

Statewide Greenways Maintenance Inventory and Case Studies

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Statewide Greenways Maintenance Inventory and Economic Analysis

INTRODUCTION

Trails and greenways have become highly valued amenities in many Michigan communities and throughout the nation. They provide residents and visitors with a safe place for recreation and help to preserve our natural and cultural resources, while linking a number of communities, schools, parks, and other points of interest. Michigan has an emerging nonmotorized transportation network; there are 13 regional initiatives working to expand and multiply the benefits that trail systems provide. Currently, more than 1,400 miles of rail-trails crisscross the state and there are at least 600 miles of linear trail extensions.

The Michigan Trails and Greenways Alliance (MTGA) and the national Rails-to-Trails Conservancy (RTC) are working in partnership to bring a state, regional, and national focus to the process of interconnecting trail systems throughout Michigan and across state lines. Trails have many known benefits, including economic benefits to the communities they serve; the challenge, however, is to garner funding for continued maintenance. Trail managers face many difficult questions, such as: What needs to be done? Who is going to do it? Who is going to pay for it? If these questions go unanswered, future trail-building activities could be in jeopardy.

Recognizing that trail managers, local and state governments, and potential sources of funding need detailed information about trail maintenance, the RTC first published a trail maintenance study in 1996. Led by the Pennsylvania Office of RTC, this study was expanded and updated for the Northeast region in 2004.¹ This report represents the first time that Michigan has conducted a statewide assessment of ongoing trail maintenance and operations activities, and this data is critical for continued improvement of the trail system.

METHODOLOGY

Public Sector Consultants Inc. (PSC), in partnership with MTGA, developed an extensive inventory of trail maintenance practices. The goal of this inventory is to collect a baseline of the type and frequency of maintenance activities, staffing, and equipment needs and provide economic analysis on the scope of maintenance activities around the state to help and inform MTGA in its future planning for Michigan's trail system.

The survey was sent to 69 trail managers across the Lower Peninsula of Michigan². The initial survey contained a cover letter from the executive director of MTGA explaining the purpose and importance of the study.

¹ The study included 100 trails in Connecticut, Delaware, Illinois, Indiana, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Vermont, and Wisconsin.

² Upper Peninsula trails were not included in this survey because they are single-use, snow mobile trails and are relatively undeveloped.

This first phase of data collection was conducted from May 26 to June 16, 2006—covering a period of approximately three weeks. At the end of this period, PSC had received only six surveys, and the responses that were received had a great deal of missing data. Staff at MTGA and PSC conducted follow-up phone calls to prompt greater response. Trail managers were also asked to provide more detailed budget information where possible. One limitation that this research encountered is that in many cases, detailed budget information is not immediately available to trail managers because trail maintenance is frequently part of a larger municipal, county, or state department budget.

By August 25, 2006, a total of 31 surveys had been collected representing a variety of trails across the Lower Peninsula of Michigan. The 31 trails are divided into three regions of the state. These trails, by region, are as follows:

- **Northern Lower Peninsula:** Alpena to Hillman Trail; Betsie Valley Trail; City of Alpena Bi-Path Grayling Bike Trail; Little Traverse Wheelway; and Pere Marquette Trail
- **Middle Lower Peninsula:** Andersen Nature Trail; Bay City Trail System; Flint River Trail; Fred Meijer Heartland Trail; Grand Rapids Riverside Trail; Hart-Montague Berry Junction Trail; Kent Trail; Musketawa Trail; Saginaw Valley Rail Trail; Pere Marquette Rail-Trail of Isabella County; Pere Marquette Trail of Mid-Michigan; and Vassar Rail Trail
- **Southern Lower Peninsula:** Battle Creek Linear Park Trail; City of Adrian/Kiwanis Trail; Clinton River Trail; Kal-Haven Trail; Macomb Orchard Trail; Paint Creek Trail; Paul Henry Thornapple Trail, Middleville Segment; Portage Creek Bicentennial Trail; Portland River Trail; Huron Valley Trail; Van Buren Trail; Wadhams to Avoca Trail; and West Bloomfield Trail

Please see Appendix A for the survey instrument used for this study.

TRAIL MAINTENANCE IN MICHIGAN

The majority of the survey sought to collect information about trail characteristics, including the following:

- Administrative information
- Types of trail surfaces
- Trail maintenance activities
- Personnel who perform trail maintenance
- Maintenance equipment
- Trail features and amenities
- Signs, access control, and public safety

Additionally, data was collected on the costs of maintenance in an attempt to better understand and delineate the costs associated with the upkeep of trails across Michigan.

Administrative Information about Trails

Managers of ten trails were able to provide estimates on the number of visitors and information about how they gather this information (see Exhibit 1). Most trail managers

reporting this data indicate that they estimate (or “guess”) the annual number of visitors. More precise visitor counts were available for two trails through a study conducted by Michigan State University. Manual counts were used at two trails.

EXHIBIT 1
Visitor Information

Trail name	Annual number of visitors	How are visitors tracked?
Betsie Valley Trail	5,000	Estimate
Musketawa Trail	30,000	Estimate and partial manual count
West Bloomfield Trail Network	35,000+	Estimate
Paint Creek Trail	85,000+	Survey count (MSU study)
Pere Marquette Trail of Mid-Michigan (Midland)	178,000	Survey count (MSU study)
Portage Creek Bicentennial Trail	180,000	Manual count and working with statistics lab
Kent Trails	80,000	Estimate
Hart-Montague Berry Junction Trail	30,000–40,000	Estimate
Kal-Haven Sesquicentennial State Park	80,000–90,000	Pass sales
Paul Henry Thornapple Trail (Middleville)	6,000–8,000	Periodic observations

The inventory also asked about liability coverage for the trail and if the trail had ever been sued. Just 10 percent of trail managers report that their trails have been sued (among these, two of the three incidents occurred more than ten years ago; no details on the nature of the lawsuits was provided); nearly two-thirds (63 percent) report that to their knowledge their trails have never been sued. As shown in Exhibit 2, nearly two-thirds of the Michigan trails responding to the inventory carry liability insurance.

While many trail managers knew whether their trail had liability coverage, it was more difficult for them to identify the precise cost or coverage amounts for this insurance. Most trail managers did not give us cost estimates for insurance. This was usually because these costs are embedded in municipal, county, or state insurance policies and are not a specific budget line-item that is managed by the trails themselves. Trail managers were slightly better at identifying coverage amounts, although most of the respondents could not identify the amount of coverage for their trails. Among the trails for which managers were able to provide insurance coverage amounts, coverage ranges from a minimum of \$1 million to a maximum of \$15 million.

EXHIBIT 2
Liability Insurance and Coverage (Percentage and Number of Trails)

	Carry liability	Coverage includes	Coverage	Coverage includes
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	insurance?	volunteers	includes medical liability for volunteers	physical components
Response	% (#)	% (#)	% (#)	% (#)
Yes	67 (20)	30 (9)	30 (9)	43 (13)
No	10 (3)	17 (5)	37 (11)	13 (4)
Don't know	7 (2)	10 (3)	10 (3)	10 (3)
Not applicable	13 (4)	27 (8)	10 (3)	7 (2)
Missing	3 (1)	17 (5)	13 (4)	27 (8)
Total	100%	101%	100%	100%

NOTE: Total of percentages may not equal 100 percent due to rounding.

Trail Surfaces

The inventory next asked trail managers about the surfaces of their trails (improved, unimproved, and subsurfaces). Since each trail presented a unique response, generalization is not possible. Detailed data is presented below in Exhibit 3. For improved trails, asphalt is clearly the most frequently used surface (either alone or in combination with other materials). For subsurfaces, crushed stone and ballast are used most often. Unimproved trails consist of a combination of various materials that frequently include gravel, ballast, or dirt.

EXHIBIT 3 Types of Trail Surfaces

Trail name	Unimproved surfaces	Improved surfaces	Subsurface of Improved Trail
Alpena to Hillman Trail	Dirt 100%	—	—
Battle Creek Linear Park	—	Asphalt 100%	Crushed stone 100%
Betsie Valley Trail	—	Asphalt	Crushed stone
City of Alpena Bi-Path	—	Asphalt 40%; concrete 60%	Crushed stone 40%; Ssand 60%
Clinton River Trail	—	Crushed stone 50%; asphalt millings 50%	Original ballast 100%
Flint River Trail	Dirt/ Soil 10%; streets 20%	Asphalt 70%	Don't know
Fred Meijer Heartland Trail	Dirt/Soil 60%	Asphalt 40%	No
Grand Rapids Riverside Trail	—	Asphalt 100%	Crushed stone 100%
Grayling Bicycle Turnpike	—	Asphalt 100%	--
Kal-Haven Trail Sesquicentennial State Park	—	Asphalt 2%; crushed stone 98%	Original ballast 100%
Kent Trails	—	Asphalt 100%	Road gravel 100%

Trail name	Unimproved surfaces	Improved surfaces	Subsurface of Improved Trail
Musketawa Trail	—	Asphalt 100%	Gravel 22A 100%
Paul Henry Thornapple Trail (Middleville)	—	Asphalt 100%	Original ballast 100%
Pere Marquette State Trail	—	Asphalt 100%	Crushed Stone 50% Dirt/Soil 50%
Pere Marquette Trail of Mid-MI (Midland)	—	Asphalt 100%	Original ballast 100%
Portage Creek Bicentennial Trail	—	Asphalt 100%	Crushed stone 100%
Portland River Trail	—	Asphalt 100%	Original ballast 40%; gravel 60%
Saginaw Valley Rail Trail	—	Asphalt 100%	Original ballast 50% crushed stone 50%
Van Buren Trail	Dirt 90%; original ballast 10%	No	—
Vassar Rail Trail	—	Asphalt 100%	Crushed stone 60%; original ballast 40%
Wadhams to Avoca	—	Asphalt 44.3%; limestone fine 26.2%; gravel 29.5%	Original ballast 55.7%; gravel 22A 44.3%
West Bloomfield Trail Network	—	Crushed stone (limestone) 100%	Crushed stone (limestone) 1%; original ballast 99%
Bay City Riverwalk Trail System--City	—	Asphalt 85%; concrete sidewalk 15%	Sand and dirt/soil 100%
Bay City Riverwalk Trail System--State Recreation Area (AKA Anderson Nature Trail)	—	Asphalt 100%	Crushed stone 100%
Hart-Montague-Berry Junction Trail	Original ballast (Berry Junction part) 80%	Asphalt (Hart-Montague) 100%; Berry Junction 20%	Crushed stone (22A Rd. gravel) 100%
Paint Creek Trail	—	Crushed stone	Dirt/soil 50%

Trail name	Unimproved surfaces	Improved surfaces	Subsurface of Improved Trail
	—	100%	Original ballast 50%
Macomb Orchard Trail	—	Asphalt 100%	Crushed stone 100%
South Lyon Trail of Huron Valley Trail System	—	Asphalt 88.96%; concrete 11.04%	Road gravel 21AA 22AA 100%

Trail Maintenance Activities

Trail managers were asked how often specific maintenance tasks were performed on their trails—daily, weekly, monthly, quarterly, annually, or as needed. The array and detail of responses do not allow for generalizations about the frequency of trail maintenance in Michigan because it is highly variable by trail and by task (see Appendix B for data on the frequency of trail maintenance activities). PSC is able to delineate from the responses the most common maintenance activities for asphalt and non-asphalt surfaces, as well as the most common maintenance activities for vegetation and adjacent land.

Exhibit 4 shows that the most common maintenance activities for asphalt surfaces are pothole repair (63 percent) and surface cleaning (57 percent). For non-asphalt surfaces, the most common tasks involve clearing debris and trash (47 percent) and grading the surfaces (37 percent). As shown in Exhibit 5, maintaining adjacent land and vegetation most frequently involves mowing (87 percent), tree pruning (77 percent), and litter cleanup (70 percent). Not surprisingly, Exhibit 6 shows that the main reason for tree removal is fallen trees (83 percent).

EXHIBIT 4
Maintenance Activities for Asphalt and Non-Asphalt Surfaces

Maintenance activity	Percentage
Maintenance of asphalt surfaces:	
Pothole repair on asphalt trail	63%
Surface cleaning of asphalt trail	57
Coating or sealing of asphalt trail	43
Pavement markings maintenance and replacement	40
Snow removal from asphalt trail	33
Repaving of asphalt trail	23
Maintenance of non-asphalt surfaces:	
Keep trail-side land clear of trash and debris	47
Grade non-asphalt trail	37
Pothole repair and other patches on non-asphalt trail	33
Resurface non-asphalt trail	13
Surface cleaning of non-asphalt trail	3
Snow removal from non-asphalt trail	0

EXHIBIT 5
Maintenance Activities for Adjacent Land and Vegetation

General maintenance activities	Percentage
Mowing	87%
Tree pruning	77
Litter cleanup	70
Invasive species removal	37
Tree and shrub planting	33
Flower and ground cover planting	27
Leaf removal	13
Snow removal	10
Other (specify): Dealing with illegal dumping	3

EXHIBIT 6
Maintenance: Reason for Tree Removal

Reasons for tree removal	Percentage
Fallen	83%
Health/safety	73
Aesthetics	30
Invasive	17

Who Performs Maintenance?

According to respondents, the responsibility for the majority of maintenance activities rests with the employees of the local government body (municipality or county) where the trail is located. Nonprofit organizations and volunteers typically play a strong role in supporting their government employees and to a lesser extent take the lead in maintenance activities.

