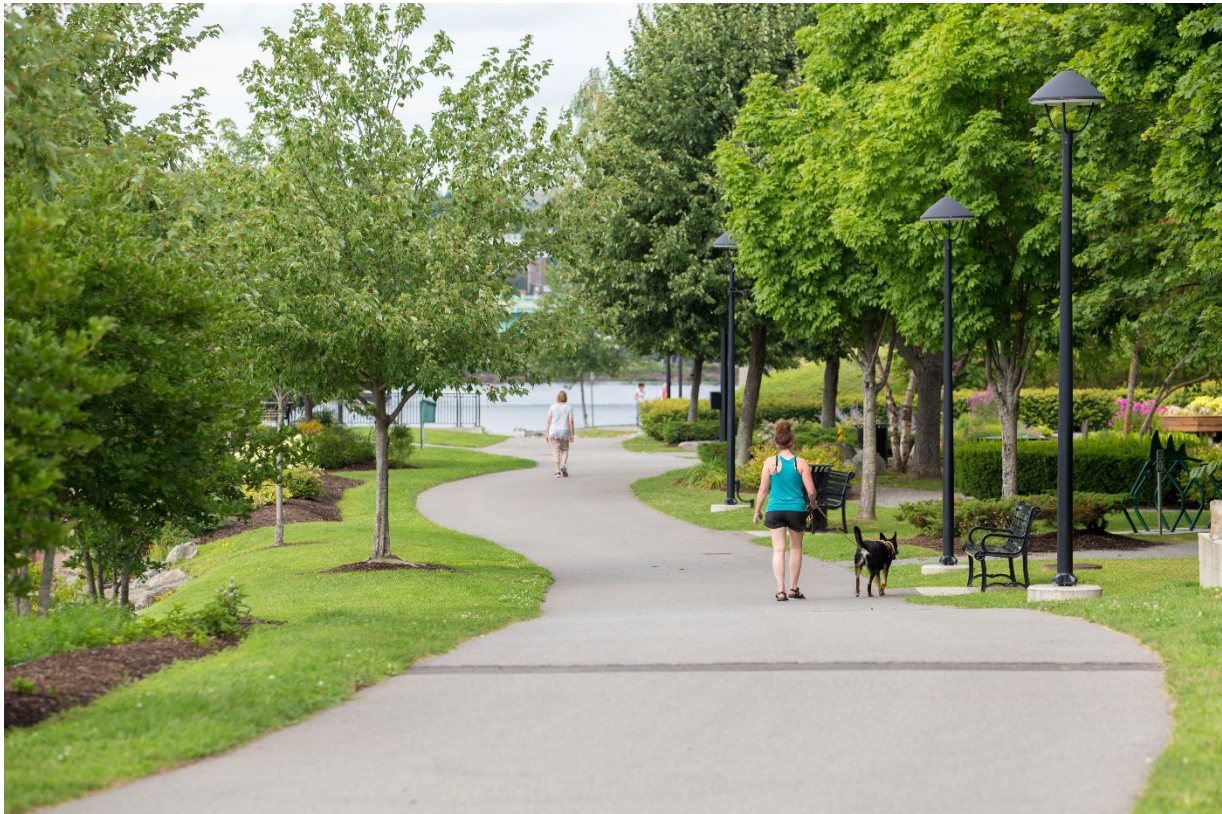




MaineDOT



Trail Operations and Maintenance Guide

June 2026

Introduction

This document is meant to serve as a reference for municipal and nonprofit trail management and maintenance partners in Maine working on trail corridors owned by MaineDOT. Proper trail maintenance and operation is crucial to sustaining the life of trail infrastructure and providing high quality user experiences. The key to extending the life of trails will be preventative maintenance, early detection of maintenance issues, and prompt repairs. This guide includes information pertaining to the day-to-day operation of the trails as well as more detailed information on maintaining the corridor and types of trail surfaces. Some of the guidance and examples in this document may, or may not, apply to any specific trail. Individual trail managing entities are encouraged to create their own management and maintenance plans specific to the needs of the trails that they manage.

