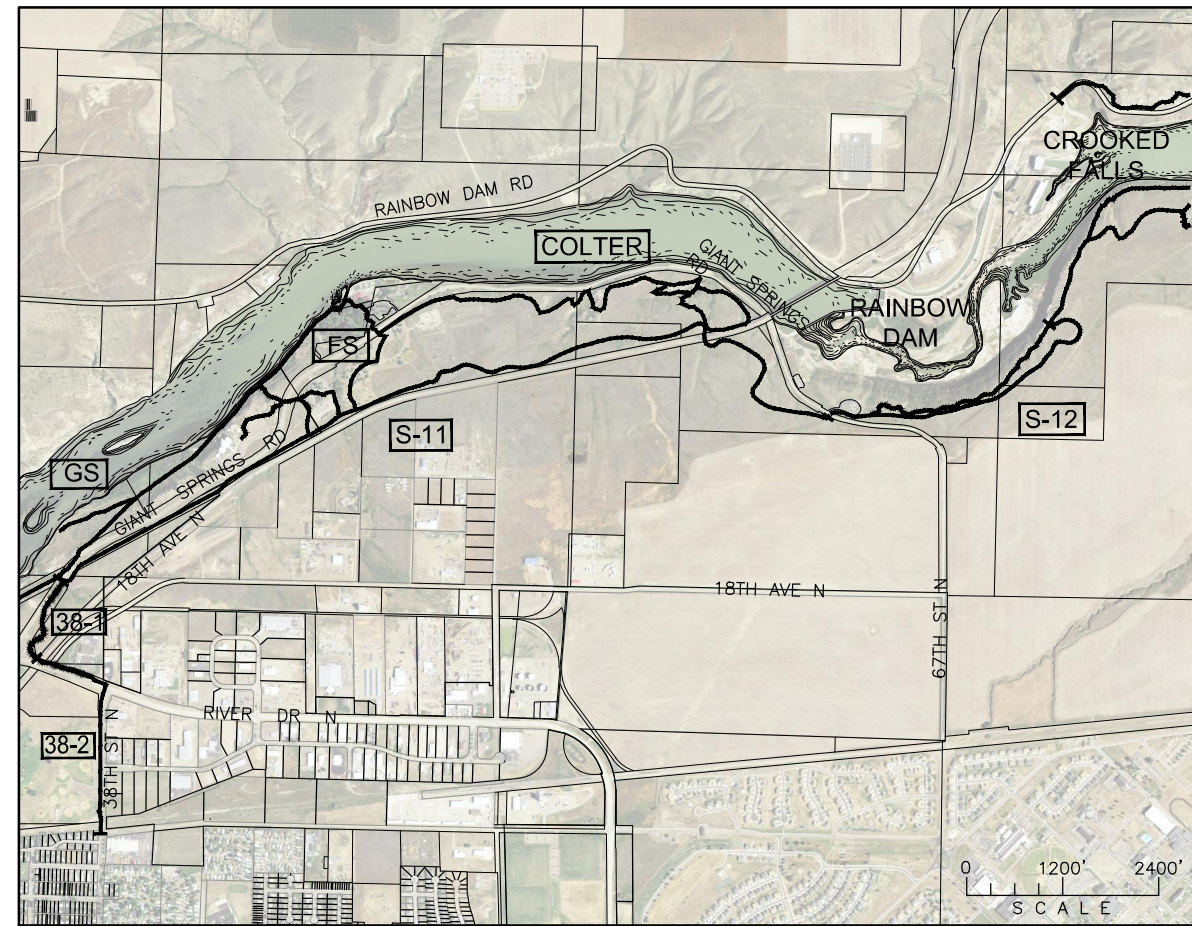
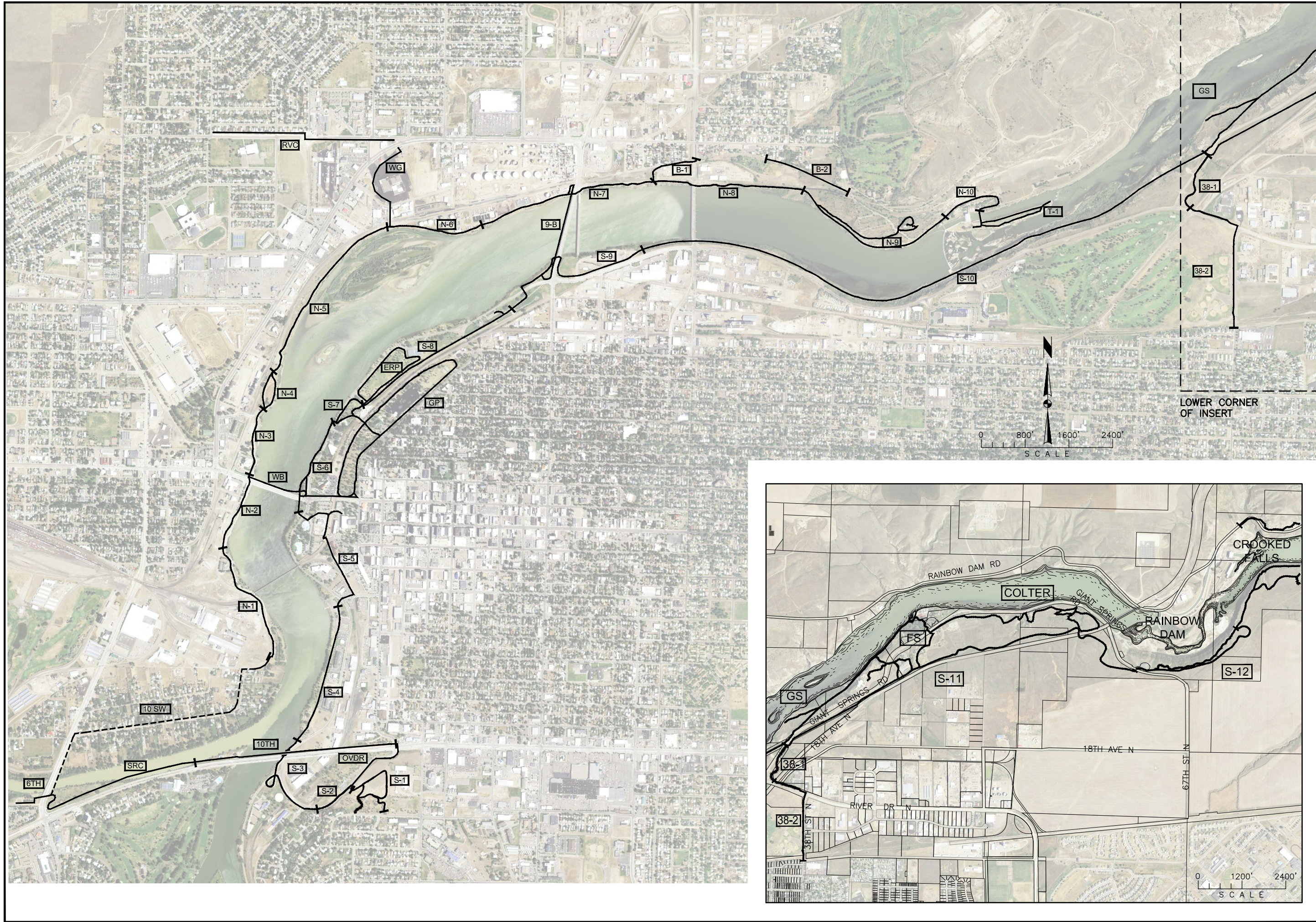
Prioritization of Trail segments to be targeted for replacement would be based on a combination of surface condition, intensity of use, special funding allocations, long range plans for area changes, and local input. A tentative replacement schedule is tabulated below.

Table 4 - Replacement Priorities

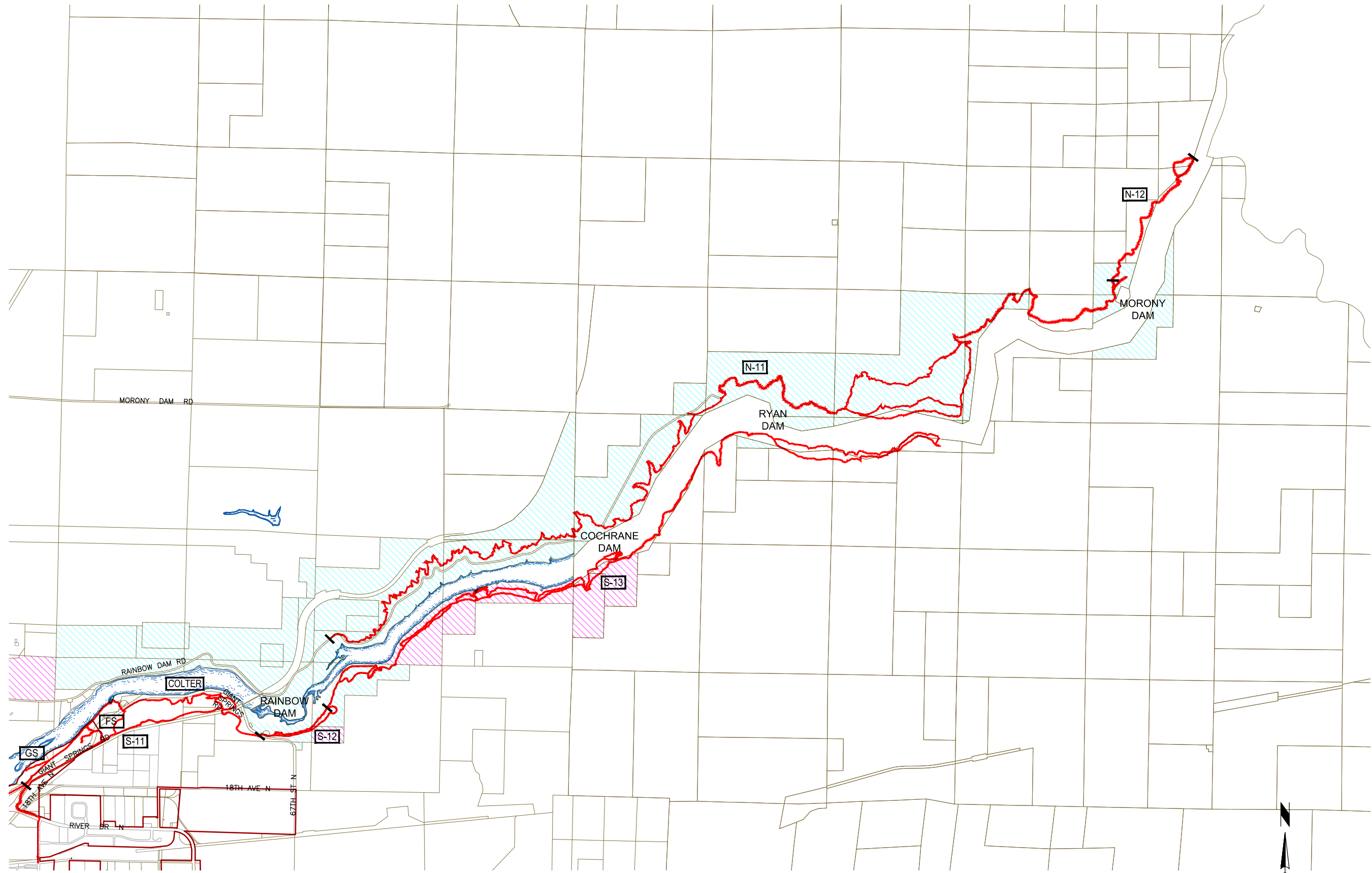
<u>Trail Segment</u>	<u>Length</u>	<u>Total Cost</u>	<u>Date</u>
N-4 West Bank Park Narrow Sidewalks	1,400 FT	\$140,000	2014
S-8 Rail Berm from Dog Park westward	6,500 FT	\$650,000	2015
N-5 West Bank Park Trail	3,600 FT	\$360,000	2017
S-9 Dog Park to Falls Construction	3,300 FT	\$330,000	2019

APPENDIX A
TRAIL SEGMENTS INVENTORY

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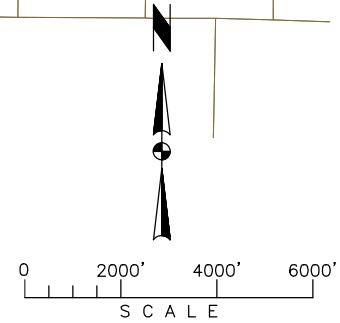


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RIVER'S EDGE TRAIL MAINTENANCE PLAN GREAT FALLS, MONTANA		URBAN TRAIL SEGMENTS		
12-268-SEGMENTS.DWG SHEET		1		