- More than half of the trail managers who answered this question (15 out of 29) report that the municipal government performs 50 percent or more of the maintenance activities, and these municipalities are the only group that, in some cases, performs 100 percent of the maintenance.
- A smaller fraction of trail managers (14 percent) indicate that county government employees handle most of the maintenance activities, typically performing 75 percent or more of the maintenance.
- More than one in six trail managers (17 percent) report that a nonprofit organization, volunteer group, or adopt-a-trail participants take the lead in performing a majority of maintenance activities, although these groups commonly share maintenance tasks with government employees and contractors.
- Government-funded contractors are used on more than one-third of the trails for some of the maintenance work; according to respondents, their level of assistance can range from 2 percent to 50 percent of the activities.
- The Paint Creek Trail is the only trail where maintenance is performed by employees of a government-funded trail management agency.

Maintenance Equipment

Many of the trail entities own very little of their major heavy equipment, choosing to borrow or rent via relationships with contractors, volunteers, other agencies, or units of government (see Exhibit 7).

EXHIBIT 7
Equipment Owned by Michigan Trails

Equipment	Number that own equipment
Pickup truck	21
Front-end loader	18
Dump truck	17
Light tractor	15
Backhoe	14
Heavy tractor	12
Medium tractor	12
Commercial-sized chipper	11
Towed rotary broom	10
Stake body truck	8
Street sweeper	6
Bobcat	5
Grader	5
Steam roller	4
Towed roller	2
Paver	1

- Two-thirds of the trail managers responding to this question say their trail owns a pickup truck.
- More than half of the trail entities own both a dump truck and front-end loader. Since the majority of maintenance for each of these trails is performed by municipal, county, or state governments, it can be assumed that this heavy equipment is more commonly owned by the governmental body rather than a volunteer group or nonprofit.
- Trail entities rarely own a paver, choosing instead to rent one or hire a contractor to perform paving services.

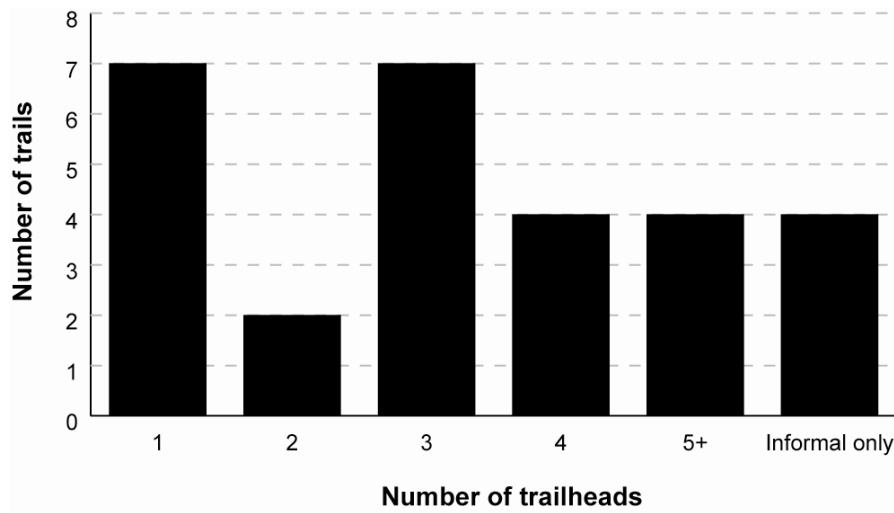
Trail Features and Amenities—Parking, Trailheads, and Sanitation

Trailheads are the first point of contact for users, and trails may offer amenities such as rest rooms, parking, picnic areas, vending machines, and concessions. The trail managers who responded to this question say their trails offer various forms of amenities and access to their users.

- Four trail managers say that while they have no formal trailheads, they do offer a number of informal access points. These four trails are all relatively short and in more urban settings.
- Twenty-one out of 31 trail managers say that some form of parking is available at their trailheads. More than 70 percent of these offer at least one parking lot just for trail users and almost one-quarter offer three or more parking lots.

- Of those offering some type of parking, almost two-thirds utilize shared private or public parking lots.
- Three-quarters of the parking lots are asphalt; the rest are crushed stone or dirt lots.
- Snow is removed from almost three-quarters of the parking lots in the winter.
- More than half of the trail managers (54 percent) say that their trail offers some type of toilet facility.
- More than half of the trail managers (54 percent) responded that their trail offers picnic tables or benches; a majority (65 percent) of those trails also offer at least one additional amenity including informational kiosks, commercial concessions, or vending machines.

EXHIBIT 8
Number of Trailheads per Trail



Signs, Access Control, and Public Safety

Michigan's trails use a variety of means to ensure the safety of their users.

- Every trail manager who responded reports using some form of signage. The most common one cited is traffic control signage for trail users (see Exhibit 9).

EXHIBIT 9 Sign Utilization

Sign purpose	Percentage
Directional	39%
Interpretive	29
Mileage to upcoming destinations	21
Mile marker	57
0.5-mile Increments	44
1.0-mile Increments	44
Property boundary	32
Traffic control for trail users	82
Traffic control for cars at crossings	50
Trail identification	54
Trail rules and regulations	54

-
- Where mile markers are used, the standard placement is at either 0.5- or 1-mile increments.
 - Almost two-thirds of the trails are patrolled by an official policing authority. One-third of these are patrolled by regular police only, 20 percent are patrolled by park or trail rangers or staff, and the rest use some combination of both.
 - Only two of the trails use volunteer or non-police groups to patrol the trail (e.g., a neighborhood watch group, volunteer trail patrol, Junior Explorers).
 - Of the groups that patrol the trails, 30 percent patrol daily while 30 percent patrol randomly in the course of their other regular duties.
 - Nearly three-fourths (74 percent) of responding trail managers indicate that cars have the right of way at grade crossings with roads.
 - Every trail uses some form of traffic control at road crossings, the most common being a pedestrian/bike crossing sign (see Exhibit 10).

EXHIBIT 10
Traffic Controls at Road Crossings

Traffic control device	Percentage
Flashing signal when trail users present	7%
Pedestrian/bike crossing sign	71
Pedestrian-activated crossing signal	11
Road striping	57
Stop sign for trail users	71
Traffic signal	18
Yield sign for trail users	14
Yield sign for road users	7
Other	14

THE ECONOMICS OF TRAIL MAINTENANCE

The second goal of conducting this statewide inventory is to develop a clearer idea of the costs associated with varying levels of trail maintenance. One limitation encountered in the course of conducting the inventory is the fact that trail maintenance budgets are often parts of municipal, county, or state budgets and may not include detailed breakdowns. Trail managers may not have easy access to this information and, if they do, it may not include details or line-items that delineate the expenditures in specific categories of maintenance.

Of the 31 responses received, ten did not include any budgetary information. Of those that did provide information on budgets, the data was often inconsistent or incomplete (e.g., some answered qualitatively to questions that required quantitative data). The analysis that follows is based upon 11 trails that were able provided adequate budget information to PSC in response to the survey.

Who Pays for Trail Maintenance?

In most cases, trail maintenance is funded through municipal, county, or state funding streams. Just a few trails use volunteers or funding through a nonprofit organization to fund their maintenance activities. Because of the complexity of the responses, data on the funding of maintenance activities is provided in Appendix C.

Case Studies of Trail Maintenance in Michigan

From the data that was received in response to this survey, PSC, in consultation with MTGA, created several profiles of maintenance practice and developed case studies to illustrate those profiles. The profiles identified include maintenance performed through an intergovernmental agreement (Paint Creek Trailway), maintenance performed by volunteer labor (Fred Meijer Heartland Trail), and other Michigan trails that demonstrate high, mid- and lower levels of trail maintenance as exhibited by their budget as well as the patterns of trail use. For example, “high maintenance” trails tend to be used by local residents, in addition to being a destination for visitors from the around the region or state. “Mid-level maintenance” trails tend to be located within particular communities, be used mostly by residents, and are viewed as an asset to the community in which they exist. Both high- and mid-level-maintenance trails attract users for multiple purposes, such as biking, rollerblading, walking, or running. “Low-level maintenance” trails are largely undeveloped trails that tend to be used primarily by snowmobiles.

Some overall observations that can be offered on all the types of trails described in the following case studies:

- Not surprisingly, trail maintenance practices vary by use, location, and user demand, which leads to different priorities for maintenance.
- The logging of trail maintenance expenditures is not consistent across the state and some expenditures, such as for patrolling, mowing, or trash removal, are buried within other budgets to which trail managers do not have immediate access.

INTERGOVERNMENTAL AGREEMENT FOR SHARED MAINTENANCE AND TRAIL COMMISSION ADMINISTRATION

The Paint Creek Trailway has been open to the public for 23 years and connects several municipal entities—Oakland Township, the City of Rochester, Rochester Hills, Orion Township, and the Village of Lake Orion. The trail is approximately nine miles long and has five trailheads (1.78 miles per trailhead). It reported approximately 85,000 users in 2005. Paint Creek Trail consists of 100 percent crushed stone on improved portions over original ballast. Maintenance is split between municipal employees (50 percent), government-funded trail management agency (25 percent), and government contractors (25 percent).

The Paint Creek Trailway Commission (the body governing the trailway) was established by intergovernmental agreement; each municipality has representation on the commission and pays for maintenance along its portion of the trail, as well as a proportion of the administrative and operations costs for the Paint Creek Trailway Commission. This includes costs for office space and administrative staff, promotional materials, patrolling, insurance and legal services.

As in the case of other trail maintenance budgets, we found large variation in the ways that expenses for the Paint Creek Trail were logged and reported. Our initial request for

budget data went to the Trailway Commission and we received the operational and administrative budget for the commission. Because each jurisdiction maintains its own section of the trail, however, maintenance data was not available directly from the commission. Instead, each municipality had to be contacted directly to ascertain the overall expenditures for maintenance. These figures are presented in Exhibit 12.

EXHIBIT 12
Maintenance and Other Expenditures for the Paint Creek Trail, 2006

Jurisdiction	Miles	Mowing	Mowing/ mile	Tree trimming/ removal	Snow removal	Other Repair	Trailhead maintenance	Administrative expenditures	Totals
Oakland Township	5.3	\$3,150	\$594	\$11,000	\$300		\$1,000	\$24,103	\$39,553
City of Rochester	<1	\$360	\$360					\$19,550	\$19,912
Rochester Hills	1.1	\$2,000	\$1,818	\$1,000				\$19,200	\$22,200
Orion Township	1.5	\$2,472	\$1,648			\$500		\$18,298	\$21,270
Village of Lake Orion	<1								
Jurisdictional total		\$7,982	\$897	\$12,000	\$300	\$500	\$1,000	\$ 81,151	\$ 102,935
Trailway Commission additional operating budget									\$4,144
Legal Service Project budget									\$9,255
Total expenses									\$116,334

VOLUNTEER-MAINTAINED TRAIL

The Fred Meijer Heartland Trail has been open to the public for 12 years and is 35 miles long. It has three trail-heads (11.67 miles per trailhead) and comprises both unimproved (dirt and soil) and improved (asphalt) sections.

The trail is maintained through the labor of volunteers—Adopt-A-Trail and other trail groups—and logged a total of 1,029 volunteer hours in 2005. The impact of this level of volunteer commitment (and the ability to track this contribution) is demonstrated by the fact that this trail reported the lowest cost-per-mile expenditure for maintenance of any other trail responding to this survey (\$39 per mile). Long-term maintenance expenditures that were logged for 2005 were related to the purchase of equipment (a blower and a gator) or for contracted work such as repairing the asphalt in two locations along the trail and for sanitation. Maintenance activities listed by the trail manager include manual filling of potholes, surface cleaning, clearing of trash and debris, tree and shrub pruning, tree removal, invasive species removal, and annual planting. Inspection and maintenance of structures such as bridges and tunnels occur annually. The trail also removes snow from the trailhead as needed.

Exhibit 13 provides the maintenance budget information received for this trail.

EXHIBIT 13

Maintenance Costs for the Fred Meijer Heartland Trail, 2005

Activity	Maintenance cost
Repaving of asphalt trail	\$20,000
Surface cleaning of asphalt trail	\$889
Maintenance of portable toilets at trailheads (clean, empty, etc.)	\$492.5
Total estimated costs	\$21,382
Total less coating/sealing or repaving asphalt	\$1,382
Total cost per mile	\$611
Cost per mile less repaving	\$39

HIGH-, LOW-, AND MID-LEVEL MAINTENANCE TRAILS

Low-maintenance Trails

Two trails exhibit lower levels of maintenance compared to other trails: Van Buren Trail and the Alpena to Hillman Trail. Both trails have a single trailhead. Their annual estimated costs per mile range from \$221 to \$500 per mile. This is due for the most part to the nature of their usage and the unimproved surface of the trail. The Alpena to Hillman Trail is primarily used as a snowmobile trail in the winter and is also available for horse trail riding; the Van Buren Trail is also used by snowmobilers, as well as by and hikers and birders in the summer. The Van Buren Trail surface consists of 10 percent original ballast and 90 percent dirt/soil, while Alpena to Hillman Trail surface is completely dirt/soil. Neither trail employs a vegetation barrier or any type of soil or

aggregate binder. The Van Buren Trail receives minimal maintenance: manually clearing the trail of trash and debris, grading and repairing potholes, mowing, tree pruning, and removing fallen trees or other trees for health/safety reasons. These activities are performed as needed; however, because this trail has only been open to the public for less than a year, a more regular maintenance schedule may be established as things begin to show more wear and tear. The Alpena to Hillman Trail also receives only basic maintenance on an annual basis: maintaining the trail-side land, repairing potholes, and cleaning the surface and drainage channels. Maintenance workers mow, prune trees, and remove fallen or other trees for health/safety reasons on an as needed basis.