Example trail maintenance and management plans from entities around the Country can serve as useful resources in planning trail management activities in Maine. Reach out to MaineDOT if other example management plans or other resources may be helpful.

Trail managing entities are encouraged to communicate with MaineDOT as needed regarding the corridor. When such a time comes when segments of trail have served their expected lifespan and may need more intensive rehabilitation or reconstruction, trail management partners should contact MaineDOT to learn about grant opportunities, cost-sharing programs, or any other applicable program that may be eligible for trail rehabilitation and reconstruction needs beyond that of general maintenance.



Trail Maintenance

Trailheads

Trailheads, at a minimum, should provide parking, trail identification, and signage for trail rules and emergency contact information. Trailheads may also include amenities such as restrooms, benches, trash receptacles, picnic areas, bike repair stations or other amenities. Trailheads should be well maintained and free of litter and vandalism. These areas may require mowing and other maintenance depending on design and location. Trailheads should include:

- Directional signs on road(s) leading to the trailhead
- Entrance sign
- A defined parking area
- Informational Signage (can include map or more elaborate kiosk)
- Required Signage (Rules, Emergency Information, Trail Manager Contact Information)

It may be the case that some trailheads are located on property outside of the MaineDOT right-of-way. In these cases it is crucial to maintain proper agreements with property owners where easements and permanent property rights do not exist for the trail and/or trailhead.

Trail Surface

Asphalt Trails:

Inspection: One formal inspection per year along with regular inspection during mowing/maintenance (See Appendix for example trail inspection log)

- Cracks
- Root Damage
- Drainage –Inspect all drainage features (culverts, ditches, banks) regularly. If an issue is apparent, it is important to find the source of the problem and make necessary corrections promptly.
- Potholes/Other surface damage
- Vegetation encroachment through trail surface or damage to of edge of pavement
- Bridge/Boardwalk decking, railings

Maintenance:

- Sweeping/Blowing

Cleaning of debris from the surface may be considered at least once per year and as needed. This can be done with blowers, sweepers, or other equipment.

Sweeping/blowing of debris is conducted to ensure a safe and smooth surface for trail users as well as to ensure longevity of asphalt which can be impacted if organic debris builds up on the trail surface resulting in impacted drainage and moisture held in the trail surface.

- Asphalt Patching

Cutting out and patching of holes or cracked areas should be done on an as-needed basis. A Hot Mix Asphalt (HMA) patch is of a much better quality than cold-mix and should be the primary material used. The final patched surface should be slightly higher than the surrounding area to avoid ponding of water. Ideally, the joints of a cut-and-patched area should be sealed after patching is completed. Use of an infrared pavement heater to heat the area to be patched will result in a seamless patch with no joints, resulting in high quality pavement repair. Some contractors may offer this type of pavement repair.



Figure 1 – “Pop-outs” caused by vegetation growing up through the trail bed. Issues like this will often require cutting out the damaged area, rectifying the underlying issues, and patching.

- Crack Sealing

Crack sealing may happen on an as-needed basis. Cracks up to $\frac{3}{4}$ inch should be filled and sealed, cracks greater than $\frac{3}{4}$ inch may be cut out and patched or filled and sealed.

- Surface Sealing

Surface sealing may be performed on an as-needed basis (approximately every 8-10 years) to rejuvenate oxidized and weathered pavement.

- Culverts

Clean debris from culverts and swales on both ends of the culvert as needed to maintain proper drainage.

- Bridges

Repair broken deck planks, protruding screws or nails, railings, or sacrificial surfaces for snowmobile use. Bridges should be checked during regular maintenance and repaired promptly if issues arise. If bridge railings are weathered, an application of UV protection/sealer may extend the life of those timbers. Bridge structures should be inspected by a qualified inspector on an

appropriate basis, consult with MaineDOT if structures in question are MaineDOT bridges inspected by MaineDOT on a regular inspection schedule.