LEGEND

- MT STATE PARKS MANAGEMENT
- CITY OF GREAT FALLS OWNERSHIP



REV	DATE	REVISION

TD&H
Engineering

tchenengineering.com
 GREAT FALLS-BOZEMAN-KALISPELL-SHELBY
 SPOKANE MONTANA
 WASHINGTON NORTH DAKOTA
 WATFORD CITY

DRAWN BY: TWC
 DESIGNED BY: JPJ
 QUALITY CHECK:
 DATE: 2/18/14
 JOB NO. 12-268
 FIELDBOOK

RIVER'S EDGE TRAIL MAINTENANCE PLAN
GREAT FALLS, MONTANA
RURAL TRAIL SEGMENTS

River's Edge Trail System - Trail Segments Inventory												
Segment No.	Trail Segment	Description	City O.F. Number	Distance (feet)	Width (feet)	Distance (miles)	Surfacing	Year Constructed	Ownership	Maintained By	Estimated Next Overlay or Replacement Date	Projected Replacement Cost
<i>SOUTH SHORE TRAILS</i>												
S-1	Warden Park	Separated trail through Warden Park		1759	9	0.33	Asphalt	2010	City	City	2020	\$150,000
S-2	Overlook Drive 1	Asphalt curbside	MDT project	946	8	0.18	Asphalt	2010	City	City	2020	\$80,000
S-3	Overlook Drive 2	Concrete curbside, loop and tunnel	MDT project	2298	10	0.44	Concrete	2009	City	City	2059	
S-4	Broadwater Bay	Separated trail from Odd Fellows to intersection with River Dr S		2556	10	0.48	Asphalt	1991	City	City	2016	\$217,000
S-5	Railroad Square Bypass	Mix of trail types		2355	Varies	0.45	Asphalt/Concrete/Brick	1991	Various	City	Varies	
S-6	River Dr South	Separated trail from N River Dr to S River Dr crossings.	1029.1	1827	8	0.35	Asphalt	1991	City	City	2016	\$155,000
WB	Weissmann Bridge	River crossing		1060	12	0.20	Composite Decking	1998-2002	City	City		
S-7	Riverside Rail Yard			1737	8	0.33	Concrete	2012	City	City	2062	
S-8	Rail Berm	Separated trail from Railyard to Dog Park		6469	8	1.23	Asphalt	1991	City	City	2016	\$550,000
9B	9th Street Bridge	MDT bridge over river		1250	8	0.24	Concrete	1996	MDT	MDT		
S-9	River Dr North	Separated trail from Dog Park to Falls Const picnic table	MDT Project	3317	10	0.63	Asphalt	1996	City	City	2016	\$282,000
S-10	Rail Trail	Separated trail from Falls Construction to Giant Springs Rd Underpass		11357	10	2.15	Asphalt	1992	City	City	2012	\$965,000
S-11	FWP West Segment	Giant Springs Rd to Lewis and Clark Overlook	O.F. 1029.1	11559	10	2.19	Asphalt	1996/2007	MT-FWP	MT-FWP	2022	\$983,000
S-12	FWP East Segment	Lewis and Clark Overlook to Crooked Falls Overlook	O.F. 1029.5	4021	10	0.76	Asphalt	1997/2007	MT-FWP	MT-FWP	2022	\$342,000
S-13	South Shore Network	Single Track		63478		12.02	Earth	2000-2012	Various	MT-FWP/GFBC	N/A	
<i>NORTH SHORE TRAILS</i>												
N-1	Bay Drive separated trail	10' wide Separated trail	O.F. 1306.5	2526	10	0.48	Concrete	2009	City	City	2059	
N-2	Bay Drive separated trail	10' wide Separated trail	O.F. 1126.9	1310	10	0.25	Concrete	2010	City	City	2060	
N-3	Courthouse Trail	10' wide Separated trail	O.F. 1029.1	1087	10	0.21	Concrete	2013	City	City	2063	
N-4	West Bank Park Sidewalks	Narrow Sidewalk		1784	4	0.34	Concrete	1988	City	City	2013	
N-5	West Bank Park Trail	Separated Trail		3568	10	0.68	Asphalt	1993	City	City	2015	\$303,000
N-6	Wastewater Plant	Separated Trail	O.F. 1306.0	2070	10	0.39	Asphalt	1997	City	City	2015	\$176,000
N-7	Refinery to Black Eagle	Separated Trail	O.F. 1306.0	2935	10	0.56	Asphalt	2005	City	City	2015	\$249,000
N-8	North River Rd	Separated Trail	O.F. 1306.1	2757	10	0.52	Asphalt	2004	City	City	2019	\$234,000
N-9	Former Service Road	Separated Trail from N River Rd to BE Powerhouse Complex	O.F. 1306.1	4047	12	0.77	Asphalt	2004/2005	City	City/RTI	2020	\$344,000
N-10	Black Eagle Power House	Separated Trail through BE Dam complex		2111	Varies	0.40	Asphalt/Concrete	2005	PPL Montana	MT-FWP	Varies	
T-1	Trailrace Island	Gravel & Concrete		2695		0.51	Gravel					
				320	Varies	0.06	Concrete	2001	PPL Montana	MT-FWP	2051	
N-11	North Shore Network	Single Track		48050		13.20	Earth	1995-2013	Various	MT-FWP/GFBC	N/A	
<i>ASSOCIATED TRAILS</i>												
OVDR	Overlook Drive TAP Project 2015	Curbside		1460	8	0.28	Concrete	2015	MDT	MDT	2065	
10TH	Warden Bridge Bike/PED Trail	Separated Trail/Curbside		3785	8	0.72	Concrete		MDT	MDT		
SRC	Sun River Connector	Future Trail	O.F. 1576	2800	10	0.53	Asphalt		MDT/City	City		
6TH	6th St SW Underpass	Separated Trail		1078		0.20	Asphalt/Concrete	2011	City	City	?	
RVC	Riverview Connection	Separated Trail	O.F. 1596	3300	8	0.63	Concrete	2013	City	City		
WG	Westgate Continuation	Separated Trail		1500	8	0.28	Future	Future	Calumet	City		
B-1	Black Eagle Connector	Mostly separated trail		1040	9	0.20	Asphalt	2008	City	??	2023	\$88,000
B-2	Black Eagle Community Center Trail			1609		0.30	Asphalt	2009	British Petroleum	BP ?	2024	\$137,000
ACM	Waterfall Trail	Single Track		1500		0.28	Earth	2011	County	City?	N/A	
GP	Gibson Park Loop	Separated Trail		7386	6	1.40	Asphalt	Pre 1990	City	City	?	\$628,000
ERP	Elks Riverside Park Loop	Separated Trail		3205	6	0.61	Asphalt	Pre 1990	City	City	?	\$272,000
38-1	38th Street Connection	Separated Trail		1174	10	0.22	Asphalt	2009	MT-FWP	MT-FWP	2019	\$100,000
38-2	38th Street Connection	Separated Trail		2814	10	0.53	Asphalt	2009	City	City	2019	\$239,000
GS-1	Giant Springs Spur	Separated Trail from GS Rd to Springs		6391	Varies	1.21	Asphalt/Gravel	2007	MT-FWP/USFS	MT-FWP	2022	
GS-2	Giant Springs Spur through Heritage Park	Loop Route - G.S. Tunnel to Springs to RET		2949	Varies	0.56	Asphalt/Concrete		MT-FWP	MT-FWP		
Colter	Colter Trail	Single Track		7584		1.44	Earth		MT-FWP	MT-FWP	N/A	
N-12	Sulphur Springs Trail	Single Track Hiking		10377		1.97	Gravel		Various	USFS	N/A	
FS-1	Interpretive Center Area Trails	Separated Trail, Single Track	O.F. 1126.4	1100		0.21	Gravel/Asphalt	2002		USFS		\$94,000
						51.68						

Major RET System Parking Areas

<u>Parking Lot Name</u>	<u>Vehicle Capacity</u>	<u>Facilities</u>	<u>Surfacing</u>	<u>Responsible Agency</u>	<u>Remarks</u>	<u>Date</u>
Warden Park Trailhead	12	IKM, PT	Asphalt	Park and Rec		2011
Odd Fellows Park Trailhead	27	IKM, FR, PT	Asphalt	Park and Rec	OF 1093.4	1999
Garden Home Park Trailhead	20+	IKM	Asphalt	Street Department		2013
Broadwater Bay	50+	FR, PT	Asphalt	Park and Rec		
Riverside Railyard Skate Park	12	FR, PT	Asphalt	Park and Rec		
Gibson Park Trailhead	20+	IKM, FT, PT	Asphalt	Park and Rec		2013
West Bank Park Trailhead	20+	IKM, CL	Asphalt	Park and Rec		
Sacajawea Island Trailhead	6	IKM	Gravel	Park and Rec		
Dog Park Trailhead	22	IKM, VT, PT	Asphalt	Park and Rec	O.F. 1180.2	1999
Caboose Trailhead	18	IKM, VT, PT	Asphalt	Park and Rec	O.F. 1093.5	
Higgins Park Trailhead	20	None	Gravel	Black Eagle Park Board		
Black Eagle Memorial Island	20+	IKM, VT, PT	Asphalt	MT FWP		
Steamboat Island Parking	16	None	Asphalt	MT FWP		
Lewis & Clark Interpretive Center	50+	VC	Asphalt	USFS		
Region 4 FWP Visitor Center	50+	IKM, VC	Asphalt	MT FWP		
Lewis & Clark Overlook Trailhead	41	IKM, VT	Asphalt	MT FWP		
Rainbow Trailhead	20	IKM, VT	Gravel	MT FWP		2013
Ryan Trailhead	8	IKM, VT	Gravel	MT FWP		
Sulphur Spring Trailhead	20	IKM, VT	Gravel	MT FWP		

Facility Abbreviations Meaning

CL - Canoe Launch
FR - Flush Restroom
IKM - Info Kiosk/Map
PT - Picnic Table
VC - Visitor Center
VT - Vault Toilet

Major RET System Bridges, Tunnels and Underpasses

<u>Bridges</u>	<u>Seg. #</u>	<u>Materials</u>	<u>Length (feet)</u>	<u>Lighting</u>	<u>Owner</u>
Overlook Dr./BNSF	S-3	Concrete highway bridge	175		MDT
Weissman Trail Bridge	WB	Steel, timber composite	980		City
6th Street N Overpass	S-8	Steel and Conc	35		City
9th Street Bridge	9B	Highway Bridge	1250	Y	MDT
King Bridge at BE Falls	S-10	Steel and Timber	160	Y	City
FWP HQ Timber Bridge	S-11	Timber, wood deck, railings	40		MT FWP
Colter Timber Bridge	S-11	Timber, wood deck, railings	40		MT FWP
Whitmore Ravine Bridge	S-13	Steel, Timber	40		MT FWP
West Bank Park Bridge	N-5	Steel, Timber	40		City
15 St. Overpass	B-1	Steel, Concrete, Asphalt	83		City
Tailrace Island Bridge	T-1	Steel Truss, Concrete	130		PPL-MT
Cochrane Dam Crossing	S-13	Concrete	820		PPL-MT
6th Street SW	6TH	Concrete	490		MDT
Warden Bridge	10TH	Concrete highway bridge	2300		MDT
West of Giant Springs Bridge		Timber, wood deck, railings	40		USFS
 <u>Tunnels</u>					
Lower River Road	S-3	Reinforced Conc Box	175	Y	City
BNSF-Gibson/Riverside	GP	Reinforced Conc Box	30	Y	City
River Drive North	S-9	Reinforced Conc Box	100	Y	City
Giant Springs Road	S-11	Reinforced Conc Box	80	N	City
BNSF Railroad/GSSP	S-11	Arch CMP	45	N	MT FWP
9th Street	N-7	Reinforced Concrete	54	Y	City
 <u>Underpasses</u>					
6th Street SW	6TH	Asphalt path	130	Y	City
BNSF - Bay Drive	N-1	Timber, Metal Roofing	60	Y	City
Central Ave West	N-2	Concrete path, walls	100		City
Weissman Bridge - W	N-2	Concrete path	14		City
9th Street S.	S-9	Asphalt path	70	Y	City
15th Street S.	S-10	Asphalt path	70		City
Warden Bridge	S-3	Concrete Path	150		City
1st Ave N	S-6	Asphalt path	105	Y	City
Weissman Bridge - E	S-6	Asphalt path	14		City
9th Street N.	N-7	Asphalt path, gabion walls	70	Y	City
15th Street N.	N-8	Asphalt path, gabion walls	70		City
Giant Springs Road Between Interpretive Center & FWP	FS	Asphalt Path	70		USFS

APPENDIX B
MAINTENANCE TASKS

APPENDIX B MAINTENANCE TASKS

Trail maintenance tasks are generally unique for the paved and the unpaved portions of the trail network. Paved trail maintenance is generally much more intensive than unpaved. Maintenance of either type can only be done efficiently with a systematic approach to identifying, assigning and completing the necessary tasks. Such an approach begins with a thorough inspection of the system.

Inspection Procedures

Depending on the type of maintenance involved, inspections should be conducted by the managing agencies according to the River's Edge Trail Maintenance Schedule in Appendix D. A detailed inspection form should also be used to facilitate a thorough inspection such as the suggested Inspection Forms in Appendix F. Inspections should be completed by knowledgeable individual(s) who understand what is required. Completed inspections would be compiled and a list of prioritized tasks developed to address the tasks that are identified.

Good inspection input also comes from trail users and neighboring landowners. The City currently accepts Trail maintenance related suggestions and complaints on Park & Recreation's main telephone line, 771-1265.

Record Keeping

Good record-keeping techniques are essential to a comprehensive operations and maintenance program, particularly when multiple jurisdictions are involved. This information can be used to eliminate overlap or gaps in maintenance services provided, identify levels of use, and prioritize management needs. Handheld digital devices and applications with GPS capability carried by field inspectors and maintenance personal may help expedite and facilitate a more effective record keeping system where data is fed into a central source accessible on the Web. The record-keeping template could include:

- Schedule of routine (and remedial) maintenance tasks
- Inspection reports
- List of daily activities
- Observed routine and remedial maintenance items and issues
- Hazards, incidents, safety issues observed and action taken
- Prioritization of remedial maintenance projects
- User and adjacent properties input (complaints, comments, suggestions) and follow-up

APPENDIX B PAVED TRAIL MAINTENANCE

Paved Trail Maintenance Tasks

Keeping the 22 plus miles of paved trails well maintained is perhaps the biggest challenge of Trail maintenance. Good planning, engineering, scheduling, funding, contractors, and management are all vital to a cost efficient and effective pavement maintenance program. These items are examined in further detail in the following section. Maintenance of the trail pavement itself is further addressed in more detail in report section 8.0, Pavement Preservation and Replacement.

The Park and Recreation Department has been completing the following tasks on City-owned and managed segments of the trail:

- Snow Removal
- Mowing
- String Trimming
- Removing Garbage from receptacles
- Pump Vault Toilets
- Stock and Clean Toilets.

Litter/Trash Control. Areas where garbage collects along the trailside need semi-annual attention to maintain an acceptable Level of Service and quality experience for trail users. Less trash susceptible areas can be kept clean enough with annual litter pick up or by coordination of volunteer resources. Many people will pick unsightly garbage in prime trail areas. They need encouragement and organization to be most effective. Organized Adopt a Trail efforts were used successfully during the 1990s but it takes a dedicated effort to sustain an effective program and just the right volunteers to coordinate it all. Most of the labor that RTI invests in trail maintenance is provided by workers from the "Booter" program. Trails Manager should encourage business clubs and service groups to adopt trail segments for periodic cleanup. Many trail segments receive an annual cleaning by citizen and MAFB volunteers during the annual two weekend Mapril Cleanups.

Trimming branches and vegetation. Currently, this process is taking 100 hours plus using the Pre Release twice a year (early spring and summer) to complete. The City's Park & Recreation Forestry Division does not currently have sufficient manpower to perform tree maintenance along the trail. However, trimming it is essential for public safety and must be done. There are a couple options to complete this task.

- The City Forestry Division, with expanded budget/personnel

- Contract to a private tree trimming company
- Continue to use a volunteer coordinator, donated equipment and manpower from the Great Falls Pre-Release Center

Grass and Weeds Encroaching in the Asphalt and Gravel Paths. This is the number one maintenance task to insure the longest service life for our asphalt trails. Asphalt trail segments needs to be sprayed for encroaching grass and weeds twice a year spring and midsummer. Roundup herbicide effectively kills actively growing grass. Other soil sterilants should be considered for more long term control. If the weeds are not sprayed, the asphalt will be consumed by the grass over time. The locations where the weeds and grasses are growing into the asphalt are significantly reducing the service life of asphalt trails in the system.

Gravel paths at Warden Path and at picnic areas and viewpoints along Black Eagle Reservoir have become congested with weeds and grasses. Gravel paths should be sprayed with Roundup or a more permanent soil sterilant at least once a year.

The City Park and Recreation Department could complete this task, since they have a variety of spraying equipment and suitable vehicles. At this time however, they do not have the manpower to complete this important preventative work.

Noxious Weed Control - In the trail corridor. Weed control is different from the weed killer mentioned above. The County is obligated to do weed control on a specific list of noxious weeds. The Trails Manager should coordinate and schedule with Montana State Parks, City Park and Recreation, and the County sometime in February or March in order to have the trail sprayed in the spring. The County crews normally spray on either side as far as their hose reaches, making sure no spray gets into the water.

Obnoxious Weed Control. The County is not obligated to spray obnoxious weeds such as dandelion, milk weed and other such non-native plants that seem to thrive along the trail corridor. Ideally these invasive weeds would be treated several times during the growing season. The County also does not control the somewhat rampant growth and spread of Russian olive in the trail corridor even though it is now on the state noxious weed list. It is crowding out native vegetation in some parts of the corridor. It has sharp thorns which are dangerous to users when the trees overhang the trail. Historically RTI has used Pre-Release Center labor to trim and remove the branches and trees nearest the trail pavement.

Patching Asphalt Cracks. The cracks that develop in the asphalt trail should be filled promptly to prevent them from allowing water to intrude and saturate the gravel base course. If left open for an extended period, the asphalt on either side of the crack tends to sink, resulting in a noticeable dip in the smooth surface. The dips present a hazard to in-line skaters and allow even

more water to seep into the base gravel. Trails Manager should make note of the areas where these dips are deepest and need to be repaired with the slurry fill (leveling compound. The worst should be filled each year to provide a smoother and safer surface for all users and to extend the service life of that trail segment.

