



BE A LEADER IN GREENING COMMUNITY OPEN SPACE: PERMEABLE PAVING

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In parks and forest preserves, we have been bringing “GREEN” to our communities for years. The rest of the world has caught up with new products and green designs flooding the media. With all the green around, it is time for us to expand our definition of bringing environmentally sound practices to our sites. **Park and recreation agencies can be leaders in promoting green through use of low-impact practices in our parks.** At the same time we can be fiscally responsible and meet agency goals and objectives by understanding the role of green technology.

This is the first article of a series that share ways to bring green technology to parks. Here we explore the use of permeable pavement.

Permeable paving is a durable surface for pedestrian and/or vehicular access that encourages infiltration of water into the stone sub-grade and underlying soil. This low impact development tool reduces stormwater run-off and pollutants entering our waterways. Permeable paving materials can include porous asphalt,



permeable concrete, pre-cast concrete pavers with grass or stone, and gravel without fines. Permeable pre-cast concrete pavers are the most widely used and documented permeable material in the Midwest. An analysis to determine which material is best for the park use and site conditions is needed for any project.

Why put our precious dollars towards permeable paving? Let's take a look at three reasons to use permeable paving and see how this green technique is good for our community.

1. Permeable paving reduces run-off into water ways and reduces siltation into streams and lakes.

Reducing siltation from stormwater pollution into our natural water ways improves habitat for fishing and hunting as well as enhancing water quality for swimming and boating. By encouraging water to percolate into the ground rather than run off into a detention area and eventually into streams and rivers, we are also providing groundwater recharge and reducing stormwater runoff volume. The more water that percolates into the ground, like nature intended so much of rain water to do, the better off our water system is. Impervious pavement is the number one source of stormwater run-off. By sending rain through a permeable pavement system, water is cleansed by percolating into the ground, cooled and pollutants reduced through digestion by microbes in the rock layer under the paving area. Microbes can be added during construction, but often find their way into the rock layers naturally.

PROJECT EXAMPLE: The Geneva Park District recently added an amphitheater to its historic Peck

Farm. The District has been developing Peck Farm as a historical, recreational and educational site for over 10 years. Protecting the existing wetlands on the site has been part of their goals. The pavers encourage infiltration into the soils, rather than direct run-off into the wetlands. Although pedestrian areas do not create contaminants like cars, the water running off paving can be hot and during large rain events can create siltation. Permeable paving, with its infiltration, cools the water and reduces the speed which water moves. The project concept was created by Geneva Park District Board member Susan Vander Veen and implemented by Upland Design.

2. Permeable paving can reduce the need for on-site detention.

With current storm water detention requirements, most large park developments have to set aside land for detention. By using the paving stone base as part of the storm water detention on a site, we can reduce land usage for detention. Stormwater ordinances vary, and a pre-application meeting is a must to determine the credit available for underground storage as dictated by your County or local municipal government.

PROJECT EXAMPLE: The Kendall County Forest Preserve District purchased a beautiful site along the Aux Sable Creek to develop as a horse facility. Upland Design assisted the District creating the site master plan and implementing this first phase with a new public parking lot. Here the paving material is permeable concrete pavers. The water storage for small rain events that occur regularly is the base of the parking lot. This not only saves land, but benefits the entire site by



protecting adjacent natural areas and reducing run-off.

3. Permeable paving projected life span is longer than asphalt paving.

By installing materials that have a longer life span, we reduce overall capital expenditures. If asphalt needs major repairs in 12-15 years and replaced in 20 years, but permeable pavers can last 25 or more years, we have saved both dollars and staff time in replacing the parking facility. The installation cost is higher, but the long term benefits can outweigh the cost. Less money spent on paving, means more dollars for recreation or natural area development. Finally, it is important to note that permeable paving is not “maintenance free”. Leaves and debris must be removed from the pavers via vacuuming or a wash to ensure permeability.



PROJECT EXAMPLE: Pictured above is one of two sites where Batavia Park District used permeable paving parking lots. This is South Mill Creek Community Park. It was a perfect fit to add this green component as the site brings recreation and natural wetland areas together. The initial expenditure was more than comparable asphalt paving, but the District understood the long term benefits of not replacing the asphalt and eliminating the need to seal the pavement. Additionally, if a difficult winter heaves some of the

pavers, relaying them is a maintenance item, rather than a pavement replacement project.

Summary Points:

- Permeable pavement can be used for both pedestrian and vehicular areas.
- Permeable pavement materials and their pavement profile design must be designed for each site and the needs of the users.
- Pavement slope should be less than 5% for any permeable pavement system.

Maintenance Notes:

- Snow plows should be adjusted so the blade does not catch edges of pavers.
- Sand should not be used on permeable paving areas as it clogs the voids.
- Salt use should be minimized as it is a contaminant to waterways.
- Cleaning the voids of leaves and debris as needed ensures the long term permeability of the pavement.

With the use of permeable pavement, we showcase environmental leadership in our communities. Permeable pavement is good for our parks and communities by accomplishing the following:

1. Reducing stormwater run-off into water ways and reducing siltation into streams and lakes, therefore creating cleaner places for our community to recreate in water.
2. Reducing the need for on-site detention thus saving precious land for recreation use.
3. Outlasting asphalt paving, leaving more dollars available for recreation amenities.



Above: Spring Lake Park, a Fox Valley Park District permeable pavement parking lot located in Aurora, Illinois.

Bibliography:

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www.epa.gov/owow/nps/pavements.pdf

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