These two trails employ very different models for performing their maintenance activities. Employees of Van Buren County perform 90 percent of the maintenance activities for the Van Buren Trail, while the remainder is completed by volunteers from local trail groups. Snowmobile clubs perform most of the maintenance for the Alpena to Hillman Trail, while state government employees (Michigan Department of Natural Resources) handle minimal maintenance in the non-winter months, usually only removing major hazards. Snowmobile clubs buy their necessary heavy equipment (such as a heavy tractor and towed rotary broom) on a 60/40 cost share basis with the state. Over five years, the clubs take full ownership of the equipment. The state also owns other equipment that is used on the trail, but it is generally used for other purposes and is not trail specific.

For the Van Buren Trail, the county pays for all of the maintenance activities except for bridge redecking, which is shared among the county (80 percent), state (10 percent), and nonprofit trail management organization (10 percent). The reported annual costs are shown in Exhibit 14. Trail maintenance costs are covered by a trail user fee collected from all trail users on the Van Buren Trail.

EXHIBIT 14
Van Buren Trail Approximate Annual Costs, 2005

Activity	Paid labor	Equipment and materials	Total	Total per mile (14 miles)
Pothole repair (non-asphalt surface)	\$150	\$250	\$400	\$28.57
Mowing	426	1,000	1,426	101.86
Tree pruning	13	100	113	8.07
Tree removal	82	100	182	13.00
Patrols by non-police agency	772	200	972	69.43
Total estimated costs	\$1,443	\$1,650	\$3,093	\$220.93

The costs (see Exhibit 15) for the Alpena Trail are incurred by the snowmobile clubs, who submit bills to the state and are reimbursed from the Recreation Improvement Fund, which is funded through snowmobile license fees.

EXHIBIT 15
Alpena to Hillman Trail Approximate Annual Costs, 2005

Activity	Total	Total per mile (20 miles)
Snowmobile grooming	\$12,000	\$600.00
Brushing and signage	6,000	300.00
Grading	2,000	100.00
Gates	2,000	100.00
Miscellaneous	5,000	250.00
Total estimated costs	\$27,000	\$1,350.00

Used primarily as a snowmobile trail, the Alpena to Hillman Trail has no official trailheads. A dirt/soil road end in Hillman is used as an informal trailhead and is plowed in the winter for parking snowmobiles and trailers; no additional amenities are offered. The Van Buren Trail has one trailhead with a dirt/soil-surfaced parking lot just for trail users, providing about 40 parking spaces. The trail also offers one permanent toilet facility at the trailhead with a 50-gallon capacity. Neither trail offers any amenities along the trail.

Both of these trails only undertake the minimal necessities when it comes to signs, access control, and public safety. The Van Buren Trail provides mile markers every mile, property boundary signs, and traffic control signs for trail users, and post signs for trail identification and rules and regulations. The Alpena to Hillman Trail provides directional, property boundary, and traffic control signs for trail users. This trail is patrolled sporadically by Michigan Department of Natural Resources (MDNR) conservation officers, as well as by the county sheriff and State Police forces. The Van Buren trail is patrolled by park or trail rangers weekly.

Mid-level-maintenance Trails

The trails highlighted in this section—Little Traverse Wheelway, Portland River Trail, Saginaw Valley Rail Trail, and Wadhams to Avoca Trail—represent a middle ground of maintenance expenditures. Estimated costs per mile for these trails range from \$984 to \$1,453. Within this category there is variation in the types of maintenance activities and the way that expenditures are logged.

Little Traverse Wheelway

The Little Traverse Wheelway Trail is 26 miles long and comprises a combination of a paved and boardwalk surface.

Trash and debris are removed daily. Toilets (both portable and stationary) and the trailheads are maintained daily as well. The trail is patrolled daily by non-police entities.

Mowing and landscaping is done on a weekly basis. Special emphasis is given to mowing the land adjacent to the trail because of community expectations for a high level of maintenance, particularly related to aesthetics. Surface cleaning, pothole repair, snow removal, inspection of bridges, tunnels and lighting are all conducted weekly. Annual

maintenance activities include coating and sealing of asphalt surfaces, cleaning of drainage channels, leaf removal, planting, maintenance of picnic tables and benches, and pavement markings. Quarterly maintenance is conducted on gates, fences, and lighting.

For this trail, all maintenance is paid for by the municipality. These costs are summarized in Exhibit 17.

EXHIBIT 17
Estimated Maintenance Costs for Little Traverse Wheelway Trail, 2005

Activity	Cost	Cost per Mile
Repaving of asphalt trail	\$6,000	\$231
Snow removal from asphalt trail	2,800	108
Surface cleaning of asphalt trail	3,500	135
Application of herbicides or pesticides	600	23
Cleaning of drainage channels and culverts	600	23
Empty trash cans at trailheads	400	15
General maintenance of trailheads	600	23
Keep trail-side land clear of trash and debris	600	23
Landscaping/gardening at trailheads	50	2
Leaf removal	2,500	96
Mowing	4,000	154
Tree pruning	500	19
Empty trash cans along trail	500	19
Installation of pavement markings	200	8
Installation of signs	500	19
Maintenance of pavement markings	200	8
Maintenance of picnic tables, benches, etc.	500	19
Maintenance of portable toilets along trail (clean, empty, etc.)	200	8
Maintenance of stationary toilets along trail (clean, empty, etc.)	7,000	269
Repair/maintenance of signs	500	19
Maintenance of lighting	1,500	58
Patrols by police agency	2,000	77
Tunnel lighting maintenance	1,000	38
Total estimated costs	\$36,250	\$1,394
Total less coating/sealing or repaving asphalt	30,250	1,163

Portland River Trail

The Portland River Trail is 8.2 miles long and has four trailheads (2.05 miles per trailhead); it consists of both unimproved and paved surfaces. The trail carries liability insurance as part of the city of Portland's coverage. Bridges and amenities are covered for theft and property damage. It has been open to the public for 12 years.

The asphalt surface has been repaved on three occasions due to tree root damage. No snow removal was reported. Trash and debris are removed using a blower and a rotary broom. Trail maintenance includes maintenance of the adjacent land through leaf

removal, litter clean-up and removal, mowing, tree and shrub planting, tree pruning, and tree removal for a variety of reasons. Drainage is achieved through culverts, sloped/crowned surfaces, and self-cleaning design.

The trail amenities for users include parking lots, portable and permanent toilet facilities, potable water, picnic tables and benches, and trash receptacles along the trail and at trailheads. A great deal of signage is also provided, including directional signage, mileage markers every half-mile, mileage markers to upcoming destinations, property boundary signs, and traffic control signs for both cars and trail users, as well as posting the rules and regulations governing trail usage. The trail is patrolled by local police and volunteer trail patrols, as well as Junior Explorers.

All maintenance is funded by the city of Portland. Trail maintenance is performed on a fairly regular schedule. Daily maintenance includes general trailhead maintenance, surface maintenance of parking lots, emptying trash cans at trailheads, maintenance and cleaning of toilets, maintenance of gates, bollards, and fences. Weekly maintenance includes surface cleaning, mowing, emptying trash receptacles along the trail, maintenance on bridges, tunnels, and/overpasses. Annual maintenance includes, maintenance of pavement markings, invasive species removal, landscaping and leaf removal, tree pruning and removal, installation of pavement markings, and bridge, tunnel and overpass inspections.

The trail reported owning a backhoe, chipper, a dump truck, a front-end loader, a grader, a heavy and a light tractor, a pick up truck, a street sweeper and a towed rotary broom.

Exhibit 18 shows the estimated maintenance costs for the Portland River Trail.

EXHIBIT 18
Estimated Maintenance Costs for the Portland River Trail, 2005

Activity	Cost	Cost per mile
Pavement markings maintenance and replacement	\$1,000	\$122
Repaving of asphalt trail	1,800	220
Surface cleaning of asphalt trail	1,000	122
Empty trash cans at trailheads	500	61
General maintenance of trailheads	500	61
Keep trail-side land clear of trash and debris	650—donated	
Landscaping/gardening at trailheads	450—donated	
Mowing	600	73
Tree pruning	600	73
Tree removal	600	73
Installation of signs	600	73
Maintenance of pavement markings	1,000	122
Maintenance of picnic tables, benches, etc.	200	24
Maintenance of stationary toilets at trailheads (clean, empty, etc.)	450	55
Repair/maintenance of signs	300	37
Installation of gates, bollards, and fencing	300	37
Maintenance of gates, bollards, and fencing	300	37

Activity	Cost	Cost per mile
Patrols by non-police agency (e.g. Trail watch)	1,000—donated	
General bridge maintenance	400	49
Railroad grade crossing maintenance	400	49
Road grade crossing maintenance	350	43
Total estimated costs	\$11,250	\$1,372
Total less coating/sealing or repaving asphalt	\$9,450	\$1,152

Saginaw Valley Rail Trail

The Saginaw Valley Rail Trail is ten miles long and has been open for five years. It has paved and unimproved surfaces and three trailheads (3.33 miles per trailhead). It carries liability insurance that covers volunteers as well as trailside amenities.

Pothole repair on the trail’s asphalt surfaces is performed through cutting and cold patching the surface. Repair for this trail is more extensive than for others due to damage to two miles of the subgrade of the trail caused by chipmunk holes. Maintenance of adjacent land and vegetation includes planting of trees, shrubs and other plants, invasive species removal, leaf removal, litter clean-up, mowing, snow removal, and tree pruning. Drainage channels are cleaned manually. Snow is removed from all trailheads. The trail has no regular policing or patrolling. Because much of the trail is under a heavy canopy of trees, special emphasis is given to daily surface cleaning, as the trail is used regularly by rollerbladers who prefer a trail that is clear of leaves and other debris.

There are parking lots for trail users as well as shared public parking. Trail amenities include two permanent toilet facilities, portable toilets, potable water, two vending machines and three picnic tables. Along the trail, there are 12 trash cans, six kiosks, and 17 picnic tables. Signage includes interpretive signs, mile markers, traffic control for trail users and vehicles, trail identification, and rules and regulation signs. Mile markers are provided every mile. Grade crossings with roads are controlled by pedestrian/bike crossing signs, road striping, stop and yield signs for trail users, and yield signs for vehicles. There are also flashing signals at all road crossings.

Maintenance activities are regularly scheduled and include weekly, monthly, quarterly, and annual activities. Annual activities include installation and maintenance of pavement markings, clearing drainage channels, landscaping and planting, installation of gates, bollards or fences, bridge redecking and inspections, and painting, treating and staining bridge decks. Quarterly maintenance includes pothole repair, invasive species removal, tree removal, maintaining kiosks, and general bridge maintenance. Weekly maintenance includes leaf removal, surface maintenance of lots, tree pruning, emptying trash receptacles, maintaining picnic benches, cleaning of portable toilets, maintenance of gates, bollards and fences, and maintenance of lighting. Daily activities include general maintenance at trailheads, cleaning of permanent toilets, recovery from illegal acts (e.g. vandalism, dumping, graffiti, etc.), and bridge and tunnel inspections. Maintenance is mostly (90 percent) performed by county employees, with the remainder performed by a government contractor.

The trail owns a backhoe, chipper, dump truck, light and medium tractor, and a pickup truck. The facility reported renting a bobcat. The trail's estimated maintenance costs are summarized in Exhibit 19.

EXHIBIT 19
Estimated Maintenance Costs for the Saginaw Valley Rail Trail, 2005

Activity	Cost	Cost per mile
Pothole repair on asphalt trail	\$5,000	\$500
Surface cleaning of asphalt trail	6,000	600
Empty trash cans at trailheads	300	30
General maintenance of trailheads	2800	280
Keep trail-side land clear of trash and debris	425	42.5
Total estimated costs	\$14,525	\$1,453

Wadhams to Avoca Trail

The Wadhams to Avoca Trail is 2.4 miles in length, has three trailheads (4.13 miles per trailhead), and has been open for six years. The trail provides four parking lots for users, two permanent toilet facilities, four trash receptacles, and four picnic tables. Its surface consists of crushed stone, and unimproved and paved surfaces. It carries liability and medical insurance that covers volunteers. Bridges and amenities are covered for physical damage.

Snow is partially removed from the trail using a plow and the surface is cleaned using a blower and a rotary brush. Snow is also removed from the three trailheads. Pothole repairs are made manually, and by grading or dragging the surface. Trash and debris are cleared using a blower. Drainage on the trail is accomplished through culverts, channels, and through a crowned and sloped surface. Channels and culverts are cleared and cleaned manually. Patrols are conducted irregularly by local police officers and sheriff deputies.

Most maintenance activities are reported on an "as-needed" basis and include coating and sealing of asphalt, pothole repair, clearing drainage channels, tree removal, repair and maintenance of signs, installation and maintenance of gates and bollards, recovery from illegal acts such as vandalism or dumping, bridge redecking, general bridge maintenance, and road grade crossings. Other maintenance that is performed on a regular basis include snow removal, mowing, emptying trash cans, and maintenance of stationary toilets (weekly); general trailhead maintenance (bi-weekly); surface grading and surface maintenance of parking lots (quarterly); tree pruning, maintenance and repair of picnic tables, surface cleaning, and bridge and tunnel inspection (annually); and debris removal (biennially).

Maintenance is performed mostly by the county (75 percent), and then by volunteers (Adopt-a-Trail, mandatory community service, Boy Scouts); a small proportion (5 percent) is performed by a government contractor. The trail owns a back hoe, a dump truck, front-end loader, heavy and medium tractor, a pick up truck and a towed rotary broom. A chipper was the only item that was listed as being rented.

Estimated maintenance costs are presented in Exhibit 16.