- **Root Damage**

If underlying roots cause cracking or buckling of the trail, cutting out and patching the affected area is the best method of repair. Tree removal and/or root cutting may be needed if vegetation has been allowed to grow considerably and is encroaching on the trail surface. Be sure to call Dig Safe and be aware of any buried utilities before beginning any digging work.

Trail Rehabilitation and Reconstruction:

A well-maintained paved trail should last more than 20 years, when the trail reaches a certain point of deterioration it will be necessary to reconstruct or re-pave the trail. There are various methods that can be used for partial or complete trail reconstructions. It is important that trail managers start thinking about trail replacement well before it is necessary so that funding sources can be identified before trail deterioration becomes too severe. Consult MaineDOT regarding programs that may be available for trail rehabilitation or cost-sharing of intensive trail repaving.

Crushed Stone Trails:

Inspection: One formal inspection per year along with regular inspection during mowing/maintenance

- Drainage –Inspect all drainage features (culverts, ditches, banks) and make sure trail has slight cross-slope. If an issue is apparent, it is important to find the source of the problem and make necessary corrections promptly
- Potholes/Other damage
- Vegetation encroachment
- Compaction/Loose Material
- Erosion/Migration of surface material
- Bridge/Boardwalk decking, railings

Maintenance:

- Grading

The trail may need to be graded in spring or fall and should be done when the surface is wet. This can be helpful in directing the flow of water to avoid erosion and repair normal wear of the surface. After grading the trail may be re-compacted to reduce the migration of material.

- Compacting/Dragging

If the surface becomes loose and aggregate material is starting to migrate due to use or erosion it will be necessary to re-shape and compact the trail to maintain its integrity. It may be necessary to add material to fill holes and shape properly. Applying water or brine to the trail prior to compacting will enhance the rate of compaction and help protect against intrusion of water in the future.



Figure 3 – Dragging an aggregate trail will smooth out holes and ruts and redistribute surface material.

- Cross Slope/Crown

It is important to maintain a proper cross slope or crown to keep water from resting on the trail. Re-grading and shaping this slope may be occasionally necessary along portions of the trail.

- Culverts

Clean debris from culverts and swales on both ends of the culvert as needed.

- Bridges

Repair broken deck planks, protruding screws or nails, railings, surface, and check for structural damage. Bridges should be checked during regular maintenance and repaired promptly if issues arise. If bridge railings are weathered, an application of UV protection/sealer may extend the life of those timbers. Bridge structures should be inspected by a qualified inspector on an appropriate basis, consult with MaineDOT if structures in question are MaineDOT bridges inspected by MaineDOT on a regular inspection schedule.

- Vegetation Encroachment

Herbicide treatment may be necessary to manage vegetation encroachment growing up through a crushed stone trail surface. It is important to manage this vegetation growth before it becomes established and the organic material degrades the integrity of the crushed stone surface material.

Trail Rehabilitation:

Approximately every 10-15 years a crushed aggregate trail may need major reconstructive work. It is common that at this point the trail surface is scarified, new aggregate is added and re-shaped and Compacted, or complete reconstruction of the cross-section if needed.

Side Slope and Ditch Maintenance

In order to protect the trail from water damage and erosion it is important to maintain the integrity of the rail-banks, slopes, and ditches that help divert water away from the trail. In some cases, it may be necessary to reconstruct a slope or ditch to enhance movement of water from the trail. Trespass encroachment can also be an issue on the edges of the corridor, document the trespass incident with pictures and notify the proper local agency or MaineDOT of any trespass issues.

Dust Control

In especially dry conditions, or trails utilized by ATVs, it may be necessary to apply a brine to sections of crushed aggregate trails to manage dust.



Figure 4 – Pavers placed by adjacent landowner to access the trail causing an interruption of proper drainage

Vegetation Management

Blowing:

Blowers can be useful in removing debris (gravel, leaves, woody material, etc.) from paved surfaces, leaving a smoother, safer surface. Blowing may be done as needed.