Failure of asphalt caused by either slides or springs should be on an annual inventory process and as problems arise.

Maintenance of Drainage Ditches, Swales, Landslides and Culverts. The Trails Manager will assess the problems such as culverts not draining, identifying landslides (there should be approximately a 2' shoulder, if there is not, could be possible slide issue) and any problems with the swales and bid or hire it out to get it done. In the past, a private contractor, hired by RTI has opened the culverts, removed landslides and regraded drainage swales.

Shoulder Protection. Should be checked annually and any issues inventoried by the Trails Manager. Erosion of gravel shoulders is a safety hazard and makes the trail not comply with AASHTO trail safety guidelines. Gravel should be ½" minus with optimum moisture, as the gravel is placed it must be rolled promptly to compact. A mixture of ground concrete and asphalt millings has also been used effectively in building up the ballast shoulders of the former railroad trail segments. The worst segments of deteriorated shoulder be repaired each year to ensure safe use of the trail.

Safety Related Improvements. The following listed items should be inventoried and checked on a frequent basis for safety purposes. Repairs and replacements should be made in a timely manner.

- Fencing should be checked for rotted wood posts, loose posts, loose wood rails, gaps at bottom, loose or missing fasteners and any sharp spots.
- Railings and posts should be secure and checked for rust and any damage.
- Kiosks should be securely mounted and checked for loose bolts and shingles.
- Shelters should be securely mounted and checked for loose bolts and shingles.
- Lighting in Tunnels and Underpasses - The Park and Recreation Department has been regularly taking care of this maintenance function.
- Bridges should be inspected by the Trails Manager annually for loose boards, bolts and any other structural issues and reasonably smooth deck surfaces. The timber deck on the trail bridge at Black Eagle Falls is currently most in need of some improvement.
- Retaining Walls should be inspected annually by the Trails Manager. Make note of the date and issues encountered. If these are re-inspections of previously identified problems, note if there is any change. Note areas where runoff is saturating soils behind the extensive gabion walls between the refinery and Higgins Park.

Signs. Signs should be inventoried and mapped initially and then inspected annually. Replace signs that get vandalized or stolen. Maintain documentation of sign suppliers and types.

Roadway Crossings. The Trails Manager should be aware of the condition of the pavement markings at all roadway crossings, both of the main Trail and connecting trails. Coordinate with the City, MT State Parks and MDT to make sure they get painted.

Graffiti. The Park and Recreation Department has been painting over graffiti as soon as it is identified. It is best to use a paint coat that completely covers the graffiti without looking like a patch job. The correct paint is in the computer at Johnson Madison Lumber under River's Edge Trail.

Caboose. The caboose and box car were last painted in 2006, they are due to be painted. There are a number of historically correct color schemes that could be employed when repainting of the cars is contemplated.

Water Fountains. Water fountains should be inventoried and notes made of the fountains that need to be repaired. Several trailside water fountains are currently out of service.

Landscaping. There are a number of landscape features that are specific to the Trail that are currently being maintained by volunteers and RTI. The flower beds at each end of the Weissman Bridge need to be weeded and watered. There are a few trees, like in Gary's Grove, that are young and need to be watered until they are established. Flower beds and landscape features in Tourist Park, along River Drive N and near the Girl Scout Cabin are currently maintained by volunteers.

Parking Lots. The Trails Manager should note any damage or deterioration to the trailheads and parking areas along the trail and share that information with the proper entities to correct said problems. Brooming gravel from the lots and connecting paths, particularly in the Spring after months of gravel spread on icy roads, is important. Making sure ADA parking slots are well marked and should be noted during inspections.

Community Service Programs. Community Service Programs should be used to their fullest potential, such as the Great Falls Pre-Release Center. The "Booter" community service program is one of many programs run by the Great Falls Pre-Release Center, sometimes know as the Great Falls Transition Center. Booters must complete a certain amount of community service per week and for the most part, enjoy working on the trail. They are often available for trail maintenance activities by contacting the Aftercare Coordinator.

They are mostly very productive; most can adequately perform branch trimming, string-trimming, raking, painting, digging, light carpentry and other labor intensive work. Some have advanced skills from their former lives, such as welding, landscaping, etc.

APPENDIX B UNPAVED TRAIL MAINTENANCE

Unpaved Trail Maintenance Tasks

Unpaved trail maintenance considerations are commonly different than hard surfaced trails. Maintenance vehicle access to these trails is often impractical or impossible. Hand tools and manual labor are normally the most practical way to maintain single track. However, a properly designed single track trail in suitable environs should need minimal maintenance. Most, but not all, of the trail system single track trails are very low maintenance. Trails in areas with more dense vegetation require the most routine maintenance to control that vegetation.

The Trails Manager should try to foster a close and long term working relationship with groups and individuals who provide volunteers for community service such as single track trail maintenance. Example resources include An Adopt-A-Trail volunteer program was used in the past and should be restarted by the Trails Manager. Alternatively, the Land Management Agency's staff would need to assess trail segments, assign crews, and complete the identified maintenance tasks.

Assessment can be accomplished by a volunteer or staff member walking or riding the trail segment in question to mark recommended tasks on a trail map and then provides that map to the Trails Manager for further evaluation, crew assignment, and task completion. This assessment should be conducted each spring and then as needed later in the year. A suggested example trail assessment report is in the Appendix D.

Many unpaved trail routine maintenance tasks can be performed quite efficiently by a single individual with appropriate hand tools. However, it takes a conscious effort to see that the tasks in remote areas are completed. Finding individual volunteers and keeping them motivated and committed to a well maintained trail should be a high priority of the Trails Manager. Utilize an organized assessment and task assignment system such as is discussed in IMBA's Trail Solutions manual and as presented in the Appendix C, River's Edge Trail Maintenance Schedule.

Noxious Weed Control. Noxious weed control in natural areas that the trail passes through is typically performed on City of Great Falls lands by Cascade County Weed District; with the City responsible for oversight and transfer of funds. These lands would include the City parcel between Whitmore Ravine and Cochrane Dam, which includes the main River's Edge Trail and the Mayhem trail system. City property on the Whitmore Ravine Access Road would also be treated by Cascade County. Weed treatment within the City trail easements between Cochrane Dam and Box Elder are the responsibility of the City and is currently being done by volunteers.

On lands owned by PPLM and managed by State Parks on the north and south shores, weed treatment is coordinated according to the Lewis & Clark Heritage Greenway Conservation Easement, a Cooperative Management Agreement between PPLM and State Parks, and the North Shore Trail Easement. PPLM provides funding for weed treatment on these lands and FWP coordinates the work with professional contractors and/or Cascade County Weed District. Weed treatment on State Parks land near the Morony Dam is paid for by State Parks. The US Forest Service is responsible for weed treatment along the Sulphur Spring Trail and on lands administered by them under a conservation easement with FWP.

Nuisance Plant Control. Certain weed species present special problems for hikers, dogs, and bicyclists. A quality trail experience cannot be had if burs get stuck to clothing and spiny leaves brush against skin. Trails Manager should coordinate volunteers or weed staff to pull or spray Hounds Tongue, Canadian Thistle, Bull Thistle, Poison Ivy, and Wild Licorice each year during late May or early June. These plants should not be allowed to grow within four feet of the trail tread in order to maintain a good Level of Service for single track trails.

A backpack sprayer and herbicide is currently stashed at Lost Fork trail for a few problem segments in shady, moist areas. Water supply for the sprayer is from a spring creek crossing the trail. The North Shore trail also requires spraying or pulling of nuisance weeds in several shady, moist areas; herbicide treatment is performed by professional weed treatment companies or the Cascade County Weed District.

Branch Trimming. Coordinate Adopt-a-Trail volunteers to keep the trail clear of vegetation that would walkers or bicyclists would brush against as they travel. Focus areas are Mayhem and Lost Fork. Cedar bushes, brush and trees should be trimmed each year to maintain the quality of the trail experience.

Cactus and Yucca Control. Cactus causes bicycle flat tires and thorns in unsuspecting trail users skin. Coordinate volunteers to dig back cactus plants that grow within 18 inches of the trail tread. Herbicide is needed to control Yucca that grows into the trail tread.

Trail Tread Upkeep. Encourage Adopt a Trail volunteers to remove loose rocks (2" or larger) from the trail surface. Maintain water bars on single track segments near Whitmore Ravine. Anticipate gully washer storms to dump sediment on the newer North Shore trails which may require individuals with hand tools to remove.

Flatter trail segments in well grassed areas require lots of use to keep them smooth. Roundup herbicide is an effective, low impact tool to better define the trail tread in grassy areas (but its use is not permitted on PPLM or FWP lands unless applied by certified operators). Once grass

plant roots in the 18” to 24” wide sprayed zone rot, the trail surface has optimum smoothness and requires a lower volume of use to stay smooth and clear.

Hiking or riding on wet clay trails damages tread. The Trail Manager helps inform users not to use when wet and to initiate corrective action if warranted. Note that minor ruts and footprints in the clay trail surface tend to heal themselves over time so they sometimes don’t require corrective action. Pre-emptive actions are the best way to manage this impact.

Visibility Management. The North and South Shore Trails have occasional rocks at pedal/leg level that can be hazardous when hidden by tall grass and forbs. Spray/pull/weed whack selected locations for bicyclist and hiker safety.

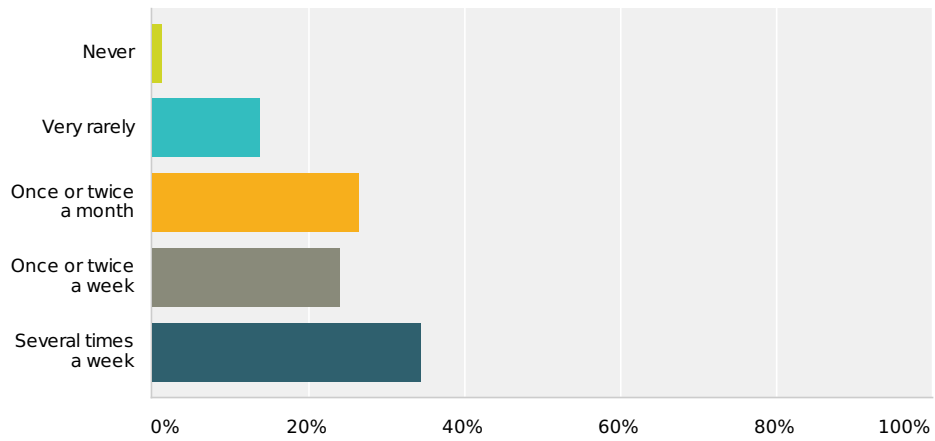
Non-Routine Tasks. Natural disasters such as landslides, wind storms, gully washers, and grass fires can lead to a variety of non-routine work tasks. Adopt a Trail volunteers report problems to the Trails Manager and initiate corrective actions. These actions may include rerouting trail segments, constructing bridges, sawing downed trees, and trail tread repairs.

Work parties to perform major trail work are also coordinated by FWP. Trail work parties performing trail maintenance may be needed for rerouting a problem trail, repairing trails after an extreme weather event, or extending new trails. Staff time and funds to complete these tasks typically come from FWP and PPL resources.

APPENDIX C
PUBLIC OPINION SURVEY

Q1 How Often do you use the River's Edge Trail?

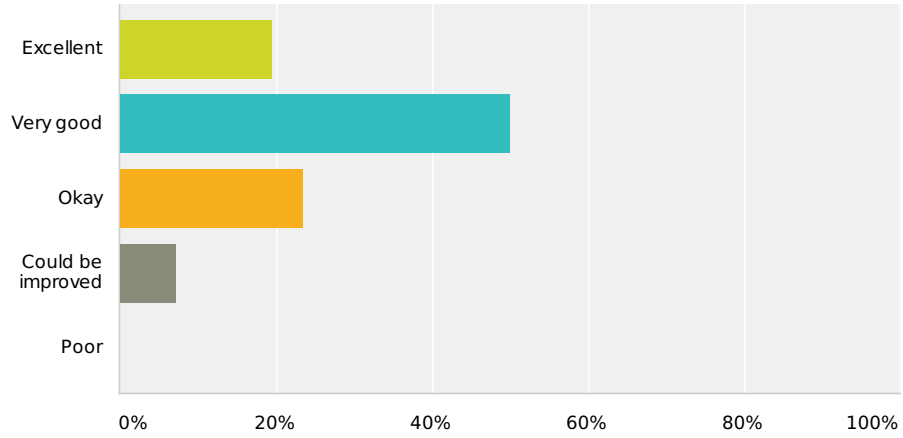
Answered: 253 Skipped: 4



Answer Choices	Responses
Never	1.19% 3
Very rarely	13.83% 35
Once or twice a month	26.48% 67
Once or twice a week	24.11% 61
Several times a week	34.39% 87
Total	253

Q2 What is your overall opinion of the maintenance of River's Edge Trail.

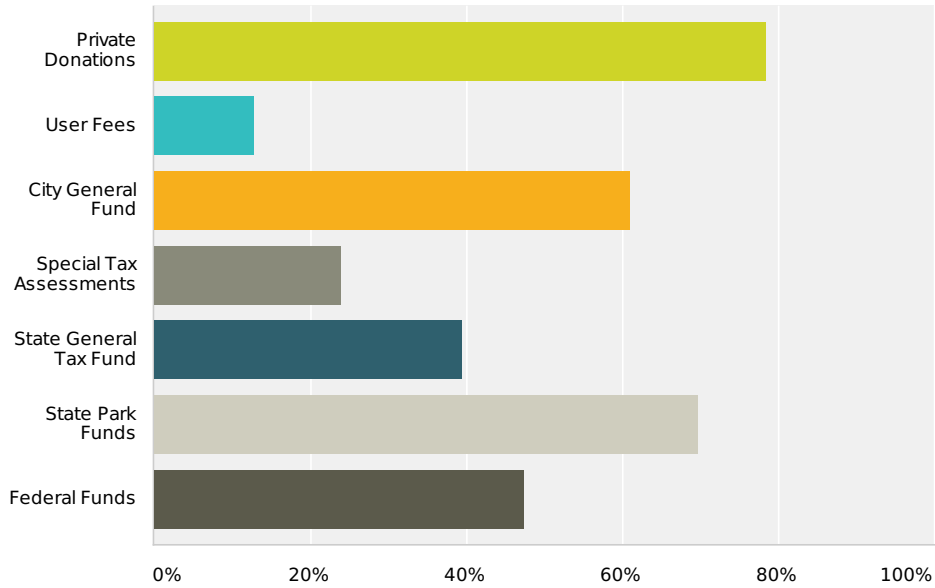
Answered: 252 Skipped: 5



Answer Choices	Responses
Excellent	19.44% 49
Very good	50% 126
Okay	23.41% 59
Could be improved	7.14% 18
Poor	0% 0
Total	252

Q3 National studies show that maintenance of a paved trail network costs around \$5,000 per mile, per year. What funding sources should be used to pay for maintenance of the River's Edge Trail? (Mark all that apply)

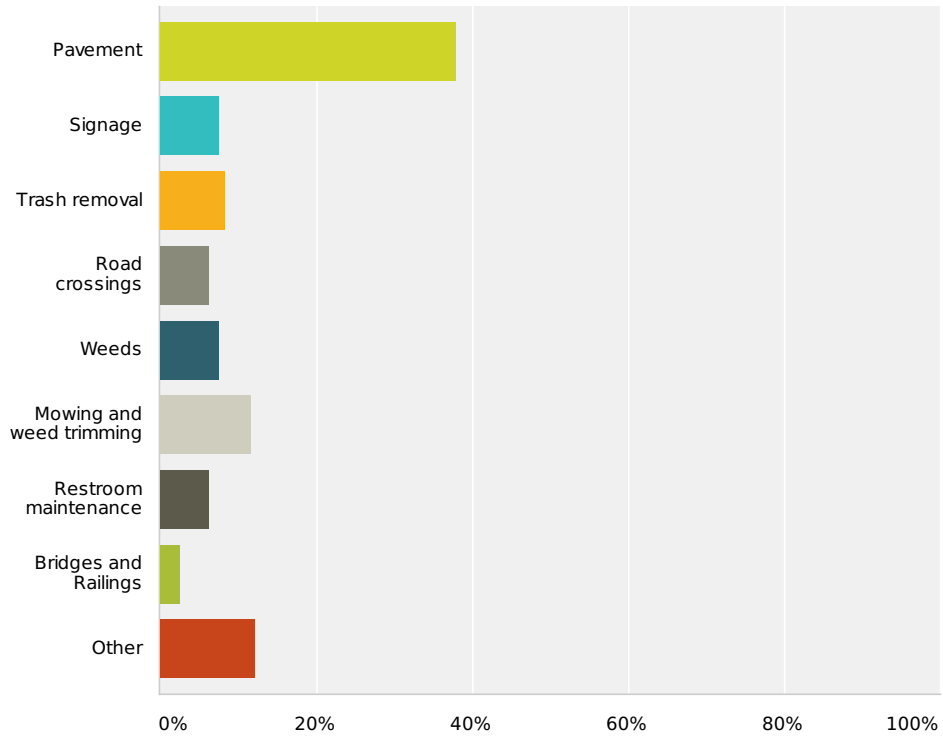
Answered: 251 Skipped: 6



Answer Choices	Responses
Private Donations	78.49% 197
User Fees	12.75% 32
City General Fund	60.96% 153
Special Tax Assessments	23.90% 60
State General Tax Fund	39.44% 99
State Park Funds	69.72% 175
Federal Funds	47.41% 119
Total Respondents: 251	

Q4 What category of trail maintenance do you think needs the most attention?