EXHIBIT 16
Estimated Maintenance Costs for the Wadhams to Avoca Trail, 2005

Activity	Cost	Cost per mile
Snow removal from asphalt trail	\$1,000	\$81
Surface cleaning of asphalt trail	1,000	81
Grade non-asphalt trail	500	40
Pothole repair and other patches on non-asphalt trail	500	40
Application of herbicides or pesticides	200	16
Empty trash cans at trailheads	300	24
General maintenance of trailheads	1,000	81
Mowing	1,000	81
Planting new vegetation	200	16
Surface maintenance of parking areas	500	40
Tree pruning	500	40
Tree removal	500	40
Empty trash cans along trail	300	24
Maintenance of picnic tables, benches, etc.	200	16
Maintenance of stationary toilets along trail (clean, empty, etc.)	500	40
Repair/maintenance of signs	1,000	81
Installation of gates, bollards, and fencing	1,000	81
Maintenance of gates, bollards, and fencing	1,000	81
Recovery from illegal acts such as dumping and vandalism	500	40
Total estimated costs	\$12,200	\$984

High-maintenance Trails

Two trails were identified as engaging in a high level of maintenance: Pere Marquette Trail (Midland County), and Kal-Haven Trail (Van Buren County). Maintenance expenditures for these trails range from \$2,275 to \$3,500 per mile. The trails' maintenance and operations, their amenities, and an estimate of their budget and associated costs are summarized in this section.

The Pere Marquette trail is 13 years old; annual use is estimated at 178,000 people (from a user study conducted from 2001 to 2004). The trail is 21 miles long and has nine trailheads (2.33 miles per trailhead). Kal-Haven is 15 years old and reports 80,000–90,000 users per year based on sale of user passes. It is 34 miles long and has three trailheads (11.33 miles per trailhead).

Improved portions of the Pere Marquette Trail consist of 100 percent asphalt on improved sections, with original ballast subsurface. Kal-Haven reports 98 percent crushed stone and 2 percent asphalt with original ballast subsurface. The Pere Marquette Trail is the only high-maintenance trail that reported using a vegetation barrier (weed killer).

For the Kal-Haven Trail, trash removal and toilet maintenance were reported as weekly maintenance activities. Mowing and maintenance of trailheads were done monthly, while

pruning, tree removal, application of pesticides and invasive species removal were performed annually. Both trails also reported maintenance of gates, pavement marking, and bridges as annual activities. Pere Marquette reported the most daily maintenance activities, including maintenance of picnic tables, signs, lighting, and recovery from illegal acts such as vandalism or dumping.

Ninety-five percent of Kal-Haven Trail maintenance is performed by county employees (the other 5 percent was not reported). For the Pere Marquette Trail, all trail maintenance is performed by municipal and state government (the proportion performed by each was not reported). Both trails have liability insurance for every entity involved with trail maintenance.

Kal-Haven owns a heavy tractor and pickup truck and rents or borrows a backhoe, commercial chipper, dump truck, grader, and stake body truck. Pere Marquette owns ten pieces of equipment, including a backhoe, commercial-size chipper, dump truck, front-end loader, heavy tractor, medium tractor, light tractor, pickup truck, stake body truck, and a towed rotary broom. Pere Marquette did not report renting or borrowing any equipment and did not indicate that any equipment listed in the survey was not applicable to their trail. Maintenance costs for these trails are summarized in Exhibits 20 and 21.

EXHIBIT 20
Pere Marquette Trail Approximate Annual Costs, 2006

Activity	Cost	Cost per mile
Coating or sealing of asphalt trail	\$9,055	\$431
Pothole repair on asphalt trail	10,292	490
Snow removal from asphalt trail	5,516	263
Surface cleaning of asphalt trail	485	23
Grade non-asphalt trail	1,450	69
Keep trail-side land clear of trash and debris	4,872	232
Mowing	8,750	417
Leaf removal	1,920	91
Tree pruning	1,500	71
Tree removal	1,500	71
Invasive species removal	4,225	201
Planting new vegetation	1,500	71
Application of herbicides or pesticides	1,495	71
Clearing of drainage channels and culverts	1,300	62
Surface maintenance of parking areas	1,000	48
Landscaping / gardening at trailheads	1,000	48
Empty trash cans at trailheads	2,604	124
Maintenance of stationary toilets at trailheads	3,360	160
Maintenance of portable toilets at trailheads	6,720	320
Empty trash cans along trail	3,640	173
Maintenance of stationary toilets along trail	3,300	157
Maintenance of informational kiosks	\$500	\$24
Maintenance of picnic tables, benches, etc.	1,000	48
Updating information in informational kiosks	200	10

Activity	Cost	Cost per mile
Installation of signs	465	22
Repair / maintenance of signs	1,000	48
Installation of pavement markings	500	24
Maintenance of pavement markings	595	28
Recovery from illegal acts such as dumping and vandalism	1,000	48
Installation of gates, bollards, and fencing	750	36
Maintenance of gates, bollards, and fencing	2,500	119
Bridge, tunnel, underpass, and crossing inspection	300	14
Bridge re-decking	1,500	71
Paint/stain/treat bridge deck or structure	1,200	57
General bridge maintenance	1,000	48
Road grade crossing maintenance	1,000	48
Total	\$88,994	\$4,238

EXHIBIT 21
Kal-Haven Trail Approximate Annual Costs, 2006

Activities	Cost	Cost per mile
Repaving asphalt	\$5,000	\$149
Pothole repair/patching	3,079	92
Trailhead maintenance	1,719	51
Mowing	6,559	196
Tree removal	5,531	165
Toilets along trail	10,343	309
Toilets at trailhead	250	7
Signs and safety	40,474	1,208
Bridge re-decking	4,000	119
Bridge painting	5,400	161
TOTAL	\$82,355	\$2,458
Total less coating/sealing or repaving asphalt	\$77,355	\$2,309

Both trails have multiple parking lots, including shared public and private lots at their trailheads. These trails also have at least one permanent toilet, 12–24 trash receptacles, 3–6 information kiosks, and 20 or more picnic tables at their trailheads and along the trail.

Both trails also have mile markers, traffic signs for trail users, trail identification signs, and posted trail rules. The Kal-Haven Trail posts mileage to upcoming destinations and was the only trail to report property boundary signs. The Pere Marquette Trail has interpretive signs and was the only trail to report traffic signs for cars at trail crossings. Cars have the right of way at grade crossings with roads on both trails. Both trails also reported the use of official policing authorities—park or trail rangers and regular police.

Conclusions and Recommendations

CONCLUSIONS

This inventory of trail maintenance provides a great deal of baseline information about the trail and greenway system in Michigan. Trail maintenance in Michigan is not a “one size fits all” enterprise. Indeed, trail maintenance varies depending on a number of factors including the primary uses of the trail (biking, walking, rollerblading, or snowmobiling), the location of the trail, and user/community expectations for the level of maintenance.

The inventory has also highlighted some of the challenges to gathering comprehensive data for Michigan’s trails.

- First, budget information on trail maintenance is often contained within municipal, county, and/or state budgets and may not be easily accessible to trail managers. Furthermore, maintenance budgets may not be very detailed and may lack line-item detail; instead, costs may be represented only by total allotments for “maintenance” with no further itemization by particular activities.
- There is a great deal of variation in the way that budget information was reported to PSC. In some cases, managers reported an annual figure for maintenance and in other instances trail managers provided line-item figures of varying consistency and specificity. Respondents frequently noted that their budget figures represent an estimate or “guess” on the part of the trail managers.
- Consistent reporting of data is essential for drawing conclusions about trail maintenance in Michigan. Without this consistency it is difficult to develop a clear picture of what activities are actually conducted. For example, trails that provide an annual total are providing valuable information that allows us to compute a cost per mile for the trail, but it is difficult to compare the maintenance practices of that trail to others because we do not know exactly what is included in that annual total.

RECOMMENDATIONS

For future research on trail maintenance, PSC recommends that the methodology for data collection be refined.

- First, a shorter instrument or tool should be developed that captures data on core elements of trail maintenance that most trail managers can answer. These categories can include items like mowing, patrolling, trash and debris removal, tree removal, surface cleaning, etc. PSC recommends convening a group of trail managers who represent different jurisdictions and types of trails (county, state, municipal, volunteer-maintained, trail commission) to develop such a tool. Beginning with the current instrument, this group can assist in assembling a core group of measures for which most trails can provide information, thereby improving the quality of the data.
- Develop a protocol for developing regular reporting of trail maintenance on an annual basis in order to enable the development of trend data as well as the computation of rolling averages over multiple years. This would give a more accurate picture over time of trail maintenance in Michigan because it would even out all the costs involved

in trail maintenance, both routine activity (e.g., surface cleaning, mowing) as well as the non-routine (e.g., repaving or resurfacing asphalt).

When trail maintenance is contained within other budgets, such as municipal parks and recreation budgets, it is difficult to ascertain the “true” costs and needs of trail maintenance in Michigan. Being able to clearly delineate these costs and needs could help garner additional funding streams to assist with the continued maintenance of trails in Michigan. It behooves us, as a state, to work towards a more uniform system of reporting so that a clear assessment of trail maintenance in Michigan is established.

Appendix A: *Survey Instrument*

MICHIGAN TRAILS AND GREENWAYS ALLIANCE:

Statewide Trail Inventory

Michigan Trails and Greenways Alliance, formerly the Rails-to-Trails Conservancy Michigan Chapter, wishes to document trail maintenance practices and costs across Michigan. This is an important opportunity to showcase your trail and contribute to the base of knowledge needed to advance a well-maintained statewide trail system in Michigan.

Please complete and return this survey by June 16, 2006 using the enclosed postage paid envelope. If you have any questions about this survey or need an additional copy, please contact Amy Spray at PSC at 517-484-4954 or by email, *aspray@pscinc.com*.

Trail name: _____

Please provide information about the person to be contacted if any follow-up information is needed.

Name: _____

Organization: _____

Department: _____

Address: _____

City, State, Zip: _____

Daytime Phone: _____

E-mail: _____

SURFACE—GENERAL

1. What is the general width of your trail? *(If there are significant sections of varying width, please indicate an approximate percentage for each type*

6 ft.

8 ft.

10 ft.

12 ft.

Other (specify): _____

2. What is the primary surface material for any **UNIMPROVED** sections of your trail? *(If there are significant portions of different materials, please indicate an approximate percentage for each type of material you use.)*

Asphalt

Cinders

Crushed stone

Dirt/soil

- Original ballast
- Other (specify): _____

3. What is the primary surface material for any **IMPROVED** sections of your trail? (*If there are significant portions of different materials, please indicate an approximate percentage for each type of material you use.*)

- Asphalt
- Cinders
- Crushed stone
- Dirt/soil
- Original ballast
- Other (specify): _____

4. What is the primary **SUBSURFACE** or base material for any **IMPROVED** sections of your trail? (*If there are significant portions of different materials, please indicate an approximate percentage for each type of material you use*)

- Cinders
- Crushed stone
- Dirt/soil
- Original ballast
- Other (specify): _____

5. Have you employed a vegetation barrier in the subsurface of your trail?

- Yes
- No—**Skip to question 7**
- Don't know
- Not applicable

6. If **Yes**, what kind?

- Geotextile
- Weed killer
- Other (specify): _____

7. Does your trail have an asphalt surface?

- Yes—**Skip to question 8**
- Partially—**Skip to question 22**
- No—**Skip to question 22**

SURFACE—ASPHALT

8. Has your trail been repaved since the original paving?

- Yes
- No—**Skip to question 12**

- Don't know
- Not applicable

9. If **Yes**, at what age? _____

10. Does repaving occur at regular intervals?

- Yes
- No—**Skip to question 12**
- Don't know
- Not applicable

11. If **Yes**, at what frequency (in years)? _____

12. Has your trail been coated or sealed since the original paving?

- Yes
- No—**Skip to question 14**
- Don't know
- Not applicable

13. If **Yes**, at what age (in years)? _____

14. Does coating/sealing occur at regular intervals?

- Yes
- No—**Skip to question 16**
- Don't know
- Not applicable

15. If **Yes**, at what frequency (in years)? _____

16. Does your trail develop potholes?

- Yes
- No—**Skip to question 18**
- Don't know
- Not applicable

17. If **Yes**, how are potholes and other surface repairs made?

- Dragging
- Grader or other heavy equipment
- Light-duty power equipment
- Manual (rake, shovel, etc.)
- Other (specify): _____

18. Is snow removed from your trail?

- Full
- Partial
- None—**Skip to question 20**

19. How is snow removed? (*Check **all** that apply.*)

- Plow
- Blower
- Manual
- Other (specify): _____

20. How is the surface of your trail kept clear of trash and debris? (*Check **all** that apply.*)

- Blower
- Manual (broom, rake, chainsaw, etc.)
- Rotary brush
- Street sweeper
- Other (specify): _____

21. What pavement markings are used on your trail? (*Check **all** that apply.*)

- Center line
- Painted safety warnings
- Safety warnings
- Thermal transfer
- Other (specify): _____
- None

SURFACE—NON-ASPHALT

22. Please indicate the type of aggregate or gradation used for your trail surface.

- 1A
- 1B
- 2A
- 2B
- 2RC
- AASHTO #10
- DSA
- Other (specify): _____

23. Do you use any type of soil or aggregate binder (such as Road Oyl)?

- Yes
- No—**Skip to question 25**
- Don't know
- Not applicable

24. If **Yes**, please indicate the product name(s). _____

25. Does your trail develop potholes?

- Yes
- No—**Skip to question 27**
- Don't know
- Not applicable

26. How are potholes and other surface repairs made

- Dragging
- Grader or other heavy equipment
- Light-duty power equipment
- Manual (rake, shovel, etc.)
- Other (specify): _____

27. How is the surface of your trail kept clear of trash and debris? (*Check all that apply.*)

- Blower
- Manual (broom, rake, chainsaw, etc.)
- Rotary brush
- Street sweeper
- Other (specify): _____

ADJACENT LAND AND VEGETATION

28. Please indicate any activities that are performed relative to trailside vegetation and property. (*Check all that apply.*)

General	
<input type="checkbox"/>	Flower and ground cover planting
<input type="checkbox"/>	Invasive species removal
<input type="checkbox"/>	Leaf removal
<input type="checkbox"/>	Litter cleanup
<input type="checkbox"/>	Mowing
<input type="checkbox"/>	Snow removal
<input type="checkbox"/>	Tree and shrub planting
<input type="checkbox"/>	Tree pruning
<input type="checkbox"/>	Other (specify) _____
Tree removal	
<input type="checkbox"/>	Aesthetics
<input type="checkbox"/>	Fallen
<input type="checkbox"/>	Health/safety
<input type="checkbox"/>	Invasive
<input type="checkbox"/>	Other (specify): _____

29. How is drainage accommodated? (*Check all that apply.*)

- Culverts
- Trailside drainage channels (ditches, gullies)
- Trail surface is crowned or sloped
- Other (specify): _____

30. How are drainage areas kept clear? (*Check all that apply.*)

- Flush with water
- Manual (rake, shovel, etc.)
- Power equipment (backhoe, etc.)
- Self-cleaning design
- Other (specify): _____

PARKING, TRAILHEADS, AND SANITATION

31. How many trailheads are there along your trail? _____

32. Please indicate the features of your trailheads.

(Potential sources of data: original and operating budgets; funding requests; depreciation tracking and reporting documents.)

