3.7 Seasonal Issues

Snow, ice, and flooding can pose serious seasonal threats to the integrity of the trail pavement and to trailway access. According to FP2, "Poor drainage is the single most common problem that leads to premature failures on all types of pavements. It can be responsible for rutting, cracking, potholes, erosion, washouts, heaving and flooding and eventual premature roadway failure. Estimated life extension: 5-20 years."[i]

Balancing public safety with environmental stewardship and efforts to control maintenance costs can be challenging, as many of the popular deicing products contain harmful agents (calcium and magnesium chloride, particularly) that can leach into the surrounding landscape and can damage pavement integrity over time. Operators of privately-funded trails can weigh these competing goals when setting a winter weather policy; conversely, trails that are constructed with federal funds must be kept clear and passable, as mandated by several federal regulations, including the Americans With Disabilities Act. Exceptions to this requirement are made for situations (for example, an ice storm or a flood) which pose a public hazard, as determined by local authorities; in these scenarios, local authorities may close the trailway until the hazard is resolved. However, not having a maintenance program in place to address routine inclement weather conditions is not grounds for trailway closure.[ii]

Purpose: Ensure public access and protect the trail pavement.

Best Practices: Minnesota LTAP's Minnesota Snow and Ice Control handbook covers preparations in advance of snow and ice events, as well as removal options.[iii]

The Winter Parking Lot and Sidewalk Maintenance Manual has detailed information (including cost estimates and product information) for deicing and other removal options.[iv]

Drainage Maintenance and Repair offers concise information on the actions needed to protect pavement from ground water and rain.[v]

Indiana Drainage Handbook offers in-depth review of best practices and applicable policies.[vi]

Note: Correcting drainage problems can cause unintended problems, particularly near slopes where improved drainage can result in slope erosion.

Costs for snow removal can vary dramatically. A Milwaukee study reports that "Snow removal costs range from $24.13/mile on the Glacial Drumlin Trail - E to $154.13/mile on the Red Cedar State Trail."[vii]

For more on environmental impacts of deicers, see Stanko et al. "Do Road Salts Cause Environmental Impacts?"

Porous pavements require little or no salt application and suffer minimal surface damage from freezing weather conditions. The primary reason is that the design does not allow water to accumulate and freeze. A study from Wisconsin notes that, "…ice and snow tended to linger on the traditional surfaces while melting away quickly on the porous asphalt surface. Apparently as some melting takes place during the day, the water re-freezes on the impervious asphalt. The porous material is able to absorb a great deal of water as it melts, gradually leaving the surface ice-free."[viii] A report for the Luray-Hawksbill Greenway in Virginia notes that porous pavement does not require annual maintenance such as crack sealing, and that plowing is a sufficient response to winter weather.[ix]

[i] FP2, Drainage Maintenance and Repair
[ii] 10/29/2014, Private Communication with Michael Cales
[iii] Minnesota LTAP, Minnesota Snow and Ice Control
[iv] Dindorf, Winter Parking Lot and Sidewalk Maintenance
[v] FP2, Drainage Maintenance and Repair
[vi] Indiana DNR, Indiana Drainage Handbook
[vii] Milwaukee County, Construction and Maintenance Costs
[viii] Macdonald, Porous Asphalt Show Advantages
[ix] Beard, Porous Pavement Benefits