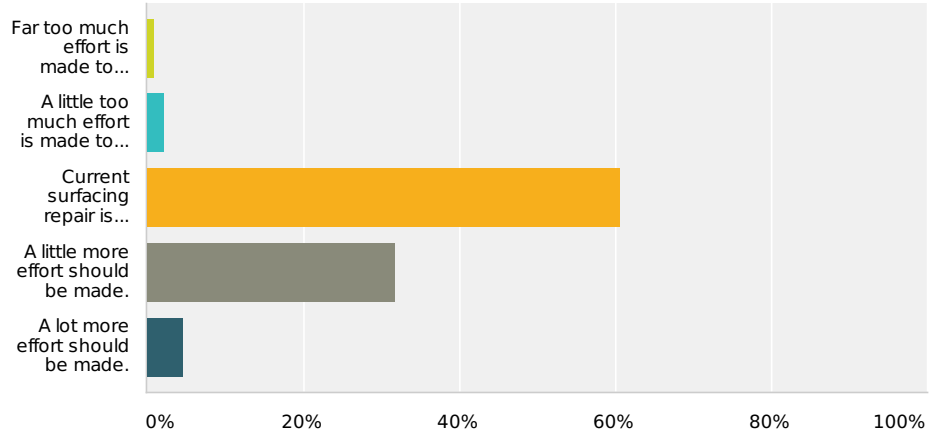
Answered: 240 Skipped: 17



Answer Choices	Responses
Pavement	37.92% 91
Signage	7.50% 18
Trash removal	8.33% 20
Road crossings	6.25% 15
Weeds	7.50% 18
Mowing and weed trimming	11.67% 28
Restroom maintenance	6.25% 15
Bridges and Railings	2.50% 6
Other	12.08% 29
Total	240

Q5 Trail Pavement Repairs - Trail paving deteriorates over time. Crack sealing, pothole repairs and asphalt overlays are completed as required.

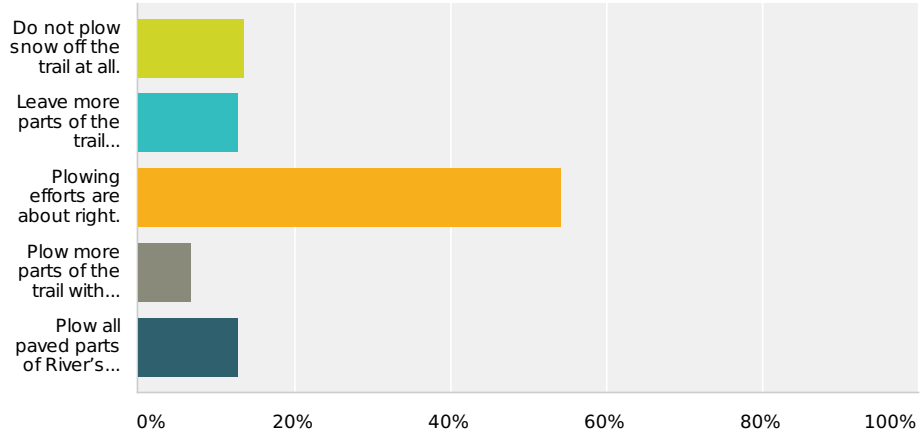
Answered: 239 Skipped: 18



Answer Choices	Responses	
Far too much effort is made to repair pavement.	0.84%	2
A little too much effort is made to repair pavement.	2.09%	5
Current surfacing repair is about right.	60.67%	145
A little more effort should be made.	31.80%	76
A lot more effort should be made.	4.60%	11
Total		239

Q6 Snow Plowing - All of the trail located within the City limits is plowed within 24 hours after snow. Other parts are not plowed

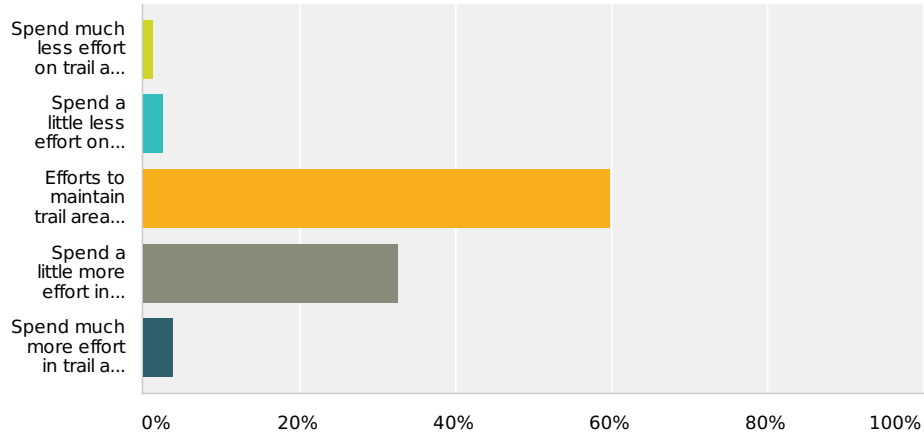
Answered: 236 Skipped: 21



Answer Choices	Responses
Do not plow snow off the trail at all.	13.56% 32
Leave more parts of the trail unplowed.	12.71% 30
Plowing efforts are about right.	54.24% 128
Plow more parts of the trail within 24 hours of snow falls.	6.78% 16
Plow all paved parts of River's Edge Trail as soon as practical after it snows.	12.71% 30
Total	236

Q7 Trail Appearance - Mowing, weed control, graffiti removal, litter removal, and tree and shrub trimming impact how inviting the trail surroundings appear.

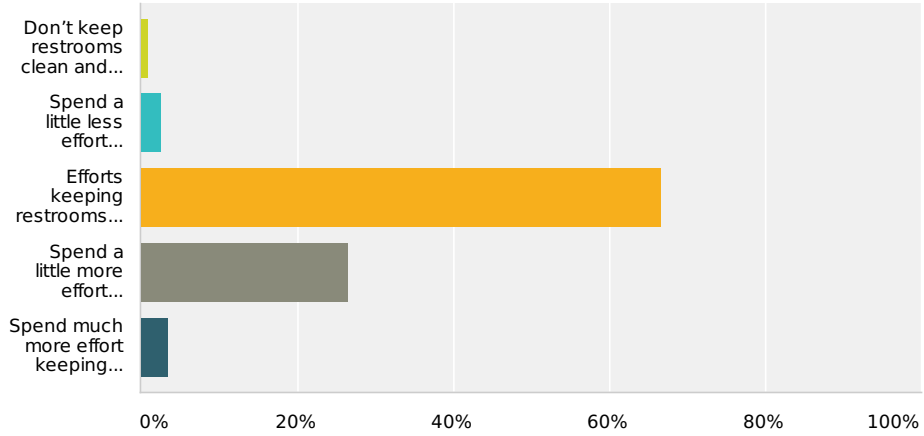
Answered: 239 Skipped: 18



Answer Choices	Responses
Spend much less effort on trail area appearance.	1.26% 3
Spend a little less effort on trail area appearance.	2.51% 6
Efforts to maintain trail area appearance are about right.	59.83% 143
Spend a little more effort in trail area appearance.	32.64% 78
Spend much more effort in trail area appearance.	3.77% 9
Total	239

Q8 Restrooms - Keeping trail side restrooms clean and stocked with toilet paper takes staff time and supplies.

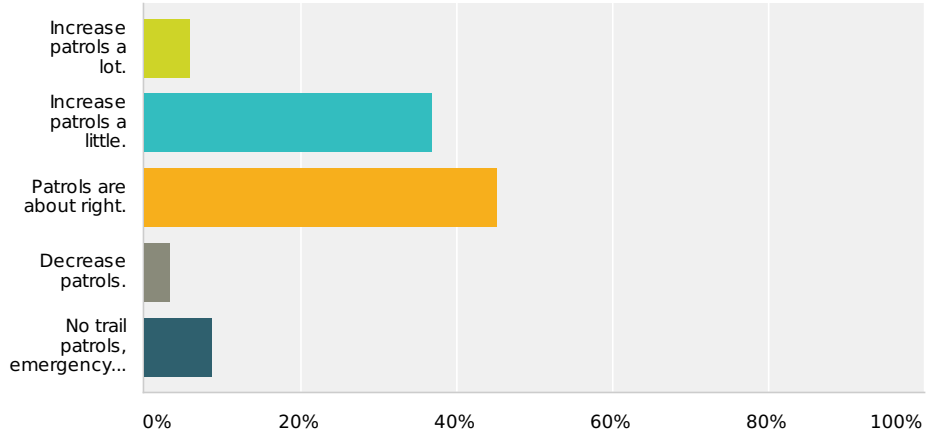
Answered: 234 Skipped: 23



Answer Choices	Responses
Don't keep restrooms clean and stocked.	0.85% 2
Spend a little less effort keeping restrooms clean and stocked.	2.56% 6
Efforts keeping restrooms clean and stocked are about right.	66.67% 156
Spend a little more effort keeping restrooms clean and stocked.	26.50% 62
Spend much more effort keeping restrooms clean and stocked.	3.42% 8
Total	234

Q9 Trail Safety - The Great Falls Police Department patrols portions of River's Edge Trail occasionally during good weather.

Answered: 241 Skipped: 16



Answer Choices	Responses
Increase patrols a lot.	5.81% 14
Increase patrols a little.	36.93% 89
Patrols are about right.	45.23% 109
Decrease patrols.	3.32% 8
No trail patrols, emergency response only.	8.71% 21
Total	241

Q10 Do you have any specific comments you would like us to consider? Please provide your email address if you would like to be contacted.

Answered: 98 Skipped: 159

SEE INDIVIDUAL REPOSSES
STARTING

**RIVER'S EDGE TRAIL MAINTENANCE II
PUBLIC OPINION SURVEY**

10. Do you have any specific comments you would like us to consider? Please provide your email address if you would like to be contacted.

Answer Options	Response Count
	98
<i>answered question</i>	98
<i>skipped question</i>	159

Number	Response Date	Response Text	Categories
1	May 18, 2013 4:21 AM	Can we spray for bugs along the trail? I finish my bike ride from this great trail, covered head to toe in bugs! I often think that I inhale more of them than a bat would! =)	
2	May 17, 2013 9:06 PM	Thank you for a wonderful trail system! My dogs and I used this system all winter to train for a half-marathon and I really appreciated having it. Now that the weather is warmer it would be wonderful if there were more placed to refill water.	
3	May 17, 2013 8:13 PM	NOT ENOUGH SIGNAGE FOR BICYCLISTS TO CALL OUT WHEN PASSING. THEY THINK IT IS A RACEWAY. I HAVE NEARLY BEEN HIT OR HAVE SEEN OTHERS ALMOST HIT NUMEROUS TIMES. IT'S VERY FRUSTRATING. WOULD ALSO LIKE TO SEE SIGNAGE ON TRAIL FOR PEOPLE TO NOT THROW ROCKS FROM STRETCH BETWEEN CABOOSE AND TUNNEL AT GIANT SPRINGS ROAD TO THE RIVER. WAS FISHING DOWN BELOW LAST WEEK AND NUMEROUS ROCKS WERE THROWN FROM UP ABOVE DOWN TO THE RIVER. SHOUTED AT THEM, THEY DIDN'T HEAR. WE WERE ALMOST HIT. THEY WOULDN'T QUIT. IT'S BECOME A HARD HAT AREA. CAME FROM THE AREA NEAR THE LEWIS & CLARK STATUES. SOME OF THE BOULDERS THAT USED TO BE UP ON THE HILL WHERE YOU CAN SIT HAVE ALSO ENDED UP OVER THE CLIFF DOWN TO THE RIVER.	
4	May 17, 2013 7:49 PM	I think the trail is an excellent resource to the community because it is well maintained, safe, and users don't feel like they are being policed/micromanaged. It is a very good balance of trusting the user and asking the user to respect the trail while the City and other groups take care of the maintenance that is necessary.	
5	May 17, 2013 5:04 PM	Where there is a sign reminding us to pick up after our pets it would be useful to have a bag dispenser just in case you forgot to bring one with you during that walk.	
6	May 17, 2013 2:50 PM	Emergency phones/stations every mile would be great. Also better markings indicating mile and half mile distances. Have businesses sponsor miles of the trail, just like adopt a highway works... it may cut back the amount of funding needed overall.	
7	May 17, 2013 2:22 PM	plowing from giant springs road east was not as good as in previous years, trail is wonderful	
8	May 17, 2013 6:47 AM	Bathrooms should be locked all the time.	
9	May 17, 2013 5:50 AM	Love, love, love the trail!! We are so thankful for a free outdoor area that we can use with the whole family. It's wonderful!!	
10	May 17, 2013 2:36 AM	Enforcing the leash law on the trail would be nice. Too many people let their pets poop on the trail and leave it. They are not considerate of others using the trail. Otherwise, I absolutely love the trail and the fact that I can access it almost anywhere in town is wonderful. Some places feel safer than others, and maybe more patrols should take place, but I am not sure.	
11	May 17, 2013 2:28 AM	Need more water fountains and maybe a dog-friendly fountain or two. Also there aren't enough trash cans for those of us who do remove our pet waste- can end up carrying for a mile! Do you spray for bugs or treat all the standing water (alot of mosquitos). Otherwise maintenance is great and my family always enjoys using it!	
12	May 17, 2013 12:23 AM	I appreciate the trail very much. The River's Edge Trail is one of the best parts of the city. I am glad that it connects all parts of the town together. I use the trail for exercise as well as a way to enjoy nature.	
13	May 16, 2013 11:03 PM	Put hand sanitizer in bathrooms	
14	May 16, 2013 9:52 PM	Need more railings my 2 year old likes to walk with us & sometimes she starts running & I fear she will get to close to the edge... But other then that love the place...	
15	May 16, 2013 9:25 PM	Not sure where the bathrooms are that you keep talking about, but there should be more bathrooms.	
16	May 16, 2013 8:59 PM	I think the trail is fine as it is. There are plenty of garbage cans, benches, and rest stops for people using the trail. Having the distances marked (miles) in more obvious places would be great, maybe having different start/finish points for people who walk the trail starting at different locations. I don't know the exact location of where the mile markers are at, but I like to know how far I walk/run.	
17	May 16, 2013 8:51 PM	I really don't use River's Edge Trail much. The few times I have tried, I have been approached by panhandling bums near Gibson Park and on the other side near the river, and nearly attacked by people's dogs lunging at me or my kids. There are always drunk homeless people passed out under the trees or in the grass. Punk teens hanging out in the evenings near N. River Road. I really don't feel safe. I'm also confused if we seriously have to pay to just ride our bikes on the trail by Giant Springs.	
18	May 16, 2013 8:43 PM	at certain times of the year I would say the bugs are the most annoying. Also keeping things mowed back and the trails clear would be good for people to be able to see what lies ahead.	
19	May 16, 2013 8:40 PM	I use the part of the trail in the Prospect Heights area and am very thankful that it was added. My wish list would include walkway from the trail on Overlook Drive/Upper River Road to Prospect Drive so that you could make a loop without walking in the street. Also on the parts of the trail that are unpaved the weeds get very high. I prefer to enter the park off of 13th Ave at the unpaved section because the paved section has such a steep grade. Love the gazebo and telescopes. Thanks	
20	May 16, 2013 8:34 PM	Many areas have so many bugs such as out towards Gibson Park and that area. Your breathing bugs if you go out that way which is miserable. I know its a less populated area of the trail but that's why its nice when its early in the year before the bugs are out because you don't have bikes coming at you or uncontrollable dogs to worry about. I can't stand the busy parts of the trail, too many weirdos that creep me out and irresponsible dog owners/parents/bikers/etc	