Parking	Number	Number of parking spaces	Initial cost	Annual cost	Use charge	Annual income
Parking lot(s) just for trail users						
Shared private/commercial parking lots						
Shared public parking lots						
On-street parking						
Toilet facilities, water and waste	Number	Capacity	Initial cost	Annual cost	Use charge	Annual income
Portable toilet facilities						
Permanent toilet facilities						
Potable water						
Trash receptacles						
Amenities	Number	Services and number	Initial cost	Annual cost	Use charge	Annual income
Informational kiosks						
Telephones						
Commercial concessions						
Vending machines						
Picnic tables/benches						
Other	Number	Capacity, services or number	Initial cost	Annual cost	Use charge	Annual income

33. If you have a parking lot(s), what is its primary surface material?

- Asphalt
- Cinders
- Crushed stone
- Dirt/soil
- Original ballast
- Other (specify): _____

34. Is snow removed from your trailhead?

- Yes
- No
- Don't know
- Not applicable

35. Aside from trailheads, what amenities are provided *along your trail*?

(Potential sources of data: original and operating budgets, funding requests, depreciation tracking and reporting documents)

Parking	Number	Number of parking spaces	Initial cost	Annual cost	Use charge	Annual income
Parking lot(s) just for trail users						
Shared private/commercial parking lots						
Shared public parking lots						
On-street parking						
Toilet facilities, water and waste	Number	Capacity	Initial cost	Annual cost	Use charge	Annual income
Portable toilet facilities						
Permanent toilet facilities						
Potable water						
Trash receptacles						
Amenities	Number	Services and number	Initial cost	Annual cost	Use charge	Annual income
Informational kiosks						
Telephones						
Commercial concessions						
Vending machines						
Picnic tables/benches						
Other	Number	Capacity, services or number	Initial cost	Annual cost	Use charge	Annual income

SIGNS, ACCESS CONTROL, AND PUBLIC SAFETY

36. What types of signs do you use?

- Directional sign (e.g., Turn right) — **Skip to question 38**
- Interpretive signs — **Skip to question 38**
- Mileage to upcoming destinations — **Skip to question 38**
- Mile marker
- Property boundary sign (e.g., No trespassing) — **Skip to question 38**
- Traffic control for trail users (e.g., Stop, Yield) — **Skip to question 38**
- Traffic control for cars at crossings — **Skip to question 38**
- Trail identification sign (e.g., Welcome to ABC Trail) — **Skip to question 38**
- Trail rules and regulations — **Skip to question 38**
- Other (specify) — **Skip to question 38**
- None — **Skip to question 38**

37. What frequency is used for your mile markers? (*Use decimal for fractions, e.g., 0.1, 0.25*) _____

38. Is your trail patrolled by any official policing authority?

- Yes
- No— **Skip to question 40**
- Don't know
- Not applicable

39. What groups patrol the trail? (*Check **all** that apply.*)

- Park or trail rangers
- Regular police
- Other (specify): _____

40. Is your trail patrolled by a volunteer or non-police group (e.g., Crime Watch)?

- Yes
- No— **Skip to question 42**
- Don't know
- Not applicable

41. What volunteer or non-police groups patrol your trail? _____

42. How often is your trail patrolled? _____

43. Who has the right of way at grade crossings with roads?

- Trail users
- Cars
- Combination

44. How are grade crossings with roads controlled? (*Check all that apply.*)

- Flashing signal when trail users present
- Pedestrian/bike crossing sign
- Pedestrian-activated crossing signal
- Road striping
- Stop sign for trail users
- Stop sign for road users
- Traffic signal (red, yellow, green)
- Yield sign for trail users
- Yield sign for road users
- Other (specify): _____

45. How are grade crossings with rails controlled? (*Check all that apply.*)

- Automatic gate
- Flashing lights
- Signs
- Other (specify): _____

ADMINISTRATIVE

46. Does every entity involved with maintenance of your trail carry liability insurance?

- Yes
- No— **Skip to question 51**
- Don't know
- Not applicable

47. What is your liability coverage amount? _____

48. Who is your liability insurance carrier? _____

49. What is your cost for liability insurance? _____

50. If you have volunteers perform maintenance, are they covered under your liability insurance?

- Yes
- No
- Don't know
- Not applicable

51. Is the trail entity insured against medical liability from volunteers performing maintenance (similar to workers compensation insurance)?

- Yes
- No

- Don't know
- Not applicable

52. Has anyone involved with the trail been sued for a trail-related issue (such as negligence)?

- Yes
- No— **Skip to question 53**
- Don't know
- Not applicable

53. Please briefly describe the issue and the outcome of the lawsuit.

54. Aside from liability, are any physical components of the trail (bridges, structures) insured against theft, vandalism, fire, flood, etc.?

- Yes
- No
- Don't know
- Not applicable

55. What types of things are insured? (*Check **all** that apply.*)

- Bridges
- Trailside amenities
- Tunnels
- Vehicles and equipment
- Visitor's center
- Other (specify): _____

56. How long has this trail been open for public use (in years)? _____

57. Approximately how many visitors use your trail each year? _____

58. How do you track annual users?

- Estimate/guess
- Manual count
- Mechanical count
- Other (specify): _____

59. Please check the appropriate column in the grid below for each trail maintenance activity

Activity	Daily	Weekly	Monthly	Quarterly	Annually	Other (specify)	NA
Maintenance of Asphalt Surfaces							
Coating or sealing of asphalt trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pavement markings maintenance and replacement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pothole repair on asphalt trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Repaving of asphalt trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Snow removal from asphalt trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Surface cleaning of asphalt trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance of Non-Asphalt Surfaces							
Grade non-asphalt trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Keep trail-side land clear of trash and debris	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pothole repair and other patches on non-asphalt trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Resurface non-asphalt trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Snow removal from non-asphalt trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Surface cleaning of non-asphalt trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance of Adjacent Land and Vegetation							
Application of herbicides or pesticides	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Clearing of drainage channels and culverts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
General maintenance of trailheads (litter clean-up, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Invasive species removal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Landscaping/gardening at trailheads	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leaf removal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mowing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Planting new vegetation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Surface maintenance of parking areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tree pruning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tree removal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance of Parking, Trailheads, and Sanitation							
Empty trash cans along trail	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Empty trash cans at trailheads	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Installation of pavement markings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Installation of signs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance of informational kiosks (repairs, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance of pavement markings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance of picnic tables, benches, etc.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance of portable toilets along trail (clean, empty, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance of portable toilets at trailheads (clean, empty, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance of stationary toilets along trail (clean, empty, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance of stationary toilets at trailheads (clean, empty, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Repair/maintenance of signs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Activity	Daily	Weekly	Monthly	Quarterly	Annually	Other (specify)	NA
Updating information in information kiosks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Signs, Access Control, and Public Safety							
Installation of emergency call boxes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Installation of gates, bollards, and fencing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Installation of lighting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance of emergency call boxes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance of gates, bollards, and fencing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance of lighting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Patrols by non-police agency (e.g., trail watch)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Patrols by police agency	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recovery from illegal acts such as dumping and vandalism	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance of Bridges, Tunnels, and Crossings							
Bridge re-decking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bridge, tunnel, underpass, and crossing inspection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
General bridge maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
General tunnel/underpass maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inspection of bridges and tunnels	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paint tunnel/underpass walls and ceiling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paint/stain/treat bridge deck or structure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Railroad grade crossing maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Road grade crossing maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tunnel lighting maintenance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tunnel open/closed status	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

60. Please indicate what percentage of your maintenance is performed by the following groups.

Groups responsible for maintenance activities	Approximate percentage of total maintenance
A contractor paid by a government agency	
A contractor paid by a nonprofit organization	
Employees of a government-funded trail management agency	
Employees of a nonprofit trail management organization	
Employees of county government	
Employees of municipal government	
Employees of state government	
Participants in an "adopt a trail" program	
Persons with mandatory community service	
Volunteers	
Trail group	
Scout	
Other community group	
Other (specify)	

61. For each piece of equipment you use for your trail maintenance please indicate who provides the equipment.

Equipment	Own	Rent	Borrow	We rent or borrow from...	NA
Backhoe	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>
Bobcat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>
Commercial size chipper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>
Dump truck	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>
Front-end loader	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>
Grader	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>
Heavy tractor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>
Light tractor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>
Medium tractor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>
Paver	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>
Pick-up truck	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>
Stake body truck	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>
Steam roller	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>
Street sweeper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>
Towed roller	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>
Towed rotary broom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____	<input type="checkbox"/>

62. Please indicate your approximate annual costs for all maintenance activities that you perform.

Approximate annual costs					
Trail maintenance activity	Paid labor	Value of donated labor	Equipment and materials	Value of donated equipment and materials	Total
<i>Actual costs incurred for this category of activities OR (best) estimate</i>					
<i>Line item costs (if available) for:</i>					
Maintenance of Asphalt Surface					
Coating or sealing of asphalt trail					
Pavement markings maintenance and replacement					
Pothole repair on asphalt trail					
Repaving of asphalt trail					
Snow removal from asphalt trail					
Surface cleaning of asphalt trail					
Maintenance of Non-Asphalt Surface					
Grade non-asphalt trail					
Pothole repair and other patches on non-asphalt trail					
Resurface non-asphalt trail					
Snow removal from non-asphalt trail					

Approximate annual costs					
Trail maintenance activity	Paid labor	Value of donated labor	Equipment and materials	Value of donated equipment and materials	Total
<i>Actual costs incurred for this category of activities OR (best) estimate</i>					
<i>Line item costs (if available) for:</i>					
Surface cleaning of non-asphalt trail					
Maintenance of Adjacent Land and Vegetation					
Application of herbicides or pesticides					
Clearing of drainage channels and culverts					
Empty trash cans at trailheads					
General maintenance of trailheads (litter clean-up, etc.)					
Invasive species removal					
Keep trail-side land clear of trash and debris					
Landscaping/ gardening at trailheads					
Leaf removal					
Mowing					
Planting new vegetation					
Surface maintenance of parking areas					
Tree pruning					
Tree removal					
Maintenance of Parking, Trailheads, and Sanitation					
Empty trash cans along trail					
Installation of pavement markings					
Installation of signs					
Maintenance of informational kiosks (repairs, etc.)					
Maintenance of pavement markings					
Maintenance of picnic tables, benches, etc.					
Maintenance of portable toilets along trail (clean, empty, etc.)					
Maintenance of portable toilets at trailheads (clean, empty, etc.)					
Maintenance of stationary toilets along trail (clean, empty, etc.)					
Maintenance of stationary toilets at trailheads (clean, empty, etc.)					
Repair/maintenance of signs					

Approximate annual costs					
Trail maintenance activity	Paid labor	Value of donated labor	Equipment and materials	Value of donated equipment and materials	Total
<i>Actual costs incurred for this category of activities OR (best) estimate</i>					
<i>Line item costs (if available) for:</i>					
Updating information in informational kiosks					
Signs, Access Control, and Public Safety					
Installation of emergency call boxes					
Installation of gates, bollards, and fencing					
Installation of lighting					
Maintenance of emergency call boxes					
Maintenance of gates, bollards, and fencing					
Maintenance of lighting					
Patrols by non-police agency (e.g., trail watch)					
Patrols by police agency					
Recovery from illegal acts such as dumping and vandalism					
Maintenance of Bridges, Tunnels, and Crossings					
Bridge re-decking					
Bridge, tunnel, underpass, and crossing inspection					
General bridge maintenance					
General tunnel/underpass maintenance					
Inspection of bridges and tunnels					
Paint tunnel/underpass walls and ceiling					
Paint/stain/treat bridge deck or structure					
Railroad grade crossing maintenance					
Road grade crossing maintenance					
Tunnel lighting maintenance					
Tunnel open/closed status					