Trimming/Mowing:

Trail corridor

The trail shoulders/corridor should be mowed at least twice per growing season, but in high use areas, more often as needed. The corridor should be trimmed of all branches to a width of at least two feet from each edge of the trail surface and a height of at least 7 feet above the trail. Tree trimming should be done so that branches are cut flush with the main branch or trunk of the tree. An adjustable boom mower is very efficient at brushing the corridor and adjacent ditches after vegetation has encroached over time. Occasional wider mowing in the fall will help keep fast growing woody vegetation from causing root damage to the trail.



Figure 5 – A well maintained corridor, brushed and mowed, will protect the trail from roots and requires less major cutting of vegetation

Intersections and Clear Vision Triangle

At the intersection of trail and road, or trail and another trail, a clear line of vision must be maintained from all sides of the intersection in both directions if possible. Appropriate intersection mowing and trimming should be a regular part of trail maintenance.

Herbicide Treatment:

Herbicide treatment can help extend the life of the trail for years to come. Keeping vegetation at bay is always a challenge, especially on more rural crushed-stone sections of trail. If herbicide application is necessary, develop a treatment plan for your trail.



Trail Operations

Accessibility

All new trail construction, renovation, and construction and installation of trail amenities must be accessible and comply with all applicable standards and the Americans with Disabilities Act (ADA). Features such as signs, trail connectors, toilets, picnic tables, benches, and other amenities must be designed and placed with accessibility in mind.

Access Control

If unauthorized motorized use of the trail becomes a problem, it may be necessary to utilize law enforcement and access control devices to correct the issue. Bollards, large rocks, raised curbs, landscaping, gates, posts, or a combination of devices can be used either at intersections or along the trail to restrict unauthorized access. It is important that these devices are visible if placed within the traveled way and they must also continue to provide ADA accessibility. Access control devices should be painted in a high-visibility color and/or marked with reflective tape or appropriate hazard markers. If using bollards use either one or three bollards across an entrance to the trail, DO NOT use two because it forces both directions of trail traffic towards the center of the trail where a head-on collision could occur. (See Diagram)



Figure 8 – An example of bollards used to restrict unauthorized access to the trail. Bright paint and reflective tape ensure that the bollards are visible to trail users.

Non-Motorized Trail Access Control

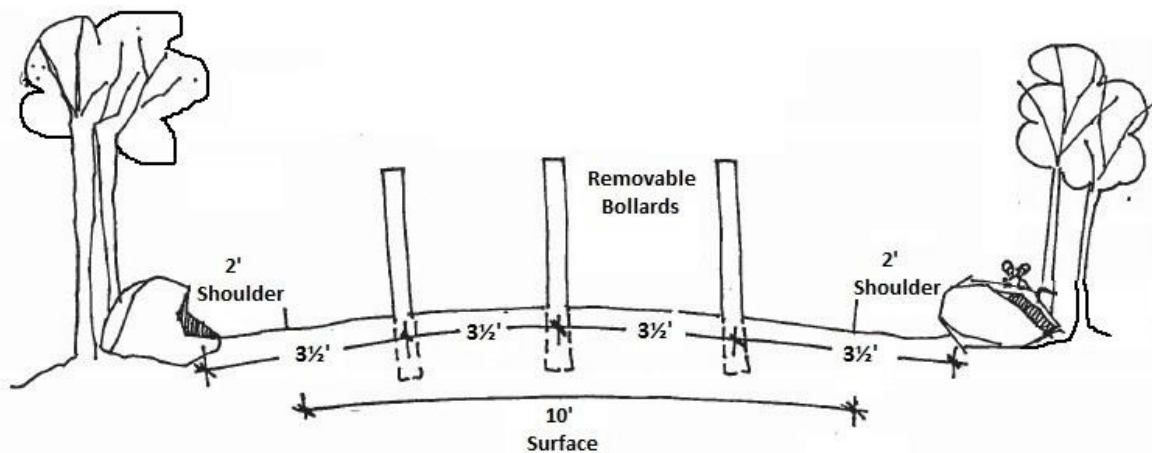


Figure 9 – Example Access Control: This example shows the possible arrangement of bollards for the purpose of controlling motorized access to the trail. These features are to be placed at road crossings and other areas vulnerable to unauthorized vehicle access. There are many more access control options available; trails that are also designated for motorized use may need different specifications.