21	May 16, 2013 8:19 PM	Get rid of transients and enforce dog leash laws.
22	May 16, 2013 8:19 PM	Insect control during peak seasons would be a plus for avid trail users. Just like they spray the neighbor hoods for to control the insects the trail should be sprayed as well. At certail times of the year and time of the day the trail becomes very difficult to navigate and enjoy simply because it is over run by insects.
23	May 16, 2013 8:17 PM	The trail and the river are the gem of this town. It's unfortunate the city portion of it is not well taken care of by users. I really think the city and organizations involved have done a good job and appreciate that it has bee expanded. Little things like graffiti and trash by users upsets me and I'd like to see users take more personal responsibility. The non paved outside city limits are my personal favorite....keep theses rugged and matching the landscape so it's a little more effort for those that want to use it. I always run into the morning crew doing maintenance. They are always very polite and yield the right away so I can be on my way. The luminary walk a few years ago had a big crowd, I'd like to see that come back and be a fundraiser and awareness for the trail. fontinez@gmail.com
24	May 16, 2013 8:14 PM	There needs to be more oppotunities for individuals to utilize restrooms on the trails and more signs showing what routes are available.
25	May 16, 2013 8:13 PM	One of the best assets of Great Falls. Fresh air, exercise, free, it just doesn't get any better.
26	May 16, 2013 8:12 PM	it is one of the best parts of great falls., its free and everyone benefits healthwise. nice job to great falls on this excellent trail.
27	May 16, 2013 8:11 PM	I have used the trail everyday for the last twelve years.and that includes winter etc. All that has been is perfect it's not a fancy park it is to see nature in its true form. Its nice to keep up on trash that lazy people leave behind and the edge trimming so we can keep a look out for snakes. Keep up on the excellent work? ?
28	May 16, 2013 8:10 PM	I would love to see more lighting along the trail.
29	May 16, 2013 7:31 PM	I ride my bike and walk the trail probably 3 times a week and just love it! What an asset to the Great Falls community! The idea of adding the bike lane from the base is an excellent one! The people out there need an access to the trail. I would love to see more miles added to the trail. I have been using the trail on a regular basis for around six years now and love seeing the growth of use on it. Most people are so friendly and are polite about getting out of the cyclers way. There are a few with pets that should be more considerate about cleaning up after them, but not everyone is considerate. It is wonderful to have bathrooms along the way and water fountains also. Great job to all who are involved in the trail and the upkeep. I'm very impressed! Because we have Giant Springs State Park and the Interpretive Center, I think that the State should be involved in some of the funding.
30	May 16, 2013 3:36 PM	Love the trail!! I would really like to see the portion of the trail that crosses by the police department, pool, that eventually connects with trail, made more safer. thank you for this survey
31	May 16, 2013 2:45 PM	I dont understand the mile markers. I wan t to know how f ar I have walked.
32	May 16, 2013 2:35 PM	The trail network has been a great thing for the people of Great Falls. Having a wide spread trail network provides very good access and invites people to get out and get active. My family and I bike the trails a couple times a week during the nice weather and really enjoy our rides.
33	May 16, 2013 2:05 PM	Have walking event, and bring back the lumanarey walk they would be good fund raisers.
34	May 16, 2013 11:56 AM	Improved access to the trail from nearby neighborhoods via pedestrian and bike friendly routes would be nice and would increase my use. It can be hard to get there of you don't drive.
35	May 16, 2013 11:14 AM	More fencing around river areas so we are not scared to allow our young children on the trail.
36	May 16, 2013 5:15 AM	More trails!
37	May 16, 2013 4:45 AM	I have noticed over on the west bank that there are more and more growing populations of Prairie Dogs. The are everywhere and are taking over great portions of the area by the trails. It's getting pretty bad. I know you can't get rid of all of them but just so its known. Their population is definitely growing around the area. Thanks!
38	May 16, 2013 4:45 AM	If each dog owner were to bring a Baggie and pick up after their own dog, the trail, and beside the trail would be more pleasant for everyone. I love dogs and wish that more owners kept their dogs leashed while walking, biking, or running with them.. Great job in keeping the trail maintained. Thank you!
39	May 16, 2013 4:33 AM	More parking at the trains would be nice and a turn lane on both lanes of traffic to ease congestion and that in turn will cause less rear-end accidents. It would be nice if the field across from the trains could be developed into parking with an overpass for pedestrian traffic. I have heard comments from out of towners and I quote this one: "Great Falls brags about this great trail system, and there is nowhere to rent bicycles or trailers to tow the children in. I don't want to pack all of that stuff from Canada down to here." One more good question: "Can a person cross one of the dams to get to the other side? Imagine if you could, that would bring in people to experience it, and of course they then bring their money with them and leave it behind in G.F."
40	May 16, 2013 4:26 AM	Trails is a great community asset, love the rural expansions

41	May 16, 2013 4:25 AM	I love the trails and think they are one of Great Falls greatest assets. I have trained for a full marathon and multiple 1/2 marathons via long runs on every inch of the trails on both sides of the river. Family memories with runs, bike rides, and fun road races will always be cherished! Keep them open and keep them nice! We appreciate the investment!
42	May 16, 2013 4:24 AM	Trail is jewel of great falls. keep it up
43	May 16, 2013 3:44 AM	I would like to see paving on the short unpaved section of the Giant Springs trail section heading west before the road underpass.
44	May 16, 2013 3:14 AM	I'd like to see the trail include overpasses and bridges at 9th st and 15th street so visitors can easily access both sides of the river and have more of a loop to run or walk. I'd also like to see clearer road crossings or tunnels/bridges at intersections which requires walkers and runners to cross River Dr south.
45	May 16, 2013 3:07 AM	It's going on three years and I'm wondering when they are going to pave the gravel section east of Black Eagle Dam and west of the roadway underpass. This is very hard on us inline skaters. Thanks!
46	May 16, 2013 2:22 AM	Love the trail should advertise it a little better for out of state users. In regards to patrolling by police I have yet to see one. I ride my bicycle many miles every year so you would think One. Would have been seen. West Bank could use a little more patrolling.
47	May 16, 2013 1:50 AM	Could more trash cans could be provided at closer spaced intervals to encourage/facilitate dog poop cleanup?
48	May 16, 2013 12:59 AM	Would be willing to help clean up along the Trail.tkgtf@yahoo.com
49	May 16, 2013 12:47 AM	There is a part of the trail in the park river tennis court "loop" that crosses over by the horseshoe tossing area that is warped so badly that a biker and I almost colided and there was no room for us to pass each other it is so narrow and warped. Good thing he was a good rider or one or both of us would have been hurt. If you cannot repair that area it should be shut down or a warning sign put up. thank you.
50	May 16, 2013 12:37 AM	no comments other than it is great....one of the best things in GF
51	May 15, 2013 11:55 PM	I would like there to be posted signs about the leash law and picking up after your dogs and possibly doggie bags every so often for people to grab and pick up after them and also put maybe trash cans along the trail to put their doggie trash in. I walk the trail daily and I notice now that it is getting nice, usage is increasing, so there is walkers, joggers and bikers so it is really congested. I also feel that it needs to have a handicap spot, I would like to see the grass leveled in front of the caboose a lil bit and make a lil trail so easier to get to the trail.
52	May 15, 2013 11:48 PM	The Trail is one of our premier assets! Keep up the great job ~ and continue to expand.[] []
53	May 15, 2013 11:35 PM	We do need more connectivity between the Trail and the Downtown. Please spray for misquatoes. They are so bad the end of April and early May almost to the point that the trail from fish wildlife and parks to Eagle Falls is unusable.
54	May 15, 2013 2:03 PM	I think the trail is fine.
55	May 12, 2013 8:27 PM	The trail is really a safe haven for kids in many ways. They are no longer able to play on the damn as they did when I was a child here. Also, it allows a safe area for walking.
56	May 9, 2013 10:42 PM	The River's Edge Trail is by far Great Falls' crown jewel, accessible to all no matter their income. It deserves all the resources we can give it. Doug Wicks and crew deserve all the support we can give them. [] [] Improving the street crossings near Applebee's and Mitchell Pool would be great if there's anyway reasonable way to accomplish that. Flashing lights, better signage, increased patrolling, etc. GF drivers don't exactly go out of their way to yield to pedestrians.
57	May 9, 2013 3:29 PM	Thank you for all your great work. I love running the trails.
58	May 7, 2013 3:51 AM	A connecting trail through the southern part of town should be considered, It would pass through 2 elementary schools, 2 colleges, 2 hospitals, medical clinics, 3 parks, softball and football fields, and numerous elderly housing projects. The businesses in this area should be asked to build connecting trails through their property just as the Grandview was. The people in this area are the ones that would use the trail the most; elementary students, college students, and the elderly.
59	May 6, 2013 5:24 PM	Kudos to those who do all of the upkeep. It is a true asset to the city of Great Falls.
60	May 6, 2013 4:38 PM	We appreciate the cooperative effort to maintain the trail. We believe the trail is one of the premier attractions in our town, and we hope the city does everything possible to keep it that way and to keep improving it. Thank you!
61	May 6, 2013 4:32 PM	It is a great resource for citizens and visitors!
62	May 6, 2013 3:50 PM	The River's Edge Trail system is vital to quality of life in Great Falls and the City, State Parks, MDT, and PPLM should be congratulated for all their efforts. Please improve City support for the Trail within the City. Also, the single track trails east of town are amazing, and are an important component of the system. The single track trails are bringing in trail users from outside of the area and are a great economic benefit to the area. Lastly, please hep protect the river corridor and trails from development.
63	May 6, 2013 2:42 PM	The River's Edge Trail is a civic treasure and the city should dedicate the necessary resources to maintenance and repair. Although this is beyond the scope of this survey, I would also like to see more trail access points so that the trail can interface better with city streets. In particular at the 6th Street North, 15th Street North, and 25th Street North there should be ramps or stairs that lead from the streets to the trail.
64	May 6, 2013 2:06 PM	I think the trail is one of Great Falls' biggest attributes, appreciate all you do.[] [] thank you!
65	May 5, 2013 2:16 AM	make people pick up after their dogs.

66	May 5, 2013 2:14 AM	In my opinion, the River's Edge Trail is the best feature of Great Falls and Cascade County.
67	May 3, 2013 11:16 PM	I don't believe people should expect to be able to use the trail during or shortly after inclement weather. Restrooms are a perk, if budget concerns are an issue, cut back there. Weeds and litter are a priority in my opinion, and are my biggest "complaint". I love the trails!
68	May 3, 2013 8:39 PM	I am from helena and the Rivers Edge Trail is my favorite thing to do in GF! Don't give it up! Wish we had one!!!
69	May 3, 2013 8:29 PM	Use citizen groups to clean up portions of the trail, including but not limited to people that have to do community service.
70	May 3, 2013 7:11 PM	Its hard to answer some of these questions when we dont know for sure how often things are done - like bathrooms for example. I personally haven't had to use one but I know I'd like to know they are clean if I do. I've never seen anyone patrolling the trail any time I've been on it either. I think it's great to have the trail system.
71	May 3, 2013 3:03 PM	we need more dirt trails and the existing dirt trails need more maintenance. [] danhinckley@hotmail.com
72	May 3, 2013 1:51 PM	Need weed control on dirt portion of South Shore Trail.
73	May 2, 2013 4:55 PM	It should be swept now and then for roller blading.
74	May 2, 2013 4:13 PM	I run on the trail late into the fall and early into spring. I have noticed that the water is turned off at the fountains early and not turned on till later in the spring. It would be great if these were made available during other times besides just summer.
75	May 2, 2013 2:36 PM	The Rivers Edge Trail is wonderful. Without it people wouldn't even know there was a river in Great Falls.
76	May 2, 2013 1:29 PM	I am thankful for the River's Edge Trail and appreciate all those who maintain it. I use it year around and sometimes in the winter there is no toilet paper in the restrooms. I really am grateful that it is plowed regularly after snow. It is a beautiful resource for Great Falls, although it is maintained it still looks pristine and natural. Thank you again for the privilege to use it.
77	May 2, 2013 6:34 AM	just make shure it is kept safe for people of all ages please.
78	May 2, 2013 2:53 AM	I would like the trail expand along Fox Farm Road or Flood Road
79	May 2, 2013 2:30 AM	I think the trail is fantastic. What a blessing to have this in our community. Thank you
80	May 2, 2013 1:41 AM	Keep the trails growing! Love it for my family and !!! [] mjelliot67@gmail.com
81	May 1, 2013 11:10 PM	The trail should and could be maintained much better than it is. It is one of the Show-pieces of Great Falls, and should be treated as such.
82	May 1, 2013 10:30 PM	The Rivers Edge trails are worls class. Stay comitted to them.
83	May 1, 2013 10:17 PM	The drinking fountains are turned on way too late in the year! Why are they not on right now? Last year it seemed like it was not working until June.
84	May 1, 2013 10:09 PM	I just moved here from Raliegh, NC where a lot of effort is being put into city greenway walkways and the Neuse River Trail. What you have here is fantastic and I can't wait to explore more of it. A little more signage would be nice for those not familiar with the area and where parts of the trail start and stop. [] [] knottyneedle@gmail.com
85	May 1, 2013 9:48 PM	This trail is important to the community and plays a big part in tourism when it comes to holding runs and other events that utilize the trail. I think showcasing the trail with more events may help it pay for itself. Maybe a few more runs similar to the icebreaker, or a river event similar to the river parade held on the river in San Antonio, TX, just a couple of examples. Thanks.
86	May 1, 2013 8:19 PM	there are a few places where additional signage would be helpful to know how the trail ,inks up with other bike routes around town. I would be happy to volunteer for some trash pick-up help!
87	May 1, 2013 8:00 PM	The Rivers Edge Trail is one of the attractions that make Great Falls a unique place. We really have very little opportunities as rich as this trail system that everyone can use and enjoy, so it is well worth the effort to keep it well maintained. A seperate revenue that specifically targets this would be worth exploring. Communities that have similar systems have enjoyed an increase in that communitis visitation just for the chance to use the trail.
88	May 1, 2013 7:48 PM	We have a great resource here that attracts young families like mine to the area AND keeps us here. Let's take care of it!
89	May 1, 2013 7:46 PM	I am new to Great Falls as of July of 2012 and I commute to work year round by bicycle. I very much appreciate what a wonderful resource the Rivers Edge Trail is. That said, I have had trouble understanding how much of the trail this past winter would be brushed when it snows. I find it unpredictable except that the section along Giant Springs Rd never seems to be brushed, making it very difficult to ascend and very dangerous to descend.
90	May 1, 2013 7:36 PM	The Trail is great!