63. Who pays for the maintenance activities? (Please indicate an approximate percentage for each group.)

Trail maintenance activity	Federal government	State government	County government	Municipal government	Government-funded trail management agency	Nonprofit trail management organization	Volunteers	Participants in an "adopt a trail" program	Other (specify)
Maintenance of Asphalt Surfaces									
Coating or sealing of asphalt trail									
Pavement markings maintenance and replacement									
Pothole repair on asphalt trail									
Repaving of asphalt trail									
Snow removal from asphalt trail									
Surface cleaning of asphalt trail									
Maintenance of Non-Asphalt Surfaces									
Grade non-asphalt trail									
Pothole repair and other patches on non-asphalt trail									
Resurface non-asphalt trail									
Snow removal from non-asphalt trail									
Surface cleaning of non-asphalt trail									
Maintenance of Vegetation and Landscape									
Application of herbicides or pesticides									
Clearing of drainage channels and culverts									
General maintenance of trailheads (litter clean-up, etc.)									
Invasive species removal									
Keep trailside land clear of trash and debris									
Landscaping/gardening at trailheads									
Leaf removal									
Mowing									
Planting new vegetation									
Surface maintenance of parking areas									
Tree pruning									
Tree removal									
Maintenance of Amenities									
Empty trash cans along trail									

Trail maintenance activity	Federal government	State government	County government	Municipal government	Government-funded trail management agency	Nonprofit trail management organization	Volunteers	Participants in an "adopt a trail" program	Other (specify)
Empty trash cans at trailheads									
Installation of pavement markings									
Installation of signs									
Maintenance of informational kiosks (repairs, etc.)									
Maintenance of pavement markings									
Maintenance of picnic tables, benches, etc.									
Maintenance of portable toilets along trail (clean, empty, etc.)									
Maintenance of portable toilets at trailheads (clean, empty, etc.)									
Maintenance of stationary toilets along trail (clean, empty, etc.)									
Maintenance of stationary toilets at trailheads (clean, empty, etc.)									
Repair/maintenance of signs									
Updating information in informational kiosks									
Signs, Access Control, and Public Safety									
Installation of emergency call boxes									
Installation of gates, bollards, and fencing									
Installation of lighting									
Maintenance of emergency call boxes									
Maintenance of gates, bollards, and fencing									
Maintenance of lighting									
Patrols by non-police agency (e.g., trail watch)									
Patrols by police agency									
Recovery from illegal acts such as dumping and vandalism									
Maintenance of Bridges, Tunnels, and Crossings									
Bridge re-decking									
Bridge, tunnel, underpass, and crossing inspection									
General bridge maintenance									

Trail maintenance activity	Federal government	State government	County government	Municipal government	Government-funded trail management agency	Nonprofit trail management organization	Volunteers	Participants in an "adopt a trail" program	Other (specify)
General tunnel/underpass maintenance									
Inspection of bridges and tunnels									
Paint tunnel/underpass walls and ceiling									
Paint/stain/treat bridge deck or structure									
Railroad grade crossing maintenance									
Road grade crossing maintenance									
Tunnel lighting maintenance									
Tunnel open/closed status									

64. Are budget and expense documents (e.g., annual or semiannual budgets, forecasts, operating expense reports, grant proposals, or other reporting) prepared for your trail?

- Yes
- No
- Don't know
- Not applicable

If possible, please provide a copy of these forms along with your survey in the enclosed postage paid envelope. You may also send or e-mail them, under separate cover to:

Amy Spray
600 W. St. Joseph Street, Suite 10
Lansing, MI 48933-2265
E-mail: aspray@pscinc.com
Fax: 517-484-6549

- Check this box if you feel that anything about how you design, construct, maintain, or operate your trail would be valuable to share with other trail groups as a case study to be included in the published results of this survey.

Thank you!

Appendix B:
Frequency of Maintenance Activities

NOTE: In the following tables, A=Annually; D=Daily; M=monthly; N=Not applicable; O=other; Q=Quarterly; and W=weekly.

MAINTENANCE OF ASPHALT SURFACES—HOW OFTEN?

Trail Names	Coating/Sealing	Markings	Pothole	Repaving	Snow Removal	Surface Cleaning
Alpena to Hillman Trail						
Battle Creek Linear Park	Other	Other	Other	Other	NA	Q
Betsie Valley Trail	NA	NA	NA	NA	NA	A
City Of Alpena Bi-Path	NA	As needed	As needed	As needed	A	M
Clinton River Trail						
Flint River Trail	NA	NA	Occasional	NA	NA	A
Fred Meijer Heartland Trail	NA	NA	As needed	15-20 years	NA	As needed
Grand Rapids Riverside Trail			D	W		
Grayling Bicycle Turnpike	NA	A	NA	NA	NA	Q
Kal-Haven Trail Sesquicentennial State Park	As needed					
Kent Trails						
Musketawa Trail		D/As needed	D		W/When snow is over 40"	
Paul Henry Thornapple Trail (Middleville)	NA	NA	A	NA	NA	M
Pere Marquette State Trail	As needed		A			
Pere Marquette Trail Of Mid-Mi (Midland)	A	A	A		D	M
Portage Creek Bicentennial Trail	O, 3 yrs	A	A	0,6yrs	D	W
Portland Rivertrail	A		Other	NA	W	
Saginaw Valley Rail Trail	NA	A	Q	NA	NA	W
Van Buren Trail	NA	NA	NA	NA	NA	NA
Vassar Trail	A	A	M	As needed	D	M
Wadhams To Avoca	As needed	NA	As needed	NA	W	A
West Bloomfield Trail Network	NA	NA	NA	NA	NA	NA
Bay City Riverwalk Trail System--City	NA	NA	NA	NA	As needed	As needed
Bay City Riverwalk Trail System--State Recreation Area (Aka Anderson Nature Trail)	NA	A	M	NA	NA	A
Hart-Montague-Berry Junction Trail	As needed					

Trail Names	Coating/Sealing	Markings	Pothole	Repaving	Snow Removal	Surface Cleaning
Paint Creek Trail						
Macomb Orchard Trail	NA	NA	NA	NA	NA	A
South Lyon Trail Of Huron Valley Trail System	As needed	As needed	As needed	As needed	As needed	As needed
Pere Marquette (Isabella County)	O-6-8 yrs	As needed	M	O-20+yrs	NA	W & M
Little Traverse Wheelway–Bay Harbor Petoskey Segment	A	Other	Other	W	W	
City of Adrian	O - Limited	A	A	O-As funding allows	D	W

MAINTENANCE OF NON-ASPHALT SURFACES—HOW OFTEN?

Trail Names	Grade	Trash and debris	Pothole	Resurface	Snow removal	Surface cleaning
Alpena to Hillman Trail	NA	A	A	NA	W And NA	A and NA
Battle Creek Linear Park	Other	Q	Other	Other	NA	Other
Betsie Valley Trail	NA	Q	NA	NA	NA	NA
City Of Alpena Bi-Path	NA	NA	NA	NA	NA	NA
Clinton River Trail	A	A				
Flint River Trail	NA	A	A	NA	NA	NA
Fred Meijer Heartland Trail	NA	As needed	O	NA	NA	NA
Grand Rapids Riverside Trail						
Grayling Bicycle Turnpike	NA	NA	NA	NA	NA	NA
Kal-Haven Trail Sesquicentennial State Park	Q	W	W	As needed		
Kent Trails						
Musketawa Trail	D & Q	As needed				
Paul Henry Thornapple Trail (Middleville)	A	M	A	NA	NA	NA
Pere Marquette State Trail	O Mowed annually	A	As needed	NA	NA	NA
Pere Marquette Trail of Mid-Mi (Midland)	NA	NA	NA	NA	NA	NA
Portage Creek Bicentennial Trail						
Portland Rivertrail						
Saginaw Valley Rail Trail						

Trail Names	Grade	Trash and debris	Pothole	Resurface	Snow removal	Surface cleaning
Van Buren Trail	As needed	As needed	As needed	As needed	NA	NA
Vassar Trail						
Wadhams To Avoca	Q	O-Bi annual	As needed	NA	NA	NA
West Bloomfield Trail Network	As needed	M	As needed	As needed	NA	As needed
Bay City Riverwalk Trail System--City						
Bay City Riverwalk Trail System--State Recreation Area (Aka Anderson Nature Trail)	W	M	NA	NA	NA	
Hart-Montague-Berry Junction Trail	As needed					
Paint Creek Trail	As needed	W	As needed	O-15 yrs	NA	NA
Macomb Orchard Trail						
South Lyon Trail Of Huron Valley Trail System						
Pere Marquette (Isabella County)						
Little Traverse Wheelway--Bay Harbor Petoskey Segment						
City of Adrian						

MAINTENANCE OF ADJACENT LAND AND VEGETATION—HOW OFTEN?

Trail names	Herbicides	Drainage channels	Maintenance of trailheads	Invasive species	Landscaping	Leaf removal	Mowing	Planting	Parking areas	Tree pruning	Tree removal
Alpena To Hillman Trail	NA	A	NA	NA	NA	NA	Other	NA	NA	Other	Other
Battle Creek Linear Park	Other	Other	M	Other	NA	Other	W	Other	Other	Q	Other
Betsie Valley Trail	Q	NA	As needed	NA		Other		NA	NA	Other	Other
City Of Alpena Bi-Path	A	NA	W	A	A	M	W	As needed	As needed	A	A
Clinton River Trail	A	Q				M			A		
Flint River Trail	NA	NA	M	NA	NA	M	M	A	NA	Q	Q
Fred Meijer Heartland Trail	NA	NA	As needed	NA	NA	NA	As needed	A	As needed	As needed	NA

Trail names	Herbicides	Drainage channels	Maintenance of trailheads	Invasive species	Landscaping	Leaf removal	Mowing	Planting	Parking areas	Tree pruning	Tree removal
Grand Rapids Riverside Trail	D				M			M			
Grayling Bicycle Turnpike	NA	NA	NA	NA	NA	NA	A	NA	NA	N	NA
Kal-Haven Trail Sesquicentennial State Park	Spot application	NA	W	In process	M	NA	M	In process	In process	NA	As needed
Kent Trails											
Musketawa Trail	As needed	D				M		W	As needed	As needed	
Paul Henry Thornapple Trail (Middleville)	NA	NA	M	NA	NA	NA	M	NA	M	Q	Q
Pere Marquette State Trail	O in progress	As needed	NA			A				As needed	
Pere Marquette Trail Of Mid-Mi (Midland)	A	A	D	A	D	W	W	A	D	A	A
Portage Creek Bicentennial Trail	M	A	D		W	W	W	A	As needed	A	A
Portland Rivertrail		D	A	A	A	W	Other	D	A	A	
Saginaw Valley Rail Trail	NA	A	D	Q	W	W	W	A	W	W	Q
Van Buren Trail	NA	As needed	As needed	NA	NA	NA	As needed	NA	NA	As needed	As needed
Vassar Trail	Q	W	A	A	Q	D	A	M	A	As needed	
Wadhams to Avoca	NA	As needed	0-bi weekly	NA	NA	NA	W	NA	Q	A	As needed
West Bloomfield Trail Network	Q	As needed	W	NA	W	NA	W	As needed	A	Q	A
Bay City Riverwalk Trail System--City	As needed	NA	NA	As needed	NA	NA	W	As needed	As needed	As needed	As needed
Bay City Riverwalk Trail System--State Recreation Area (Aka Anderson Nature Trail)	A	A	W	A	A	A	M	NA	A	A	A

Trail names	Herbicides	Drainage channels	Maintenance of trailheads	Invasive species	Landscaping	Leaf removal	Mowing	Planting	Parking areas	Tree pruning	Tree removal
Hart-Montague-Berry Junction Trail	As needed	As needed			A-twice			As needed	As needed		
Paint Creek Trail	A	NA	W	A	NA	NA	M	As needed	A	M	A & as needed
Macomb Orchard Trail	NA	A	W	NA	NA	NA	M	NA	NA	N	NA
South Lyon Trail Of Huron Valley Trail System	As needed	As needed	As needed	As needed	As needed	As needed	As needed	As needed	As needed	As needed	As needed
Pere Marquette (Isabella County)	A	As needed	W	NA	A	O-twice a year	W	A	M	A	Q
Little Traverse Wheelway– Bay Harbor Petoskey Segment	As needed	A	D	As needed	W	A	W	A	W	As needed	As needed
City of Adrian	Q	A	W	M	NA	W	M	NA	As needed	As needed	As needed

MAINTENANCE OF PARKING, TRAILHEADS, AND SANITATION—HOW OFTEN?

