



THE CHAMPION of TREES

Permeable Pavers

Susan LB Jacobson, FASLA









Arboretum Grounds







Arboretum Overview





Before Overview







Before – Meadow Lake





Before- Parking Lot





Project Goals



- Increase parking spaces to approximately 500
- To provide a durable, 4 season lot that is easily maintained.
- Address urban runoff impacts on Meadow Lake and the East Branch of the DuPage River.
 Improve the water quality of Meadow Lake.
- Demonstrate innovative stormwater management
- To be cost effective.
- Create spaces to showcase trees, shrubs and herbaceous plants tolerant of parking lot conditions.
- Create an attractive entrance experience for visitors.

Sustainable Sites Pilot Project





Address: Lisle, IL Project Size: 27.7 acres

Landscape Performance Series

IDSCAP



ANCE	Case Study Briefs Fast Fact Library Benefits Toolkit Collections Browse and Search hundreds of Landscape Performance Series Resources >	More
	The Morton Arboretum: Meadow Lake and Permeable Main Parking Lot	
	Lands cane Performance Renefits	
	ENVIRONMENTAL Retains virtually 100% annual rainfall on the site, as supported by 10 years of observations. Only one unprecedented rain event resulted in flooding.	
	 Improved water quality in Meadow Lake by helping to reduce Total Suspended Solids (TSS) by 84% and by Total Phosphorus by 39%. Both reductions contribute to the penetration of sunlight and dissolved oxygen, and the increase in aquatic macrophytes. 	
	 Saves approximately 327,700 gallons of potable water for the peak month of July by using nonpotable lake water for irrigation 	
<u>h</u> ri	ttps://www.landscapeperformance.org/case-study-b efs/morton-arboretum-meadow-lake-parking	

Run-off is directed to the north end of the parking lot. It is piped to the wetland where it is cleansed before being released into Meadow Lake.

Wetland

Meadow Lake

Meadow Lake Path

Tram Road

Bio-Swales

Bus Parking

Gate Houses

Ecoloc Pavement

Visitor Center

BMPs (Best Management Practices) Arboretum

- Pervious Pavement
- Gravel drainage layer beneath pavement to store and slow run-off while trapping heavy solids
- Vegetated bio-filtration swales to gather and clean stormwater and reduce particulate matter
- Curb cuts to direct surface run-off into swales
- Level spreaders to slow run-off before entering lake
- Wetlands to clean stormwater before entering lake
- Irrigation of parking lot vegetation from existing lake

East Branch of the DuPage River

Main Parking Lot

Visitor Center

Arbor Court

laze Garden

377

Staff Parking

Future Children's Gard

Entrance Brid

eadow Lake



- Slows down/ absorbs run-off
- Non-toxic
- Water is cleaner when it leaves the system
- Life span of approx. 50 yrs
- Higher installation cost (1.7 times the cost of asphalt)
- Maintenance cost estimated to be \$1,245/yr over 50 yrs
- 50 yr maintenance cost \$62,250
- 25% less than asphalt cost

All water runs off Toxic

Water has more contaminants when it leaves the system Life span of approx. 15 yrs

Lower installation cost

Maintenance cost estimated to be \$26,390/yr over 50 yrs (21.2 times the cost of pervious)

50 yr maintenance cost \$1,319,500

6" of compacted CA-7 to top the base course





Bio-swale Cross Section





Irrigation consists of pop-up heads on both sides of the swale. The water used is pumped from Meadow Lake.



The level spreader slowly releases water gathered from inlets in impervious pavement areas and from the roof.

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Level Spreader Detail





New Meadow Lake Shoreline

2004

No Co



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Children's Garden

Meadow Lake

Arbor Court

Visitor Center

Permeable **Parking Lot**

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Newly Planted Lot 2005





5 Years After Completion





2013 Record Flood





2014-10 Years After Completion





View in 2018





Second Permeable Lot 2017 100

June 6, 2017







July 6, 2017





Bio-Swales





August 15



Plantings





Shade Tree Palette



Acer rubrum 'Frank Jr' Redpoint® Maple Platanus x acerfolia 'Morton Circle' Exclamation London Planetree

- Quercus bicolor
- Quercus x macdanielii 'Clemons' Heritage® Oak
- Taxodium d. 'Shawnee Brave'

Swamp White Oak

Shawnee Brave Bald Cypress



Perennials & Grasses



Calamagrostis x.a.'Karl Foerster' Echinacea p. 'Pica Bella' Monarda fistulosa Parthenium integrifolium Rudbeckia s. 'Viette's Little Suzy' Schizachyrium s. 'Standing Ovation' Symphyotrichum novae-angliae Feather Reed Grass Pica Bella Coneflower Wild Bergamot Bee Balm Wild Quinine Little Suzy Black-eyed Susan Standing Ovation Little Bluestem New England Aster



July 2018





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The Morton Arboretum

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