91	May 1, 2013 7:36 PM	<p>The Trail is a fabulous asset to our community and is my favorite part of living in Great Falls. My tax dollars are well spent on any efforts to improve or maintain the Trail.¶</p> <p>¶</p> <p>My one area of the trail that I'd like to see improved are the road crossings. Too few drivers stop at the intersections. If the markings were similar to those pedestrian crossings near Benefis, particularly on River Road, I think it would be more effective in slowing down cars.</p>
92	May 1, 2013 7:20 PM	<p>Better patrols for loose dogs are a must. Send Animal Control vehicles on regular rounds at different times. I've been attacked. Luckily I was on my bike & could raise my legs! Thanks.</p>
93	May 1, 2013 7:00 PM	<p>The trail is a wonderful asset t Great Falls. We have tourists coming to Great Falls specifically to use our trail. It is a safe place for families to ride without fear of traffic. The scenery is beautiful. My only complaint is people who don't pick up after or control their dogs!</p>
94	May 1, 2013 6:57 PM	<p>more garbage cans so people can dispose of dog waste. People won't scoop if they have to carry it too far!</p>
95	May 1, 2013 6:14 PM	<p>Frankly I DO NOT like paved trails. I do agree that for those with strollers or who are confined to a wheel chair it is a benefit. I find that paved trails are harder on a persons body. I find that in inclement weather they are dangerous! I daily use the UNPAVED trails. I try to avoid the paved trails all together!</p>
96	May 1, 2013 5:53 PM	<p>Connect the trail better to downtown and neighborhoods. Unless you drive to the trail, it is sometimes difficult to get on it for most people in town. The trail is one of the best assets that Great Falls has, and we should continue to invest in it. It gives us recreational opportunities and is good for tourism, so it nearly pays for itself by drawing more money into the community.</p> <p>mmsmith922@gmail.com</p>
97	May 1, 2013 5:43 PM	<p>Rivers edge trail is one of the most important assets the City has. We should spend the money the keep it up and expand it. It brings people to Great Falls and makes Great Falls a better place to live.¶</p> <p>¶ I lived here before Rivers Edge trail was developed and it is a HUGH improvement in assets available to our citizens.</p>
98	May 1, 2013 1:21 PM	<p>There are dozens of non profit groups in GF, look to them to assist with the trail. Previous Sheriffs used inmates to clean up the community, bring 6 or 8 of them or the prerelease people to do the work. The RE Trail has grown beyond what the community can afford to maintain. designate parts to be paved, some should be a trail, some might best be turned back into its natural landscape. there is both a limit of maintenance and I assume that we could have used most of the Millions spent on the trail to improve some of the already existing parks and downtown.</p>

APPENDIX D
RIVER'S EDGE TRAIL MAINTANCE SCHEDULE

APPENDIX E
HISTORICAL TRAIL MAINTENANCE COSTS



To: TD&H Engineering – John Juras
From: Giles Salyer, Park & Recreation Superintendent
Date: October 31, 2012
Re: River's Edge Trail Maintenance

Maintenance Expenses:

2009	\$4,087.
2010	\$7,822.
2011	\$10,175.

This does not include the \$5,000 that is budgeted yearly for River's Edge Trail Maintenance

Maintenance Activities:

- Mowing
- Trimming
- Weed spraying
- Snow removal
- Restroom maintenance (cleaning & pumping vault toilets)
- Asphalt repairs on the trail
- Bridges
- Concrete work
- Installation of special items
 - picnic tables
 - benches
 - miscellaneous art
- Light repair
- Vandalism repair
- Project oversight & inspection (as needed)
- Repairs to structures
 - shelters
 - kiosk
 - restrooms
- Tree trimming
- Landscape maintenance

The City's Park department has the responsibility to maintain River's Edge Trail. Doug Wick's is the front person for the City on trail maintenance issues. When Doug identifies projects or issues that need extra tools, equipment, or manpower he will come to us for assistance. Park department does the day to day work as needed (mowing, trimming, snow removal, etc.).

All projects and maintenance on River's Edge Trail is tracked through our work order program.

Example work order record follows.

Rivers Edge trail - 08-12

10/24/12 14:08:18

City of Great Falls (Park & Recreation Department)
 Summary of Hours & Costs for Selected Loc, Job, Months & All Employees
 efillib/empdetrg2

PAGE 1

Job Description	WY	WM	WD	Location	Loc#	Employee	Name	Hours	HT	Benefit	Labor	Total Cost
Athletic Field	10	1	26	Rivers Edge Tr	0071	SHAFFER	DUSTIN	1.00	RR	7.37	13.09	20.46
							TOTAL	1.00		7.37	13.09	20.46
Barricade Repair	8	3	5	Rivers Edge Tr	0071	KAIN	TERRANC	1.00	RR	5.43	16.17	21.60
							TOTAL	1.00		5.43	16.17	21.60
Barricade Repair	9	11	17	Rivers Edge Tr	0071	KAIN	TERRANC	.50	R4	2.91	9.02	11.93
							TOTAL	.50		2.91	9.02	11.93
Barricade Repair	10	1	14	Rivers Edge Tr	0071	EBERL	LEVI	.50	RR	2.88	8.28	11.16
							JAMES	.50	RR	2.94	7.92	10.86
							TOTAL	1.00		5.82	16.20	22.02
Barricade Repair	10	3	3	Rivers Edge Tr	0071	RENTRO	JAMES	.50	RR	2.88	7.92	10.80
							LEVI	.50	RR	20.75	57.96	78.71
							JAMES	3.50	RR	31.73	87.10	118.83
							NICHOLA	2.00	RR	5.34	26.18	31.52
							JAMES	2.00	RR	11.44	31.67	43.11
							TOTAL	13.50		72.14	210.83	282.97
Barricade Repair	10	4	6	Rivers Edge Tr	0071	RENTRO	JAMES	.50	RR	2.89	7.92	10.81
							TIM	.50	RR	1.34	6.55	7.89
							LEVI	4.00	RR	25.16	66.24	91.40
							JAMES	4.00	RR	24.64	63.35	87.99
							TIM	4.00	RR	10.72	52.36	63.08
							TOTAL	13.00		64.75	196.42	261.17
Barricade Repair	10	5	4	Rivers Edge Tr	0071	OSWELLER	TYLER	1.00	RR	.41	13.09	13.50
							JAMES	1.00	RR	6.16	15.84	22.00
							TOTAL	2.00		6.57	28.93	35.50
Barricade Repair	10	12	28	Rivers Edge Tr	0071	EBERL	LEVI	1.00	RR	6.53	16.84	23.37
							JAMES	1.00	RR	6.19	16.10	22.29
							TOTAL	2.00		12.72	32.94	45.66
Barricade Repair	11	3	31	Rivers Edge Tr	0071	RENTRO	JAMES	1.00	RR	6.07	16.10	22.17
							TOTAL	1.00		6.07	16.10	22.17

WY-Work Year WM-Work Month WD-Work Day, HT-Hours Type

MONTANA STATE PARKS REGION 4

River's Edge Trail Maintenance Plan

NORTH AND SOUTH SHORES

1. Typical Expenses Related to RET Maintenance (\$83,525 = 3 yr Total)

- 1) Litter and Debris Removal – 8hr x \$12/hr x 52 = \$4992/yr
- 2) Crack Sealing – \$4000/yr
- 3) Vandalism – 4hr x \$12/hr x 12 = \$576/yr
- 4) Graffiti - \$500/yr
- 5) Mowing-Trimming Labor - \$2500/yr
- 6) Culvert Cleaning, Drainage – 16hrs x \$12/hr = \$192/yr
- 7) Fence Maintenance - \$500/yr
- 8) Weed Control/Vegetation Spraying – \$500 + \$1200/yr
- 9) Crosswalk Painting – \$350/yr
- 10) Kiosk, Shelter, Bench, Interp Panel Maintenance – \$500/yr
- 11) Latrine Maintenance/Cleaning – \$3500/yr
- 12) Latrine Pumping – \$3000/yr
- 13) Mutt Mitts – \$400/yr
- 14) Signage (all) – \$1500/yr
- 15) Misc. (training, ppe, vehicle maintenance, fuel, depreciation, etc.) **+15%** of total

2. Trail Maintenance Activities

The items listed under number 1 above capture the typical trail maintenance activities done by Montana State Parks (MSP) on RET. Please see the list of “non-typical” activities below.

3. Monthly Time Spent

MSP staff spends approximately 50 hrs a month on average completing trail maintenance objectives.

4. Cost Assignment

Currently, MSP does not actively track, record, etc. all costs related specific to RET. We do track certain expenses with vouchers, however, many costs are compiled by project and may cover any variety of expenses by code.

5. Trails Included in RET Trail Maintenance Plan

MSP requests that, if not already included, the following trails be added and included in the maintenance plan.

- 1) Colter Trail
- 2) L&C Nature Trail
- 3) MSP/L&C Connector Trail
- 4) East Coulee Trail, Sulphur Spring Trail (USFS)

6. Non-Typical Expenses Related to RET Maintenance

The following items are done “as-needed”, by emergency and at potentially highly variable time spans.

- 1) Parking Lot Gravel/Maintenance - \$3300/yr
- 2) Bridge Repair/Maintenance – ?
- 3) Mapping – ?
- 4) Paving – \$12,500/yr
- 5) Slump/Slide Repairs – ?
- 6) River Retaining Wall Maintenance (L&C Nature Trail) – ?

7. Single Track Trails

This summary does not reflect any of the numerous volunteer hours that have been donated to the single track trails on both the north and south shores.

John Juras - Single Track Trail Maintenance Costs

From: "Marcinek, Matthew" <Mmarcinek@mt.gov>
To: "Jones, Steve" <SJones@mt.gov>
Date: 11/15/2012 1:12 PM
Subject: Single Track Trail Maintenance Costs
CC: John Juras <John.Juras@tdhengineering.com>, Doug Wicks <trailsrus@bresna...>

Sorry to say that many of the costs associated with single track trail maintenance is not documented well, lots of volunteers work on the trails when their schedules allow, and we don't always get those hours recorded. But, it is important to try and capture these costs for the Trail Maintenance Plan so I'll try my best to make some estimates.

Each year we have at least one week of MCC here, many years we have 2 or 3 weeks of crews. A Field Crew costs \$4,300 per week, and we had 3 weeks of Field Crew this year (\$12,900) building trail. Youth crews cost \$3,200 a week and we had 2 weeks in 2011, 2 weeks in 2010, 3 weeks in 2009, and 1 week in 2005-8. Maybe we should include an estimate of \$5,000 per year for MCC?

The bulk of trail maintenance is done each year by volunteers, supported by park staff. We had 503 recorded hours in 2012, but that was mostly the big events of Trails Day, IMBA, NPLD. This does not include the hours spent by John on Lost Fork, Henry on Mayhem, etc. I'm not sure how you put a dollar figure on this, but it needs to be shown in the Plan. Maybe we state in that a minimum of 500 hours of volunteer time is needed each year to maintain the single track trails on FWP, PPLM, City land/easements). It would demonstrate that managers must organize and utilize volunteers every year to maintain the trails.

I would estimate that we spend about \$750 per year in costs related to UTV transportation, tools, fuel, etc. If we need to, we can estimate the personnel costs for FWP staff supporting and supervising the volunteer efforts.

This year we had an AmeriCorps member dedicated to trails. We can get a costs on that position from Katie, and we should include a portion of Savanna's time after Kaitlyn left.

Hope this is helpful. We need to make sure the single track trails are included in the Plan, they are a tremendous aspect of the system.

Matt Marcinek
 Region 4 Parks Manager
 Montana State Parks
 (406) 454-5859
 (406) 788-3057 Cell
mmarcinek@mt.gov



stateparks.mt.gov



RTI TRAIL MAINTENANCE EXPENDITURES

2012 RET Maintenance expenditures by RTI (to 10-27):

6-7	AAA repairs at landslides, drainage swales, shoulder repair 15th to BEF.....	\$6,896.90
6-22	J&R Maintenance - crack- filling of 572' of worst cracks.....	613.36
7-16	MT Elastomers - spray liner on floors, lower walls of 3 vault toilets.....	1,500.00
5-21 to 10-21	Paint, wire, silt fence, lumber, tools, hardware, materials.....	2,050.48
5-21 to 10-21	Rental tools and equipment to perform trail maintenance.....	409.75
9-19	J&L Maintenance - test micro-seal on 7 asphalt plate cracks.....	350.00
10-17	AAA Construction - make repairs to drainage, pre-fill and pave 183' at Gibson.....	2,795.29
10-17	AAA Construction - remove stump and roots, asphalt, new base course and pave.....	2,702.64
10-5	Maintenance Plan grant match to City of Great Falls.....	5,100.00
5-1 to 10-27	1/2 of total work mileage reimbursed to Doug.....	640.00
		\$23,058.42

2011 RET Maintenance expenditures by RTI:

5-23	AAA Construction - major slide repair - realign trail east of BEF.....	\$9,394.15
6-28	AAA Construction - remove slide material, establish drainage west of BEF.....	5,135.46
7-18	AAA Construction - remove additional slide material west of BEF.....	528.00
5-2 to 11-7	Wire, paint, bulbs, silt fence, lumber, chainsaw/chipper rental, materials.....	2,103.05
12-8	Northwest Fence - add segment to Bay Drive Trail at Courthouse.....	630.00
4-15 to 12-12	1/2 of total work mileage reimbursed to Doug.....	749.00
		\$18,539.66

2010 RET Maintenance expenditures by RTI:

4-12	J&L Maintenance - asphalt crack filling throughout city RET.....	\$1,818.15
7-27	AAA Construction - slide repair realign and asphalt overlay just east of BEF.....	10,495.00
9-2	Northwest Fence - slats for chain-link fence at WWTP, other sites.....	798.00
9-17	J&L Maintenance - seal coat over graffiti and former bollard pavement markings.....	376.00
6-7 to 12-17	paint, lumber, fencing, tools, materials, rental equipment.....	2,309.01
10-19	Uptown Optimists - striping at Warden Park path and trail.....	419.00
11-30	J&L Maintenance - emergency pre-winter patch and fill cracks in 38th St. trail.....	1,656.90
4-12 to 12-17	1/2 of total work mileage reimbursed to Doug.....	815.00
		\$18,687.06