Trail names	Trash cans along trail	Trash cans at trailhead	Install markings	Install signs	Info kiosks	Maintenance of markings	Picnic tables/ benches	Portable toilets along trail	Portable toilets at trailhead	Stationary toilets along trail	Stationary toilets at trailhead	Repair signs	Updating info kiosks
Alpena to Hillman Trail	NA	NA	NA	A	NA	NA	NA	NA	NA	NA	NA	A	NA
Battle Creek Linear Park	Other	Na	Other	Other	Other	Other	A	NA	NA	NA	NA	Q	NA
Betsie Valley Trail	NA	NA	NA	As needed	NA	NA	As needed	NA	NA	NA	D	As needed	NA
City Of Alpena Bi-Path	W	W	Project specific	Project specific	A	As needed	A	W & m	W & m	W	W	A	A
Clinton River Trail	NA	W	NA	NA	NA	NA	NA			W			
Flint River Trail	NA	NA	NA	NA	NA	NA	A	NA	NA	NA	NA	NA	NA
Fred Meijer Heartland Trail	NA	NA	NA	As needed	NA	NA	As needed	NA/ contracted	O	NA	NA	As needed	M & A
Grand Rapids Riverside Trail	D	D	A	Other	NA	A	A	W & m	W & m	D & w	D	A	NA
Grayling Bicycle Turnpike	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kal-Haven Trail Sesquicentennial State Park	W	W	NA	As needed	M	NA	As needed	NA	NA	W	W	As needed	As needed
Kent Trails													

Trail names	Trash cans along trail	Trash cans at trailhead	Install markings	Install signs	Info kiosks	Maintenance of markings	Picnic tables/benches	Portable toilets along trail	Portable toilets at trailhead	Stationary toilets along trail	Stationary toilets at trailhead	Repair signs	Updating info kiosks
Musketawa Trail	NA	NA		As needed	As needed	As needed	W & NA	W	NA	NA	As needed	M	
Paul Henry Thornapple Trail (Middleville)	W	W					A					A	
Pere Marquette State Trail	NA	NA		A & as needed									
Pere Marquette Trail Of Mid-Mi (Midland)	D	D	A	Other	M	A	D	W	D	D	D	D	Q
Portage Creek Bicentennial Trail	D	D	A	As needed	As needed	A	A			D	D	W	A
Portland Rivertrail	W	D	A	As needed		As needed	NA	NA	D	D	Other		
Saginaw Valley Rail Trail	W	W	A	M	Q	A	W	NA	W	NA	D	W	NA
Van Buren Trail	NA	As needed	NA	As needed	NA	NA	NA	NA	NA	NA	As needed	As needed	NA
Vassar Trail	D	D	A	As needed	M	Maintenance of markings	A	W	W	D	D	M	M
Wadhams to Avoca	NA	W	NA	NA	NA	NA	A	NA	NA	NA	W	As needed	NA
West Bloomfield Trail Network	D	D	NA	As needed	M	NA	W	W	W	NA	NA	W	W & m
Bay City Riverwalk Trail System-City	W	NA	NA	NA	As needed	NA	As needed	W	NA	W	NA	As needed	NA
Bay City Riverwalk Trail System-State Recreation Area (Aka Anderson Nature Trail)	NA	NA	A	A	M	A	A	NA	NA	NA	NA	A	Q
Hart-Montague-Berry Junction Trail	As needed	As needed	As needed				As needed						
Paint Creek Trail	W	W	NA	As needed	As needed	NA	As needed	NA	NA	W	NA	As needed	NA
Macomb Orchard Trail	W	W	NA	NA	A	NA	NA	W	W	NA	NA	NA	NA
South Lyon Trail Of Huron Valley Trail System	As	As needed	As needed	As needed	NA	As needed		As needed	NA				
Pere Marquette (Isabella County)	NA	W	NA	A	A	O-6-8yrs	W	NA	NA	NA	W	M	W
Little Traverse Wheelway-Bay Harbor Petoskey Segment	D	D	A	A		A	A	D	D	D	D	As needed	As needed

Trail names	Trash cans along trail	Trash cans at trailhead	Install markings	Install signs	Info kiosks	Maintenance of markings	Picnic tables/benches	Portable toilets along trail	Portable toilets at trailhead	Stationary toilets along trail	Stationary toilets at trailhead	Repair signs	Updating info kiosks
City of Adrian	NA	W	A	As needed	NA	Other	Other	NA	NA	NA	NA	Other	NA

SIGNS, ACCESS CONTROL, AND PUBLIC SAFETY—HOW OFTEN?

Trail names	Install emergency call boxes	Install gates, fencing	Install lighting	Maintenance of emergency call boxes	Maintenance of gates, fencing	Maintenance of lighting	Patrols by non-police agency	Patrols by police agency	Recovery from illegal acts
Alpena to Hillman Trail	NA	NA	NA	NA	A	NA	NA	NA	A
Battle Creek Linear Park	NA	NA	NA	NA	Other	NA	NA	Other	NA
Betsie Valley Trail	NA	NA	NA	NA	NA	NA	NA	NA	As needed
City Of Alpena Bi-Path	NA	NA	NA	NA	NA	NA	NA	M	NA
Clinton River Trail	NA	NA	NA	NA	A	NA	NA	M	Q
Flint River Trail	NA	NA	NA	NA	NA	NA	NA	Occasional	Q
Fred Meijer Heartland Trail	NA	A	NA	NA	As needed	NA	NA	NA	As needed
Grand Rapids Riverside Trail	NA	NA	NA	NA	NA	NA		D	D
Grayling Bicycle Turnpike	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kal-Haven Trail	NA	NA	NA	NA	As needed	As needed	D	D	W
Sesquicentennial State Park									
Kent Trails									
Musketawa Trail	NA	NA	NA	NA	NA	NA		D & w	As needed
Paul Henry Thornapple Trail (Middleville)		A							
Pere Marquette State Trail									
Pere Marquette Trail of Mid-Mi (Midland)	NA	A	D	NA	A	D	NA	NA	D
Portage Creek Bicentennial Trail	As needed	As needed	W	W	A		As needed		
Portland Rivertrail	NA	Other		NA	D		D	W	
Saginaw Valley Rail Trail	NA	A	NA	NA	W	W	NA	NA	D
Van Buren Trail	NA	NA	NA	NA	NA	NA	NA	NA	As needed
Vassar Trail	NA	A	O-as planned	NA	M		D & NA	D	O-as possible
Wadhams To Avoca	NA	As needed	NA	NA	As needed	NA	NA	0-irregular	As needed
West Bloomfield Trail Network	NA	Other	NA	NA	M	NA	NA	Q	A
Bay City Riverwalk Trail System—City	NA	NA	NA	NA	NA	As needed	NA	NA	NA

Trail names	Install emergency call boxes	Install gates, fencing	Install lighting	Maintenance of emergency call boxes	Maintenance of gates, fencing	Maintenance of lighting	Patrols by non-police agency	Patrols by police agency	Recovery from illegal acts
Bay City Riverwalk Trail System—State Recreation Area (Aka Anderson Nature Trail)	NA	A	NA	NA	A	NA	NA	W	M
Hart-Montague-Berry Junction Trail									
Paint Creek Trail	NA	As needed	NA	NA	M	NA	NA	W	W
Macomb Orchard Trail	NA	NA	NA	NA	A	NA	NA	D	NA
South Lyon Trail of Huron Valley Trail System	NA	As needed	NA	NA	As needed	NA	As needed	As needed	NA
Pere Marquette (Isabella County)	NA	NA	NA	NA	A	NA	NA	NA	A
Little Traverse Wheelway-Bay Harbor Petoskey Segment	NA	Q	W	NA	As needed	NA	D	Q	
City of Adrian	NA	As needed	NA	NA	As needed	As needed	NA	NA	As needed

MAINTENANCE OF BRIDGES, TUNNELS, AND CROSSINGS—HOW OFTEN?

Trail names	Bridge redecking	Bridge, etc. inspection	Bridge maintenance	Tunnel maintenance	Inspection of bridges and tunnels	Paint tunnel/underpass	Paint bridge deck/structure	RR x-ing maintenance	Road grade x-ing	Tunnel lighting	Tunnel status
Alpena To Hillman Trail	As needed	As needed	As needed	As needed	As needed	As needed	As needed	As needed	As needed	NA	NA
Battle Creek Linear Park	Other	Other	Q	A	A	A	Other	Other	Other	Other	Other
Betsie Valley Trail	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
City of Alpena Bi-Path	As needed	NA	As needed	NA	M	NA	A & other	Other	Other	NA	NA
Clinton River Trail	NA	A	NA	NA	A	NA	NA	NA	NA	NA	NA
Flint River Trail	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fred Meijer Heartland Trail	A	NA	A	NA	A	NA	A	NA		NA	NA
Grand Rapids Riverside Trail	NA	NA	NA	NA	NA	NA	Other	Other	Other	NA	NA
Grayling Bicycle Turnpike	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kal-Haven Trail Sesquicentennial State Park	NA	NA		NA		NA	As needed	As needed	NA	NA	
Kent Trails											
Musketawa Trail	As needed	D & w	As needed	NA	D & w	NA	NA	NA	As needed		

Trail names	Bridge redecking	Bridge, etc. inspection	Bridge maintenance	Tunnel maintenance	Inspection of bridges and tunnels	Paint tunnel/underpass	Paint bridge deck/structure	RR x-ing maintenance	Road grade x-ing	Tunnel lighting	Tunnel status
Paul Henry Thornapple Trail (Middleville)	A										
Pere Marquette State Trail	As needed	A	As needed	As needed	NA	NA	As needed	NA	NA	NA	NA
Pere Marquette Trail of Mid-Mi (Midland)	NA	NA	A	NA		NA		NA		NA	NA
Portage Creek Bicentennial Trail	As needed	D & w	A	A	D & w	As needed	As needed		W		
Portland Rivertrail	Other	W	A	As needed	A	Other		NA	Other	NA	NA
Saginaw Valley Rail Trail	A	D & w	Q	NA	A	NA	A	M	M	NA	NA
Van Buren Trail	NA	NA	NA	NA	NA	NA	NA	NA	As needed	NA	NA
Vassar Trail	O-5 yr review	A	Q	NA	A	O-5 yr plan	O-5yr plan	NA	A	NA	NA
Wadhams to Avoca	As needed	A	As needed	NA	A	NA	As needed	NA	As needed	NA	NA
West Bloomfield Trail Network	As needed	W	M	M	M	As needed	NA	NA	NA	NA	NA
Bay City Riverwalk Trail System–City	As needed	A	As needed	NA	A	NA	As needed	NA	NA	NA	NA
Bay City Riverwalk Trail System–State Recreation Area (Aka Anderson Nature Trail)	O-15 year	M	A	NA	M	NA	A	NA	A	NA	NA
Hart-Montague-Berry Junction Trail	As needed		As needed								
Paint Creek Trail	NA	M	As needed	NA	M	NA	NA	NA	NA	NA	NA
Macomb Orchard Trail	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
South Lyon Trail of Huron Valley Trail System	As needed	As needed	As needed	NA							
Pere Marquette (Isabella County)	W	A	A	W	O-3-4yrs		NA	M	NA	NA	
Little Traverse Wheelway–Bay Harbor Petoskey Segment	NA	W	NA	W	W	NA	NA	NA		W	NA
City of Adrian	As needed	A	As needed	As needed	A	As needed	As needed	NA	As needed	NA	NA

Appendix C:
Funding Sources for Maintenance Activities

NOTE: In the following tables, C = county, M = municipality, NA = not applicable, NPO = nonprofit organization, S = state, and V = volunteer.

MAINTENANCE OF ASPHALT SURFACES—WHO PAYS?

Trail names	Coating/sealing	Markings	Pothole	Repaving	Snow removal	Surface cleaning
Alpena to Hillman Trail						
Battle Creek Linear Park	M	M	M	M	M	M
Betsie Valley Trail	S	S	S		V	
City of Alpena Bi-Path						
Clinton River Trail						
Flint River Trail						
Fred Meijer Heartland Trail		NPO		NPO		
Grand Rapids Riverside Trail	M	M	M		M	
Grayling Bicycle Turnpike				M		
Kal-Haven Trail Sesquicentennial State Park	S	S	S	S		S
Kent Trails						
Musketawa Trail		S=80,C=10,M=10		S		
Paul Henry Thornapple Trail (Middleville)						
Pere Marquette State Trail						
Pere Marquette Trail of Mid-MI (Midland)	C & M	C & M	C & M	C & M	C & M	C & M
Portage Creek Bicentennial Trail	M	M	M	M	M	M
Portland Rivertrail	M		M		M	
Saginaw Valley Rail Trail	C	C	C	C	NA	C
Van Buren Trail						
Vassar Trail	M	S & M	M	M	M	M
Wadhams to Avoca				C	C	
West Bloomfield Trail Network						
Bay City Riverwalk Trail System--City	M=80, Bay Area Community Foundation=20	M	M			

Trail names	Coating/sealing	Markings	Pothole	Repaving	Snow removal	Surface cleaning
Bay City Riverwalk Trail System--State Recreation Area (AKA Anderson Nature Trail)	S			S		
Hart-Montague-Berry Junction Trail						
Paint Creek Trail						
Macomb Orchard Trail						
South Lyon Trail of Huron Valley Trail System	M	M	M	M	M	M
Pere Marquette (Isabella County)	C	C	C		C	C
Little Traverse Wheelway--Bay Harbor Petoskey Segment	M	M	M	M	M	M
City of Adrian	M	M	M	M	M	M

MAINTENANCE OF NON-ASPHALT SURFACES—WHO PAYS?

Trail names	Grade	Pothole	Resurface	Snow removal	Surface cleaning
Alpena to Hillman Trail	S				S
Battle Creek Linear Park	M	M	M	M	M
Betsie Valley Trail		S	S	V	
City of Alpena Bi-Path					
Clinton River Trail	M				
Flint River Trail					
Fred Meijer Heartland Trail	NPO	NPO	NPO		NPO
Grand Rapids Riverside Trail					
Grayling Bicycle Turnpike					
Kal-Haven Trail Sesquicentennial State Park	S	S	S		S
Kent Trails					
Musketawa Trail				S	
Paul Henry Thornapple Trail (Middleville)					
Pere Marquette State Trail					
Pere Marquette Trail of Mid-MI (Midland)	C & M	C & M	C & M	C & M	C & M
Portage Creek Bicentennial Trail					
Portland Rivertrail					

Trail names	Grade	Pothole	Resurface	Snow removal	Surface cleaning
Saginaw Valley Rail Trail					
Van Buren Trail	C	C	C		C
Vassar Trail					
Wadhams to Avoca	C				
West Bloomfield Trail Network	M				
Bay City Riverwalk Trail System--City					
Bay City Riverwalk Trail System--State Recreation Area (AKA Anderson Nature Trail)					
Hart-Montague-Berry Junction Trail					
Paint Creek Trail	M	M	M		M
Macomb Orchard Trail					
South Lyon Trail of Huron Valley Trail System	M	M	M	M	M
Pere Marquette (Isabella County)					
Little Traverse Wheelway--Bay Harbor Petoskey Segment	M	M	M	M	M
City of Adrian	M		M		

MAINTENANCE OF ADJACENT LAND AND VEGETATION—WHO PAYS?

