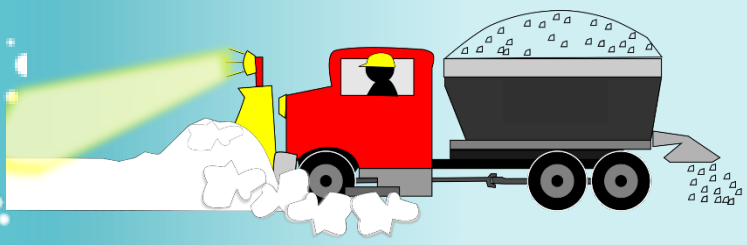
Make Winter's Passage a Green One!

Winter Best Management Practices

GETTING READY FOR WINTER

Winter is here and we can soon expect our annual dose of winter storms. Snow and ice on drive-ways, sidewalks, roads, and parking lots can create hazardous conditions for people and property. As a result, we make every effort to remove snow and ice in order to minimize the impact on our everyday schedules. To do so as fast and effectively as possible, we rely heavily on deicers.



NASA LaRC is continuing to educate personnel on ways to **REDUCE WATER POLLUTION** from every day activities, including reducing polluted runoff during winter precipitation events. There are several methods and products that are used in the winter for ice and snow melt, many of which can have negative impacts on water quality.

LaRC is responsible for the plowing and maintenance of its own roads during winter weather. It is important that personnel understand the best management practices (BMPs) that may be utilized to reduce water pollution.

In this article you will be able to learn strategies to REDUCE the total amount of deicer used, and several TIPS to properly maintain LaRC's permeable pavement.

BE PART OF A GREENER WINTER

The most effective way to reduce the negative impacts of deicing chemicals is to reduce the amount of chemicals needed overall.

Best Management Practices

1. **Remove snow before it melts:**
   - ✓ Monitor the weather to know when to expect snow and remove it by shoveling or plowing, as much as possible, before applying deicer.
2. **Adopt a green deicing application plan:**
   - ✓ Apply non-chloride coatings (anti-acing) before a snow event; it helps reduce the amount of chemicals needed overall.
   - ✓ Follow manufacturer's protocol and use only the amount needed. Adding more won't melt ice any faster and the excess will contaminate soils and waterways.
   - ✓ Pre-wetting solid deicers melts ice faster and saves product (less is needed).
3. **Snow and ice disposal:**
   - ✓ Do not dispose of snow in wetlands, creeks, harbors, or other waterways or directly on top of storm drains.

⚠ IMPORTANT REMINDER! ⚠

Deicing agents containing UREA or other forms of NITROGEN or PHOSPHOROUS are NOT ALLOWED for any reason. These are major contaminants of aquatic ecosystems. When buying deicers for use at LaRC, remember to not purchase any with those compounds.

MANAGING STORMWATER AT LARC

STORMWATER MANAGEMENT

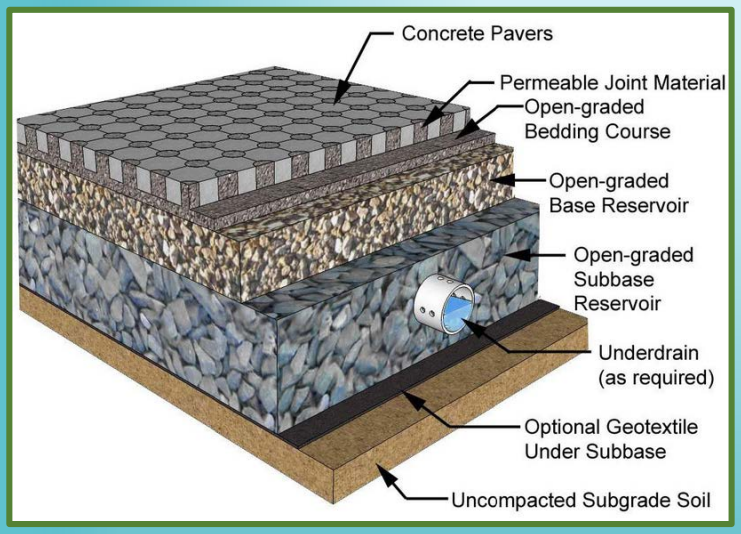
LaRC implements sustainable stormwater management (SWM), also known as Low Impact Development (LID) or green infrastructure, to **TREAT polluted stormwater runoff** before it is discharged to local waterways.

A key practice within SWM is the replacement of traditional impermeable surfaces, such as asphalt or concrete, with **PERMEABLE PAVEMENT**.

What is Permeable Pavement?

Unlike impermeable surfaces, permeable pavement allows stormwater to **INFILTRATE** through its porous surface into the subsoil. Permeable pavement can be made of porous asphalt, pervious concrete, or permeable pavers.

All permeable pavements consists of a permeable pavement layer, an underlying stone aggregate reservoir layer, and a filter layer or fabric on the bottom. An underdrain may be used within the stone reservoir when soils are too compacted or do not infiltrate well.



Profile of typical permeable pavement (Smith, D., 2006.)

Permeable pavers installed along IESB (B2102) at LaRC.

Benefits of permeable pavement

Permeable pavement can:

- Reduce downstream flooding.
- Improve the health of local waterways by removing pollutants and sediment from stormwater runoff.
- Recharge groundwater systems.
- Control erosion of streambeds and riverbanks by reducing runoff volume.

Why is it important to properly maintain permeable pavement?

Unmaintained permeable pavement can become clogged and contribute to flooding. Improper care can also damage the structure, requiring expensive replacement.

Unique maintenance considerations are needed when working with permeable pavement, particularly during winter, since they ***cannot be treated*** the same as a traditional impervious roadway or parking lot.

Permeable pavers have been installed on multiple locations throughout the Center. By implementing **proper maintenance practices** while working at LaRC, you are helping protect the water quality of local streams and rivers!

PERMEABLE PAVERS MAINTENANCE

PERMEABLE PAVERS INSTALLED AT LARC

MAINTENANCE BMPS AND WINTER TIPS

The following maintenance practices are needed in order to protect the structural integrity and hydrologic functions of permeable pavers.

GOOD TO DO...

- Regularly removing debris such as grass clippings, sediment, trash and leaves.
- Vacuum sweeping once or twice a year to remove sediment and prevent clogs.
- Inspecting integrity of pavers to ensure proper drainage, and identify any damaged areas.

PRACTICES TO AVOID...

- Do not use high pressure water spraying while vacuum sweeping, as it may cause subsurface clogging.
- Do not allow vacuum to pick up stones between pavers. Settings shall be **calibrated to *prevent or limit* the pick-up** of the small stones.
- Do not stockpile mulch, sand, salt, soil, snow or yard waste on permeable pavers.
- Avoid parking or driving large vehicles over permeable pavers.

WINTER SPECIAL CARE...

- Where needed, remove snow with a rubber-tipped shovel or plow to prevent damage to pavers. Set plow blades **½ inch to 1 inch *above*** the pavement surface.
- **Do not apply *deicer* or *sand*** on pavers during ice events. The same gravel can used between the pavers instead of sand to help with traction without clogging the permeable pavement.