3 year Total	\$60,285.14
Average	\$20,095.04

RTI expenditures for Development <i>and</i> Maintenance of RET	3 year Total	\$305,092.89
	Average	\$101,697.63

APPENDIX F
RIVER'S EDGE TRAIL INSPECTION FORMS

RIVER'S EDGE TRAIL INSPECTION FORM

Inspected by: _____ Date: _____

Trail Segment: _____ From _____ To _____

Trails are: Asphalt: _____ Concrete: _____ Gravel: _____ Dirt: _____ LF Chips: _____ LF

Responsible Agency: ___City ___FWP ___MDT ___County ___Other

1. Are cracks or significant deterioration present in the trail surface? ___Yes ___No
If so, note approximate locations and/or number of cracks _____

2. Is root damage, invasive vegetation or litter or debris impacting trail surfaces? ___Yes ___No
If so, note approximate locations _____

3. Are noxious or obnoxious weeds present near this trail segment? ___Yes ___No
If so, where _____

4. Was any graffiti or vandalism observed along this segment? ___Yes ___No
If so, where _____

5. Are there issues with drainage, slumping of soils, trail/shoulder transitions? ___Yes ___No
Note any deficiencies _____

6. Do benches, signs, shelters and other amenities appear to be in good condition? ___Yes ___No
Note any deficiencies _____

7. Are adjacent trees and landscaping being adequately maintained? ___Yes ___No
Note any deficiencies _____

8. Is there a smooth transition from edge of trail to shoulder? ___Yes ___No
Please note any deficiencies _____

9. Any obvious drainage problems, ponding or evidence of ponding on trail? __Yes __No
Please note any deficiencies_____

10. Additional Comment (please use additional sheets and/or attach photographs as needed)

SINGLE TRACK TRAIL INSPECTION FORM

Inspected by: _____ Date: _____

Trail Segment: _____ From _____ To _____

Responsible Agency: ___City ___FWP ___Other – Who? _____

-
1. Is brush growing into the area above the trail tread where it would contact hikers and bikers using the trail? ___Yes ___No

If so, estimate the number of bushes/trees needing trimming in this segment _____

2. Is cactus growing within one foot of either side of the trail tread? ___Yes ___No

If so, estimate the number of locations along this segment _____

3. Are nuisance weeds present near the trail in this trail segment? ___Yes ___No

If so, should they be addressed with _____hand pulling _____volunteer spraying _____County spraying _____

4. Was any graffiti, or vandalism observed along this segment? ___Yes ___No

If so, where _____

5. Are there issues with drainage, slumping of soils, erosion, loose cobbles, trail edges, washboarding?
Yes ___No

Describe how bad problem is _____

6. Do runoff diverters need maintenance? ___Yes ___No

Is a re-route warranted? Describe _____

7. Was there a litter problem along the trail? ___Yes ___No

If so, how much? _____

8. Other problems observed? ___Yes ___No

Please describe _____

APPENDIX G
ASPHALT PAVEMENT SURFACE
TREATMENT GUIDELINES

Asphalt Paving Surface Treatment Guidelines

ASPHALT PAVING PRESERVATION PROGRAM

- A. Asphalt paving should be maintained after placement with a preservation program.
- B. Complete replacement of asphalt paving is seldom required when asphalt paving is installed and maintained in compliance with specifications and the Replacement and Improvement guidelines.
- C. Conscientious and consistent program of scheduled preventive maintenance and preservation work to each part of pavement will maximize useful life. Strive to have asphalt paving systems last 40 years.
- D. Preventive maintenance is routine work done to prevent deterioration of a pavement. It is done to retard deterioration and prolong life of pavement. It includes completing right maintenance activity at right time. It includes the following Asphalt Paving Surface Treatments:
 - 1. Asphalt Paving Crack Seal
 - 2. Asphalt Paving Crack Fill
 - 3. Asphalt Paving Repair: Full Depth Patch
 - 4. Bonded Overlay With Fabric:
 - 5. Chip Seal
 - 6. Emulsion Seal
 - 7. Fog Seal
 - 8. Penetrating
 - 9. Slurry Seal
- E. An important step in a preservation program is to apply a surface treatment between 12 and 18 months after asphalt paving has been placed to seal hairline cracks that have formed and to also seal surface of asphalt paving and to protect against oxidation.
- F. Immediate sealing of new asphalt paving or new asphalt overlays is neither recommended nor desired. Asphalt paving is to have been aged at least six (6) months before sealing. Coal tar based pavement sealers are not recommended.

ASPHALT PAVING CRACK FILL

- A. Cracks:
 - 1. Crack filling is more predominant than crack sealing for crack repair. Primary difference between crack seal and crack fill is routing of crack. Routing is used when cracks are sealed. Routing procedure creates uniform and smooth edges, thus allowing sealant material to adhere better with asphalt pavement. Crack seal may or may not use backer rod. Crack fill does not use backer rod. Crack seal is considered to be a more permanent repair (three (3) to eight (8) years) whereas crack fill is considered to be a temporary repair (one (1) to two (2) years)
 - 2. This specification is written for crack fill, not crack seal. Repair of cracks should be done with hot poured asphalt sealant to facilitate crack being repaired in future. Sealant should be of asphalt, not polyurethane or silicone based products.
 - 3. All types of cracks should be repaired annually (unless crack is less than 1/8 inch (3 mm) wide). They are to be clean and dry prior to being repaired. Cleaning and drying are essential steps, because when crack is not thoroughly clean and dry, sealant will not adhere to sides of crack. Most failures occur as a result of a loss of adhesion to asphalt due to dirt and loose particles.
 - 4. Best time to repair cracks is in spring or fall, when ambient temperature is between 45 deg F and 65 deg F when cracks are open and sealant can most easily penetrate crack.
- B. Soil Sterilant:

1. Soil Sterilant has been added as option if paving cracks contain weed and other live vegetation matter. Apply to cracks before any asphaltic material is used to control weeds.

ASPHALT PAVING CRACK SEAL

A. Cracks:

1. Crack filling is more predominant than crack sealing for crack repair. Primary difference between crack seal and crack fill is routing of crack. Routing is used when cracks are sealed. Routing procedure creates uniform and smooth edges, thus allowing sealant material to adhere better with asphalt pavement. Crack seal may or may not use backer rod. Crack fill does not use backer rod. Crack seal is considered to be a more permanent repair (three (3) to eight (8) years) whereas crack fill is considered to be a temporary repair (one (1) to two (2) years).
2. This specification is written for crack seal, not crack fill, but could be used for crack fill by omitting requirements for routing and information for backer rods. Repair of cracks should be done with hot poured asphalt sealant to facilitate crack being repaired in future. Sealant should be of asphalt, not polyurethane or silicone based products.
3. All types of cracks should be repaired annually (unless crack is less than 1/8 inch (3 mm) wide). They are to be clean and dry prior to being repaired. Cleaning and drying are essential steps, because when crack is not thoroughly clean and dry, sealant will not adhere to sides of crack. Most failures occur as a result of a loss of adhesion to asphalt due to dirt and loose particles.
4. Best time to repair cracks is in spring or fall, when ambient temperature is between 45 deg F and 65 deg F when cracks are open and sealant can most easily penetrate crack.

B. Soil Sterilant:

1. Soil Sterilant has been added as option if paving cracks contain weed and other live vegetation matter. Apply to cracks before any asphaltic material is used to control weeds.

ASPHALT PAVING REPAIR: FULL DEPTH PATCH

A. Full Depth Patch:

1. Use this Section to replace small areas of asphalt paving that are deteriorated or damaged beyond what sealcoats or slurries are capable of repairing, such as areas of alligator cracking, pavement depressions, wheel track rutting, pavement slippage and corrugations. Alligator cracking is closely spaced cracks resembling alligator skin. They are often indicative of damage to aggregate base and sub-grades which would need to be repaired at same time asphalt is replaced.
2. For best results, patch should be backfilled with a dense graded hot-mix asphalt (HMA). Mix should be spread carefully to prevent segregation. If hot-mix is not available, an appropriate cold mix, specialty mix or proprietary mix should be used. State Department of Transportation maintenance divisions are a good source of information regarding specialty mixes and proprietary mixes.
3. Have a Geotechnical Engineer review base and subgrade conditions if warranted.

ASPHALT SURFACE TREATMENT

BONDED OVERLAY WITH FABRIC

A. Bonded Overlay With Fabric

1. Resurfacing is considered to be corrective maintenance but is also used for maintenance purposes. It is similar to a "maintenance blanket" except fabric is placed between existing asphalt paving and new resurfacing layer or overlay.
2. Resurfacing is performed if extensive maintenance, or even replacement, of asphalt paving would otherwise be required. Existing structural damage, such as cracks, should first be repaired before resurfacing.

3. Resurfacing is often used to re-level asphalt paving.
4. Resurfacing is most common in warmer climates.
5. Reflection cracking can be a problem with resurfacing and may not ultimately be successful if existing paving has many cracks. When existing paving has many cracks but an overlay is being used, consider use of multilayer specialty fabric (<http://www.tencate.com/>) on top of existing paving to create an unbonded overlay system that would resist reflection cracks from existing paving into overlay.
6. Consultant should be used to review project and specifications.

CHIP SEAL

A. Chip Seal:

1. Applying chip seal is considered to be preventive, corrective and restorative maintenance. Apply emulsion seal if preventive maintenance only is desired. Chip seal is applied as aggregate overlay and will last between five (5) and seven (7) years. Used to renew, rejuvenate and seal asphalt surface and to also seal hairline cracks. Has good rate of return on investment and is common asphalt maintenance method.
2. Chip seal consists of sprayed application of asphalt binder immediately covered by single layer of uniform-size aggregate which is then compacted. Goal is to have aggregate particles approximately 50 to 70 percent embedded in asphalt binder. Fog seal (flush coat) is placed over aggregate. Chip seal is used as wearing and waterproofing course that improves skid resistance. Chip seal is also known as "bituminous surface treatment". Repeated applications result in increased thickness.
3. Maintenance or preservation program should consider combining use of emulsion seal with use of slurry and chip seals to maintain asphalt paving in good condition. Studies show that for every dollar spent maintaining or preserving asphalt paving, about four dollars are saved by not having to do expensive asphalt rehabilitation or replacement.
4. Fog seal can be applied over an existing chip seal as part of regular maintenance program.

EMULSION SEAL

A. Emulsion Seal:

1. Applying emulsion seal is considered to be preventive maintenance; preservation treatment. For sealer that provides more corrective maintenance, use slurry seal. Emulsion seal is emulsified asphalt, and if required by Owner, mixed with sand. Purpose of sand is to keep parking surface from becoming slippery. It does not provide new wearing surface. It is applied as two (2) thin coatings of asphalt and will last between three (3) and five (5) years. Emulsion seal should be applied every three (3) and five (5) years to extend life of paving. It is used to renew and seal asphalt surface and to also seal hairline cracks.
2. Maintenance or preservation program should consider combining use of emulsion seal with use of slurry seal to maintain asphalt paving in good condition. Studies show that for every dollar spent maintaining or preserving asphalt paving, about four dollars are saved by not having to do expensive asphalt rehabilitation or replacement.
3. Emulsion seal should be used before slurry seal is used (depending upon condition of asphalt pavement). Slurry seal should be used if corrective maintenance is needed.
4. Purpose of Emulsion Seal:
 - a. Seals minor cracking, those less than 1/8 inches (3 mm) wide.
 - b. Prevents surface water from penetrating aggregate base and subgrades.
 - c. Fills and plugs small voids and coats and bonds loose aggregate particles.
 - d. Enriches, renews and restores surface of asphalt paving which has begun to oxidize (turning black to gray) and become dry and brittle with age.
 - e. Inhibits raveling:
 - 1) Raveling is loosening of aggregate in top surface of asphalt paving causing loss of material.
 - 2) Raveling is usually found in wheel path while weathering covers entire pavement surface.

B. Advantages of Emulsion Seal:

1. Usually less expensive than slurry seal.

2. Provides a smooth texture.
 3. Seals hairline cracks, those less than 1/8 inches (3 mm).
 4. Relatively long lasting (between three (3) and five (5) years).
- C. Disadvantages of Emulsion Seal:
1. Most pavement flaws show through sealer.
 2. Cracks larger than 1/8 inch (3 mm) need to be sealed and repaired before applying emulsion seal.
 3. Often an emulsion seal will not last as long as a slurry seal or chip seal.
 4. Striping paint does not seem to adhere as well to rougher texture.
 5. Needs twenty four (24) to forty eight (48) hours of cure time.
- D. Soil Sterilant:
1. Soil Sterilant has been added as option if paving cracks contain weed and other live vegetation matter. Apply to cracks before any asphaltic material is used to control weeds.

FOG SEAL

- A. Fog Seal:
1. Fog seal could be applied to newly placed asphalt between twelve (12) and eighteen (18) months old to prolong pavement life and may delay need for major maintenance or rehabilitation. It is not a substitute for an asphalt-aggregate surface treatment (emulsion seal, slurry seal).
 2. Applying fog seal is considered to be preventive maintenance; preservation treatment. It is light spray application of binder applied to surface of chip seal, open graded mix, weathered hot mix surface or to newly placed hot mix surface. Fog seal provides some crack sealing, reduces raveling, and enriches weathered surfaces. For sealer that provides more corrective maintenance, use emulsion seal or slurry seal.
 3. Fog seal can be applied over an existing chip seal as part of regular maintenance program.
 4. Studies show that for every dollar spent maintaining or preserving asphalt paving, about four dollars are saved by not having to do expensive asphalt rehabilitation or replacement.
 5. Purpose of Fog Seal:
 - a. Seals minor cracking, those less than 1/8 inches (3 mm) wide.
 - b. Prevents surface water from penetrating aggregate base and subgrades.
 - c. Plugs voids and coats and bonds loose aggregate particles.
 - d. Enriches, renews, rejuvenates and restores surface of asphalt paving which has begun to oxidize (turning black to gray) and become dry and brittle with age.
 - e. Inhibits raveling:
 - 1) Raveling is loosening of aggregate in top surface of asphalt paving causing loss of material.
 - 2) Raveling is usually found in wheel path while weathering covers entire pavement surface.
- B. Advantages of Fog Seal:
1. Less expensive than penetrating seal or emulsion seal.
 2. Seals hairline cracks, those less than 1/8 inches (3 mm). Flows easily into cracks and surface voids.
 3. Dries quickly, between one (1) hour in hot, dry conditions and three (3) hours in cool, humid conditions.
- C. Disadvantages of Fog Seal:
1. Most pavement flaws show through sealer.
 2. Cracks larger than 1/8 inch (3 mm) need to be sealed and repaired before applying fog seal.
 3. Does not replace lost aggregate. Fog seals should not be applied as surface treatment for 'medium or worse' raveling.
 4. Over application can result in asphalt pickup by vehicles and possibly create a slippery surface.
 5. Does not provide same level of preventative treatment as penetrating seal or emulsion seal.
 6. Needs twenty four (24) to forty eight (48) hours of cure time.

