Permeable Pavement

Overview

- Permeable pavements reduce stormwater runoff, subsequent stormwater pooling, and flood risks by enabling rain and snowmelt to infiltrate through the pavement to the gravel and soil below.
- Permeable pavements are a green alternative to concrete or asphalt driveways, sidewalks, and parking lots.
- Types of permeable pavements:
  - Pervious asphalt
  - Pervious concrete
  - Permeable interlocking pavers
- Additionally, permeable pavements can filter pollutants from the stormwater and reduce the amount of road salt application necessary.
- Permeable pavements can have lifespans of up to 40 years (much longer than traditional pavements) as they reduce freezing and thawing stresses in cold climates.
- Design engineers and contractors should be contacted to properly complete the pavement design and construction to ensure maximum stormwater reduction benefits.

Design Considerations:

- Pervious pavements should not be installed in the following areas:
  - Areas with hazardous material loading, unloading or storage
  - Areas with high sediment loading
  - Areas experiencing extreme weight loads
  - Sandy, coastal areas
- Sand cannot be used for snow and/or ice treatment. Plowed snow piles should not be stored on permeable pavements in order to reduce sediment loading.

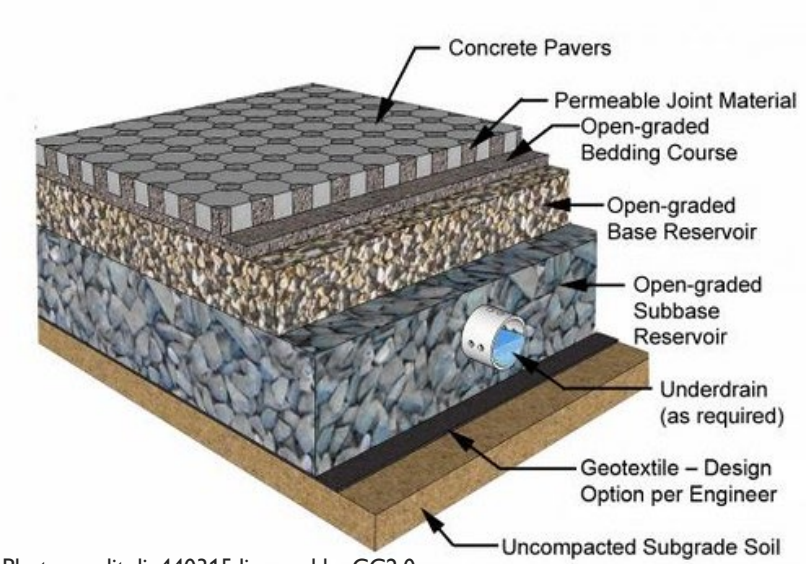


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Key Takeaways

During storm events, impervious surfaces such as driveways, sidewalks, parking lots, and roads can experience flooding.

Flooding on impervious surfaces can lead to excessive stormwater runoff which can cause extensive damage to nearby property.

To help avoid excessive stormwater runoff and associated flood damage costs, permeable pavements can be installed to replace traditional pavement on driveways, sidewalks, etc.





I-ADAPT

Yard Adaptation

Permeable Pavement

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Estimated Costs/Benefits

*U.S. dollars (2022), estimates are subject to change

Potential Costs		Potential Benefits		
Permeable Pavement Type	*Estimate per square foot*	*Post-Flood Recovery Actions*	*Estimate*	
Porous asphalt + installation	$6-$13	Flood damage recovery (professional clean-up, mold removal, replacement/ repair of flood damaged items)	1 inch water ↓ 1 foot water	$10,800-$53,500+ ↓ $29,400-$143,500+
OR				
Pervious concrete + installation	$7-$16			
OR		Remove standing water	$1,300-$13,500	
Permeable interlocking pavers + installation	$9-$30			
AND				
Remove current pavement on driveway/sidewalk (if necessary)	$1-$5			
ESTIMATED TOTAL COST PER 500 SQ FT	**$3,000-$17,500**	**ESTIMATED TOTAL SAVINGS**	**$12,100-$157,000+**	

Additional Resources

- EPA: What is Green Infrastructure?
- FEMA: Reducing Damage from Localized Flooding
- UD: Permeable vs. Impermeable Surfaces

Resources can also be found at https://de.gov/iadapt

Potential Funding Sources

- Water Pollution Control Revolving Fund
- Building Resilient Infrastructure and Communities (BRIC)
- FEMA Flood Mitigation Assistance Grant

Expected Maintenance

- Periodically ensure that the pavement is not clogged with sediment. In extreme cases of clogging, contractors can drill holes through the pavement or replace the substrate between the pavers in order to increase drainage.
- Periodically ensure none of the pavers have broken or come loose.

Permitting Agencies

Contacts for permitting requirements include but are not limited to the following:

- Your city and/or county government for local flood ordinances or regulations
- Your city and/or county government for building permits

Who to Contact

- 811 Call Before You Dig
- Green infrastructure contractor

Technical definitions and more information are located on the I-ADAPT website: https://de.gov/iadapt.

This information is intended to be used for planning purposes. It is not intended to substitute or take precedence over the guidance of design engineers, contractors, utility companies or regulatory agencies.

For more information, contact DNREC's Division of Climate, Coastal and Energy at DNREC_IADAPT@Delaware.gov