Trail names	Herbicides	Drainage channels	Maintenance of trailheads	Invasive species	Trailside clear of trash/debris	Land-scaping	Leaf removal	Mowing	Planting	Parking areas	Tree pruning	Tree removal
Alpena To Hillman Trail												
Battle Creek Linear Park	M	M	M	M	M	M	M	M	M	M	M	M
Betsie Valley Trail	NP & V		M	V & "AAT"	NP, V, & "AAT"	M	NP	NP		M	NP	NP
City Of Alpena Bi-Path												
Clinton River Trail		M		M & V			M			M & V		
Flint River Trail				V & AATP		M			V & AATP	V & AATP		
Fred Meijer Heartland Trail	NPO		NPO 50/Adopt A Trail/50	NPO	NPO 50/Adopt A Trail/50	NPO 50/Adopt A Trail/50	NPO 25/Adopt A Trail/75	Adopt	Adopt			

Trail names	Herbicides	Drainage channels	Maintenance of trailheads	Invasive species	Trailside clear of trash/debris	Landscaping	Leaf removal	Mowing	Planting	Parking areas	Tree pruning	Tree removal
Grand Rapids Riverside Trail												
Grayling Bicycle Turnpike												
Kal-Haven Trail	S	S	S	S	S	S=90, V=10	S	S=90, V=10	S	S=60, V=40	S	
Sesquicentennial State Park												
Kent Trails												
Musketawa Trail	S		S=80,C=10,M=10	C=5, V=95	V		S=80,C=10,M=10	V	S=80,C=10,M=10	S=90,C=10	S=90,C=10	
Paul Henry Thornapple Trail (Middleville)												
Pere Marquette State Trail												
Pere Marquette Trail of Mid-Mi (Midland)	C & M	C & M	C & M	C & M	C & M	C & M	C & M	C & M	C & M	C & M	C & M	C & M
Portage Creek Bicentennial Trail	M	M	M	M	M	M	M	M	M	M	M	M
Portland Rivertrail		M		M		M	M		M	M	M	
Saginaw Valley Rail Trail	NA	C	C	C	C	C	C	C	C	C	C	C
Van Buren Trail	C	C	C	C	C	C	C	C	C	C	C	C
Vassar Trail	M	C & M	M	M	M	M	M	M	M	M	M	M
Wadhams to Avoca	C	C	C		C=10, V=90		C	C	C	C	C	
West Bloomfield Trail Network	M	M	M		M			M		M	M	M
Bay City Riverwalk Trail System—City	M		M=90, Bay Area Comm. Foundation =10	M				M	M	M	M	M
Bay City Riverwalk Trail System—State Recreation Area (Aka Anderson Nature Trail)	S			S	S		S	S			S	S

Trail names	Herbicides	Drainage channels	Maintenance of trailheads	Invasive species	Trailside clear of trash/debris	Landscaping	Leaf removal	Mowing	Planting	Parking areas	Tree pruning	Tree removal
Hart-Montague-Berry Junction Trail												
Paint Creek Trail	M		M=50, GFTMA=50	M	M=10, GFTMA=90		M	M	M	M=90, GFTMA=10	M	
Macomb Orchard Trail						GFTMA						
South Lyon Trail Of Huron Valley Trail System	M	M	M	M	M	M	M	M	M	M	M	M
Pere Marquette (Isabella County)	C	C	C	C	C	C	C	C	C	C	C	C
Little Traverse Wheelway–Bay Harbor Petoskey Segment	M	M	M	M	M	M	M	M	M	M	M	M
City of Adrian	M	M	M	M	M	M	M	M	M	M	M	M

MAINTENANCE OF PARKING, TRAILHEADS, AND SANITATION—WHO PAYS?

Trail names	Trash cans along trail	Trash cans at trailhead	Install markings	Install signs		Info kiosks	Maintenance of markings	Picnic tables/benches	Portable toilets along trail	Portable toilets at trailhead	Stationary toilets along trail	Stationary toilets at trailhead	Repair signs	Updating info kiosks
				Install signs	Info kiosks									
Alpena to Hillman Trail											State			
Battle Creek Linear Park	M	M	M	M	M	M	M	M	M	M	M	M	M	M
Betsie Valley Trail	M	S	NP	NP	S	M				NP	M	NP	NP	
City of Alpena Bi-Path														
Clinton River Trail	M													
Flint River Trail														
Fred Meijer Heartland Trail	V	V	NPO	NPO	NPO 50/V 50	NPO 50/V 50	NPO				NPO	NPO 50/V 50		
Grand Rapids Riverside Trail	M	M	M	M		M	M	M	M	M	M	M	M	
Grayling Bicycle Turnpike														

Trail names	Trash cans along trail	Trash cans at trailhead	Install markings	Install signs	Info kiosks	Maintenance of markings	Picnic tables/benches	Portable toilets along trail	Portable toilets at trailhead	Stationary toilets along trail	Stationary toilets at trailhead	Repair signs	Updating info kiosks
Kal-Haven Trail Sesquicentennial State Park	C	C	C	C	C	C	C	C	C	C	C	C	C
Kent Trails	GFMA	GFMA	GFMA	GFMA	GFMA	GFMA	GFMA	GFMA	GFMA	GFMA	GFMA	GFMA	GFMA
Musketawa Trail		S	S	S=60,C=20,V=20	S	S=20,C=60,V=20	S			S	S		
Paul Henry Thornapple Trail (Middleville)													
Pere Marquette State Trail													
Pere Marquette Trail Of Mid-Mi (Midland)	C & M	C & M	C & M	C & M	C & M	C & M	C & M	C & M	C & M	C & M	C & M	C & M	C & M
Portage Creek Bicentennial Trail	M	M	M	M	M	M	M	M	M	M	M	M	M
Portland Rivertrail	M	M	M	M		M	M	AATP	AATP	M	M	M	
Saginaw Valley Rail Trail	C	C	C	C	C	C	C	NA	C	NA	C	C	C
Van Buren Trail	C	C	C	C	C	C	C	NA	NA	NA	C	C	NA
Vassar Trail	M	M	M	S & M	M	M	M	M	M	M	M	M	M
Wadhams to Avoca	C	C		C			C				C	C	
West Bloomfield Trail Network	M	M		M	M		M	M	M			M	M
Bay City Riverwalk Trail System—City	M			M=70, Bay Area Comm. Foundation=30	M	M		M		M			
Bay City Riverwalk Trail System—State Recreation Area (Aka Anderson Nature Trail)	S	S							S	S			
Hart-Montague-Berry Junction Trail													
Paint Creek Trail	M	M		M	M		M=90, GFTMA=10		M	M	M=90, GFTMA=10	GFTMA	
Macomb Orchard Trail	GFTMA	GFTMA						GFTMA				GFTMA	
South Lyon Trail of Huron Valley Trail System	M	M	M	M	M	M	M	M	M	M	M	M	M

Trail names	Trash cans along trail	Trash cans at trailhead	Install markings	Install signs	Info kiosks	Maintenance of markings	Picnic tables/benches	Portable toilets along trail	Portable toilets at trailhead	Stationary toilets along trail	Stationary toilets at trailhead	Repair signs	Updating info kiosks
Pere Marquette (Isabella County)	C	C	C	C	C	C	C			C	C	C	C
Little Traverse Wheelway–Bay Harbor Petoskey Segment	M	M	M	M	M	M	M	M	M	M	M	M	M
City of Adrian	M	M	M	M		M	M					M	M

SIGNS, ACCESS CONTROL, AND PUBLIC SAFETY—WHO PAYS?

Trail names	Install emergency call boxes	Install gates, fencing	Install lighting	Maintenance of emergency call boxes	Maintenance of gates, fencing	Maintenance of lighting	Patrols by non-police agency	Patrols by police agency	Recovery from illegal acts
Alpena to Hillman Trail			S						
Battle Creek Linear Park	M	M	M	M	M	M	M	M	M
Betsie Valley Trail									
City of Alpena Bi-Path									
Clinton River Trail	M			M			M		
Flint River Trail									
Fred Meijer Heartland Trail	NPO			NPO					
Grand Rapids Riverside Trail	M			M			M	M	
Grayling Bicycle Turnpike									
Kal-Haven Trail Sesquicentennial State Park	C		C	C			C		
Kent Trails									
Musketawa Trail							S=50,C=50		
Paul Henry Thornapple Trail (Middleville)									
Pere Marquette State Trail									
Pere Marquette Trail of Mid-MI (Midland)	C & M	C & M	C & M	C & M	C & M	C & M	C & M	C & M	C & M
Portage Creek Bicentennial Trail			M	M		M	M		
Portland Rivertrail	M			M		AATP			
Saginaw Valley Rail Trail	NA	C	C	N	C	C	NA	NA	C
Van Buren Trail	NA	NA	NA	NA	NA	NA	C	NA	C

Trail names	Install emergency call boxes	Install gates, fencing	Install lighting	Maintenance of emergency call boxes	Maintenance of gates, fencing	Maintenance of lighting	Patrols by non-police agency	Patrols by police agency	Recovery from illegal acts
Vassar Trail				M			M		
Wadhams to Avoca	C			C			S=50, C=50	C	
West Bloomfield Trail Network	M			M				M	
Bay City Riverwalk Trail System—City		M				M			
Bay City Riverwalk Trail System—State Recreation Area (AKA Anderson Nature Trail)	S			S	S				
Hart-Montague-Berry Junction Trail									
Paint Creek Trail	M			M			M	M=50, GFTMA=50	
Macomb Orchard Trail						C	C		
South Lyon Trail of Huron Valley Trail System	M	M	M	M	M	M	M	M	M
Pere Marquette (Isabella County)	C			C		C	C	C	
Little Traverse Wheelway—Bay Harbor Petoskey Segment	M	M	M	M	M	M	M	M	M
City of Adrian	M	M		M	M	M		M	

MAINTENANCE OF BRIDGES, TUNNELS, AND CROSSINGS—WHO PAYS?

Trail names	Bridge, etc.			Inspection of bridges and tunnels		Paint tunnel/underpass	Paint bridge deck/structure	RR x-ing maintenance	Road grade x-ing	Tunnel lighting	Tunnel status
	Bridge re-decking	inspection	Bridge maintenance	Tunnel maintenance	tunnels						
Alpena to Hillman Trail											
Battle Creek Linear Park	M	M	M	M	M	M	M	M	M	M	M
Betsie Valley Trail	S	S	S	S	S				S		
City of Alpena Bi-Path											
Clinton River Trail		M		M		M					
Flint River Trail											

Trail names	Bridge re-decking	Bridge, etc. inspection	Bridge maintenance	Tunnel maintenance	Inspection of bridges and tunnels	Paint tunnel/underpass	Paint bridge deck/structure	RR x-ing maintenance	Road grade x-ing	Tunnel lighting	Tunnel status
Fred Meijer Heartland Trail	NPO		NPO				NPO				
Grand Rapids Riverside Trail	M	M	M	M	M		M	M	M		
Grayling Bicycle Turnpike											
Kal-Haven Trail Sesquicentennial State Park	S=10, C=60, V=30	S=10, C=90			C		C				
Kent Trails											
Musketawa Trail	S		S		S						
Paul Henry Thornapple Trail (Middleville)											
Pere Marquette State Trail											
Pere Marquette Trail of Mid-MI (Midland)	C & M	C & M	C & M	C & M	C & M	C & M	C & M	C & M	C & M	C & M	C & M
Portage Creek Bicentennial Trail	M	M	M	M	M	M	M	M	M	M	M
Portland Rivertrail	M		M	M	M	M	M	M	M		
Saginaw Valley Rail Trail	C	C	C	NA	C	NA	C	C	C	NA	NA
Van Buren Trail	S=10,C=80, NPO=10	C	C	NA	C	NA	C	NA	C	NA	NA
Vassar Trail	M	M	M	M	M		M				
Wadhams to Avoca		C		C		C		C			
West Bloomfield Trail Network		M	M								
Bay City Riverwalk Trail System—City	M=80, BAY AREA COMM FOUNDATION=20	M		M		M					

Trail names	Bridge re-decking	Bridge, etc. inspection	Bridge maintenance	Tunnel maintenance	Inspection of bridges and tunnels	Paint tunnel/underpass	Paint bridge deck/structure	RR x-ing maintenance	Road grade x-ing	Tunnel lighting	Tunnel status
Bay City Riverwalk Trail System— State Recreation Area (AKA Anderson Nature Trail)	S		S		S						
Hart-Montague-Berry Junction Trail											
Paint Creek Trail	M=50, GFTMA=50	M		M=50, GFTMA=50							
Macomb Orchard Trail											
South Lyon Trail of Huron Valley Trail System	M	M	M	M	M	M	M	M	M	M	M
Pere Marquette (Isabella County)	C	C	C	C	C	C	C		C		
Little Traverse Wheelway–Bay Harbor Petoskey Segment	M	M	M	M	M	M	M	M	M	M	M
City of Adrian	M	M	M		M	M	M				