Trail Signage

All signs should be inspected annually. Safety and regulatory signage should be kept in good condition and replacement should happen immediately as needed. Wayfinding and informational signage should be maintained and kept up to date. Signage should be placed outside of the two foot clear zone. No unauthorized private or advertisement signage is allowed on MaineDOT trail corridors, although information kiosks may include details about local destinations or attractions. If the trail is also a designated snowmobile or ATV trail appropriate motorized trail signage should coincide with applicable standards through the Bureau of Parks and Lands.

Resources

Table 1: Example Cost Tracking Sheet - A cost tracking sheet is useful for organizing expenses incurred from general maintenance and operations activity. The sheet can be adjusted to fit the needs of different trails and managers.

[illegible]

Example Maintenance Schedule

Table 2: Example Maintenance Schedule – Trail managers should create their own maintenance schedule to fit the needs of their trail. This schedule may change due to seasonal maintenance activities and managers may even have separate schedules for each maintenance season.

Example Maintenance Schedule - Fill in your own info							
Maintenance Activity	Day	Week	Month	Quarter	Year	As Needed	Other/Comments
Mowing				x		x	Will be adjusted seasonally
Tree Pruning						x	
Dead Tree Removal						x	Remove safety hazards immediately
Leaf Removal					x	x	
Trailhead Trash Pick Up		x				x	
Empty Trash Cans		x					Monitor to adjust frequency
Trail Surface Repair						x	
Snow Removal/Grooming						x	May differ depending on snowmobile use
Asphalt Trail Sweeping					2x	x	
Restroom Maintenance		x				x	
Picnic Tables/Benches					x	x	
Update Information Kiosks			x		x	x	
Sign Repair						x	Inspect signs once per year
Culvert Clean/Repair					2x	x	After Storm, inspected annually
Bridges/Boardwalks					x	x	

TRAIL INSPECTION LOG

Inspected By			Date of Inspection		Page of	
Trail Name		Inspection Start (Mile Marker/Location)		Inspection Finish (Mile Marker/Location)		
TRAILHEADS:	OK	NOT OK		OK	NOT OK	
Directional Signing	☐	☐	Brushing/Mowing	☐	☐	
Vandalism	☐	☐	Amenities	☐	☐	
Parking Area	☐	☐	Trailhead Signing	☐	☐	
Accessibility	☐	☐	Other: _____	☐	☐	
Comments						
TRAIL CORRIDOR:	STATUS	PROBLEM/CONCERN	LOCATION DESCRIPTION	PHOTOS	DATE ISSUE RESOLVED	
Trail Surface	☐ OK ☐ NOT OK			☐ Y ☐ N		
Regulatory Signage	☐ OK ☐ NOT OK			☐ Y ☐ N		
Wayfinding/Info Signing	☐ OK ☐ NOT OK			☐ Y ☐ N		
Clear Vision Areas	☐ OK ☐ NOT OK			☐ Y ☐ N		
Road Crossings	☐ OK ☐ NOT OK			☐ Y ☐ N		
Bridges	☐ OK ☐ NOT OK			☐ Y ☐ N		
Culverts	☐ OK ☐ NOT OK			☐ Y ☐ N		
Mowing/Brushing	☐ OK ☐ NOT OK			☐ Y ☐ N		
Drainage	☐ OK ☐ NOT OK			☐ Y ☐ N		
Access Control	☐ OK ☐ NOT OK			☐ Y ☐ N		
Encroachments	☐ OK ☐ NOT OK			☐ Y ☐ N		
Other	☐ OK ☐ NOT OK			☐ Y ☐ N		
Other	☐ OK ☐ NOT OK			☐ Y ☐ N		
Comments						

Figure 13 – Accessible Trailside Bench Design: All trail amenities should be designed for accessibility