PENETRATING SEAL

- A. General:
 - 1. Applying penetrating seal is effective preventive maintenance; preservation treatment. Penetrating seal is used to replenish asphalt solids in new (nine months or older) and old hot mix asphalt paving surfaces that have become dry and brittle, to waterproof small cracks, surface voids, and to inhibit raveling. Studies show that for every dollar spent maintaining or preserving asphalt paving, about four dollars are saved by not having to do expensive asphalt rehabilitation or replacement.
 - 2. Purpose of penetrating seal:
 - a. Replenish asphalt content in new (nine months or older) and old asphalt paving surfaces that are dry and brittle.
 - b. Seal small cracks up to 1/8 inch (3 mm) wide and seal small surface voids.
 - c. Water proof surface four to six years.
 - d. Inhibit raveling:
 - 1) Raveling is loosening of aggregate in top surface of asphalt paving causing loss of material.
 - 2) Raveling is usually found in wheel path while weathering covers entire pavement surface.
- B. Advantages of Penetrating Seal:
 - 1. Fills small cracks and voids by penetrating top surface.
 - 2. Rejuvenates and waterproofs new and old dry aging asphalt; replenishes asphalt solids.
 - 3. Contains equal to/or not less than 50 to 65 percent asphalt solids by weight, more than most slurry and emulsion sealers.
 - 4. Oil-based sealer; provides longer service life (five to seven years) than water-based sealers.
 - 5. Seals in one coat.
- C. Disadvantages of Penetrating Seal:
 - 1. Obvious pavement flaws may show through sealer.
 - 2. Cracks larger than 1/8 inch (3 mm) wide must be filled prior to sealer application.
 - 3. Needs about 24 hours of cure time.
- D. Soil Sterilant:
 - 1. Soil Sterilant has been added as an option if paving cracks contain weed and other live vegetation matter. Apply to cracks before any asphaltic material is used to control weeds. Delete this option from specifications if controlling weeds is not problem.
- E. Miscellaneous:
 - 1. In certain weather conditions, sealer can remain "tacky". To avoid tracking into building, broadcast light layer of sand on top of sealer during application to speed up curing process and create non-skid surface on sealed area.

SLURRY SEAL

- A. Slurry Seal:
 - 1. Applying slurry seal is considered to be preventive and corrective maintenance. Apply emulsion seal if preventive maintenance only is desired. Slurry seal is applied as a heavier overlay than emulsion slurry and will last between 5 and 7 years. It is used to renew, rejuvenate and seal asphalt surface and to also seal hairline cracks. It will help replace missing aggregate at top surface of asphalt paving.
 - 2. Maintenance or preservation program should consider combining use of emulsion seal with use of slurry seals to maintain asphalt paving in good condition. Studies show that for every dollar spent maintaining or preserving asphalt paving, about four dollars are saved by not having to do expensive asphalt rehabilitation or replacement.
 - 3. Emulsion sealer should be used before slurry seal is used (depending upon condition of asphalt pavement). Slurry seal should be used if corrective maintenance is needed.
- B. Slurry Seal Purpose:
 - 1. Seals minor cracking, those less than 1/8 inches (3 mm) wide.

2. Prevents surface water from penetrating aggregate base and subgrades.
3. Plugs voids and coats and bonds loose aggregate particles.
4. Enriches, renews, rejuvenates and restores surface of asphalt paving which has begun to oxidize (turning black to gray) and become dry and brittle with age.
5. Inhibits raveling:
 - a. Raveling is loosening of aggregate in top surface of asphalt paving causing loss of material.
 - b. Raveling is usually found in wheel path while weathering covers entire pavement surface.
6. Provides new rejuvenated wearing surface about 1/8 inch (3 mm) thick for Type I slurry seal and about 1/4 inches (6 mm) thick for Type II slurry seal.
7. Replaces some of lost matrix at surface of asphalt paving.

C. Advantages of Slurry Seal:

1. Rapidly applied.
2. Does not have loose cover aggregate.
3. Provides excellent surface for paint striping.
4. Ability to correct minor surface irregularities.
5. Seals hairline cracks, those less than 1/8 inches (3 mm) wide.
6. Lasts longer than an emulsion seal (between five and seven years).

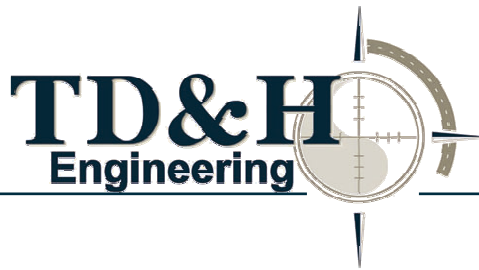
D. Disadvantages of Slurry Seal:

1. More expensive than emulsion seal.
2. Most pavement flaws show, and reflect, through sealer.
3. Cracks larger than 1/8 inch (3 mm) need to be sealed and repaired before applying slurry seal.
4. Susceptible to power steering tearing and sometimes loses "chips", especially when new.
5. Needs 24 to 48 hours of cure time.

E. Miscellaneous:

1. If asphalt is relatively new, between six (6) months and eighteen (18) months, required tack coat may be omitted.
2. Rolling slurry seal is only needed in those areas where pneumatic-tire rolling will improve durability. Also, rolling usually is not needed unless thickness of slurry seal is more than 1/4 inches (6 mm) or if late season work is involved. This specification requires rolling unless Owner's Representative removes it.

APPENDIX H
MEETING NOTES



**RIVERS EDGE TRAIL
MAINTENANCE SCOPING MEETING
Meeting Notes**

Date: 8/8/12

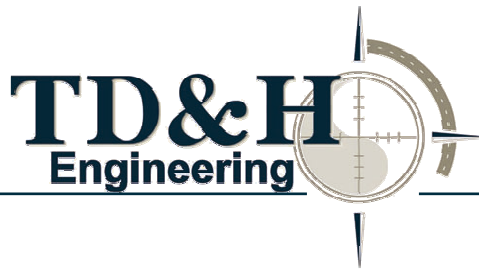
The following were in attendance:

Andrew Finch - Planning
Giles Salyer – Park and Rec
Jim Young – Public Works
Steve Jones – FW&P
Doug Wicks - RTI
John Juras – TD&H
Cindy Wojciechowski – TD&H

1. Andrew - Bob Searns involvement was tipping point for TD&H selection.
 - How many hours his involvement? Approximately 15-20 hours is projected.
 - Involve Bob in the kick-off meeting by phone.
 - Get early involvement, so we can discuss key components of what he should look at early in the process.
2. Kick-Off Meeting with all players. TD&H to organize/chair.
3. Do not need public meeting, but give the public opportunities to give their input. Consider a visioning exercise.
4. Keep public knowledgeable about what is being done. Try to get their buy in about a third or half way through the process.
5. Inventory
 - Pat has inventoried some of the trail. Consider building on his system/records.
 - Aerial for base map. Get from City.
 - Current condition of trail. Summarize/tabulate pavement serviceability.
 - Consider using Public Works asset management software.
 - Identify single track networks. Legal trails only.
 - Neighborhood trails – add these if not already identified in a Parks Department Management Plan.
6. Other Maintenance Plan components
 - Resources – what staff/equipment agencies currently have available
 - Giles would like to see defined schedules, responsibilities and how the Park and Rec fits in.
 - Expectant outcome of Maintenance Plan – more of a defined plan, schedules, activities and responsibilities. How this will change when Doug is retires? What impact for Park and Rec, FWP, and Public Works?
 - Develop maintenance task schedule.

7. Misc. Items

- Presentation to City Commissioners at the end by TD&H. Do not plan to ask commission to adopt the plan.
- In the beginning do a press release.
- Identify Public Works role.
- Identify where the money is coming from.
- Andrew asked Doug to identify all the things he does that seem to magically get done.
- Identify ownership and responsibility. Work with Pat, maybe could get done before end of project.
- Develop simplified Capital Improvement Plan.
- Put together Scope of Services to negotiate with the City.



**RIVERS EDGE TRAIL
MAINTENANCE SCOPING MEETING
Meeting Notes**

Date: 10/19/12

The following were in attendance:

Andrew Finch – Planning
Jodelle Leaver – Planning
Galen Amy – Planning
Giles Salyer – Park and Rec
Jim Turnbow – Public Works
Steve Jones – Montana State Parks
Matt Marcinek - Montana State Parks
Doug Wicks – RTI
Bob Searns – The Greenway Team (by telephone)
John Juras – TD&H
Cindy Wojciechowski – TD&H

1. Introductions were made at the beginning of the meeting.
2. Further define the roles and responsibilities of each team member. Distribute RFI letters.
 - The RFI letters were distributed and some discussion made regarding the items being requested. Information requested back to TD&H by November 9th.
 - John asked Andrew about the Orthophoto (electronic copy), Andrew said City Engineering has and to coordinate with them.
 - Agencies summaries will be recorded and put into the plan.
 - Man hour costs to be determined by how each agency tracks their time.
 - MT FW&P and Park and Recreation to include core trails that aren't included in another maintenance plan.
 - Matt mentioned that the US Forrest Service (Ray Tetro and/or Elizabeth) should be contacted they may have some trails that need added into this plan.
3. Discuss subconsultant input regarding their plan contributions and proposed focus area. Identify best way to use Bob's time.
 - Bob said consider building an inventory of facilities (Excel spreadsheet/ or GIS based) and help put table together. He's interested in knowing what the problems are and make notations such as administration challenges, finance, etc. so everyone can look what is there and what the challenges are.
 - Level of service – such as mowing, snow removal, sweeping, etc. A level of service should be agreed upon to provide as a tool. Make list of tasks and ranking priority.

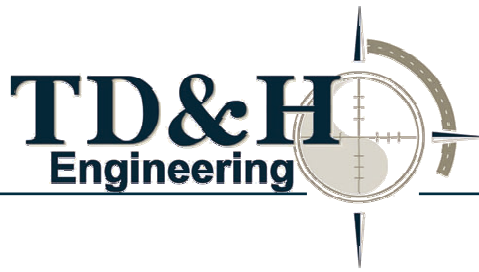
- Doug suggested having each agency list tasks so they could be compared see if there is any duplication. Bob said he had a generic list that could be used.
- There was some discussion regarding City Street Dept and if they had specific funding for trail maintenance. They are funded by a Maintenance assessment and gas tax, which have very specific ways to be used. When work is done they send an invoice for reimbursement.

4. Other Discussion

- The original maintenance plan when the trail was conceived has tasks for Park and Receptions and specific tasks for Public Works. Park and Recreation has continued with those tasks, but Public Works has not.
- Andrew asked Bob for some innovative funding ideas.
 - Private funding
 - Look into creating a Park District to allow to capture and assess certain funds.
 - Bed Tax and Tourism – The board currently uses the philosophy for the money for promotion to the expansion or capital improvements.
 - Approach businesses and get them to donate Capital Fund dedicated to trail maintenance in exchange for promoting their business and various ways.
 - Matt was asked about the PPL segment he said maintenance comes from regular operations, no specific set aside. PPL River Fund grants are available which they did use for a major overlay project.
- No flood control district that is within the RET.

5. Handout Press Release for input.

- Draft Press Release was handed out and asked for comments to be sent back to John by middle of next week. Matt said they have people that are good with this type of task and will ask them to prepare something.



**RIVERS EDGE TRAIL
MAINTENANCE PLAN MEETING
Meeting Notes**

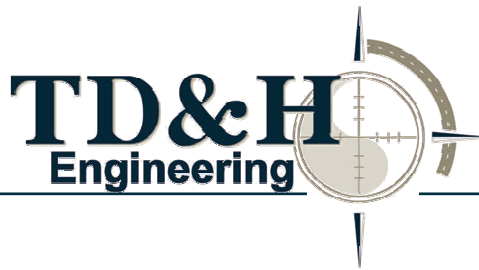
Date: 12/3/12

The following were in attendance:

Giles Salyer – Park and Rec
Johnny Smith – Park and Rec
Jay Rowten – Park and Rec
John Juras – TD&H

John initiated meeting to help develop plans and obtain input and support for a Plan that will be ultimately integrated into Park and Rec maintenance activities.

1. Report should provide for either continuation of current funding of Doug's position or if funding discontinued, show how costs and staffing would impact Park and Rec.
2. One problem with using a Park and Rec staff position to complete work that Doug currently handles is that the Trail activities would have to fall into overall Park and Rec priorities. Doug's position doesn't currently have that restriction.
3. One possible example of how the trail maintenance could be handled is the way the Multi-Sports complex is currently maintained. Position is paid for by City from dedicated funds paid by complex users. Park and Rec hires independent contractor to do the actual maintenance work.
4. One regular activity that needs to be accounted for is maintenance of the trail restrooms. Weekly visits are made to all restrooms for adding TP, swabbing floor, etc.
5. Discussion of the need to include capital funding requirements in the plan. Park and Rec currently gets almost none of this money for park improvements. Paved trail maintenance costs a real concern. Ultimate plan is to replace old asphalt with concrete.
6. Park and Rec currently mows trailside irrigated sod once every other week in growing season. Two foot wide strip of dryland grass along remainder of trail mowed on similar but less frequent schedule.
7. Park and Rec plows snow from trail eastward to the foot bridge behind FWP HQ. Focus is usually to go from Dog Park to Giant Springs Rd then to remaining segments.
8. Giles and Johnny say that additional trail extensions are not affordable from a maintenance perspective at current funding levels. They do support better connections into neighborhoods such as the 38th St trail and the Riverview Connection.



**RIVERS EDGE TRAIL MAINTENANCE PLAN
PLANNING/STRATEGY MEETING
Meeting Notes**

Date: 3/4/13

The following were in attendance:

Andrew Finch - Planning
Giles Salyer – Park and Rec
Marty Basta – Park and Rec
Steve Jones – FW&P
Doug Wicks – RTI (by phone)
John Juras – TD&H
Bruce Pollington - RTI
Bruce Bugbee - APL

1. Initial discussion about public survey questions. Made changes as discussed. Current survey here: <http://www.surveymonkey.com/s/GONNQ36>
2. John introduced the intent of the meeting being to strategize about how and whether to replace Doug upon his retirement.
3. Discussion initially focused on a job description for Doug's current role. Doug said he would prepare a written description.
4. Discussion of whether Park and Rec staffer could fill the position. Advantages include having a better chance of filling the position with a longer term, more qualified employee. If part time, could fill other roles off season. If full time, could have a percentage of their time committed to RET activities. Disadvantage is the possibility that competing Park and Rec priorities could pull them away from RET activities.
5. FWP currently has 3 individuals doing RET activities in the summer and one in the winter. Current Park and Rec and FWP efforts to be documented in the Plan.
6. Discussion of possibly separating the maintenance activities from funding application and project management roles in a future position. Should be given further consideration.
 - a. Project management
 - b. Grant writing
 - c. Volunteer coordination
 - d. Enforcement ??
7. Brainstorming options for future management of the position
 - a. Continue current position and responsibilities with a Doug replacement. Who could fill Doug's shoes for stipend he is currently paid?
 - b. Do not replace the position. Would mean more work responsibilities for FWP and Park and Rec.
 - c. Contract with a "Trail Maintenance Organization" to fill all current Doug responsibilities. RTI?

- d. Fill position through MT State Parks. Very difficult to guarantee a position through FWP.
 - e. Fill position through City Park and Rec.
 - f. Fill maintenance part of position through Park and Rec and the planning/grants/project management part with contracted services.
8. Discussion of how to fund the position.
 - a. Planning's contribution could continue if the position still involves planning related activities. If the position came under Park and Rec, then Planning could still contribute.
 - b. RTI could possibly contribute to the position funding if a suitable endowment were set up to collect, manage, and distribute funds.
 - c. List of options in the survey should be discussed in Maintenance Plan report.
 9. The individual would likely best be located in the Park and Rec complex to facilitate activities.
 10. There is currently no formal document establishing shared responsibilities between FWP and City for trail maintenance. The MOU between the School District and the City would be an example to begin drafting such an agreement.
 11. The Plan should show how the full funding model is currently working. Also draw on other communities to show how funding could work in the future and document in Plan.
 12. Should position be full or part time? Discussion leaned toward a full time position.