

Main Parking Lot: Paving the Way to a Cleaner Environment

Traditional Parking Lot = Big Problems



The Morton Arboretum's environmentally friendly parking lot contrasts sharply with traditional parking lots where rain washes dirt and oil from cars off the asphalt and into storm drains. Since there is no filtering system in the traditional parking lot, the water from the storm drains empties into nearby streams, where it is carried into local lakes and groundwater. The

pollutants in this stormwater can raise river and lake water temperatures, harming aquatic life.

Locally, watershed stormwater and pollutants travel through Meadow Lake, the DuPage River, the Des Plaines River, the Illinois River, and the Mississippi River, then empty into the Gulf of Mexico. Watershed pollutants collected by rainwater are called nonpoint source pollution. Reducing this pollution protects drinking water, fisheries, wildlife, and recreation opportunities.

Natural Filtration: Here's How It Works



The Morton Arboretum's environmentally friendly main parking lot reduces pollution, erosion, and flooding because it absorbs stormwater rather than allowing it to run directly into storm drains, detention facilities or streams. Its design slows, cleans, and cools rainwater run-off before it enters Meadow Lake and the DuPage River.

The surface of the parking lot is composed of an interlocking concrete paver system that includes one-inch square holes filled with gravel through which water flows, rather than rushing off the parking lot surface.

A four-foot deep layer of gravel beneath the pavers filters the water and traps pollutants as the rainwater passes through.

Compared to a traditional parking lot, this system is more expensive to install but ultimately saves money because it requires less regular maintenance. The brick surface stays cooler than blacktop, slows and cleans run-off, and is more attractive. It does, however, require some maintenance in order to function properly.

Bioswales



Another component of the parking lot are bioswales. Bioswales clean the water. Stormwater run-off that does not seep into the gravel is directed to a bioswale via cuts in the barrier curb. A bioswale is a slightly concave planted median between the parking areas. The surface is modestly sloped so the water moves down grade and passes through specially selected plants. The plants help remove particulates and pollutants from the running water.

The plants in the bioswales were selected with specific landscape design requirements in mind. (You will need Adobe Acrobat to view the list.)

- Able to tolerate high pH (alkaline) soils
- Able to tolerate variable temperature extremes in summer and winter
- Large, interlocking drifts of cool and warm season plants combined for multi-season flowering
- A herbaceous layer with mostly native cultivars emphasizing grasses and other rhizomatous plants
- Provide four seasons of interest (color and texture)



The water then flows out of the system into a created wetland, where it is further filtered before flowing into Meadow Lake and the DuPage River.

Wetlands Protect Our Watersheds



A constructed wetland separates our parking lot from Meadow Lake. Rainwater filters through the parking lot and flows into drainage pipes that deliver it into the wetland. Rocks and an uphill course slow water flow so that particles can settle in the wetland. Here, plant roots and stems cling together, slowing down the rainwater further and trapping particles of pollution. Pollutants are trapped by the roots and stems of specially selected wetland plants and settle harmlessly to the bottom. (You will need Adobe Acrobat to view the list.)

Cleaner water enters Meadow Lake and improves its water quality. A healthier Meadow Lake means a healthier environment for aquatic and terrestrial life.

Maintenance and Operations

The special construction of the parking lot requires specialized maintenance. Periodic (once every five years or so) vacuuming of the paving removes sediment buildup in the voids of the pavement and keeps water flowing. Grit and sand cannot be used for traction

during winter weather because it can plug holes. Rather, a rubber tip, metal blade, or sweeper can be used to keep the walking/driving surface safe. De-icing chemicals are safe to use on construction materials, but need to be used conservatively to protect plant and water quality.

To ensure safety and accessibility for the disabled, a more traditional brick paving was used in handicapped-designated parking spaces.

Bioswale Plants

Herbaceous Plants	
Botanical Name	Common Name
<i>Asclepias tuberosa</i>	BUTTERFLY WEED
<i>Aster azureus</i>	SKY-BLUE ASTER
<i>Aster novae-angliae</i>	NEW ENGLAND ASTER
<i>Aster novae-angliae</i> 'Ruby Garden Leader'	RUBY GARDEN LEADER NEW ENGLAND
<i>Baptisia alba</i> var. <i>macrophylla</i>	WHITE WILD INDIGO
<i>Calamagrostis x acutiflora</i> 'Karl Foerster'	KARL FOERSTER FEATHER REED GRASS
<i>Carex grayi</i>	COMMON BUR SEDGE
<i>Carex sprengei</i>	LONG-BEAKED SEDGE
<i>Coreopsis palmata</i>	PRAIRIE COREOPSIS
<i>Echinacea purpurea</i>	PURPLE CONEFLOWER
<i>Eragrostis spectabilis</i>	PURPLE LOVE GRASS
<i>Eupatorium perfoliatum</i>	COMMON BONESET
<i>Eupatorium purpureum</i>	PURPLE JOE PYE WEED
<i>Filipendula rubra</i>	QUEEN OF THE PRAIRIE
<i>Helianthus strumosus</i>	PALE-LEAVED SUNFLOWER
<i>Hemerocallis</i> 'Strawberry Candy'	STRAWBERRY CANDY DAYLILY
<i>Liatris pycnostachya</i>	PRAIRIE BLAZING STAR
<i>Liatris spicata</i>	MARSH BLAZING STAR
<i>Monarda</i> 'Raspberry Wine'	RASPBERRY WINE BEABALM
<i>Panicum virgatum</i> 'Shenandoah'	SHENANDOAH SWITCH GRASS
<i>Penstemon grandiflorus</i>	LARGE-FLOWERED PENSTEMON
<i>Physostegia virginiana</i> 'Rose Crown'	ROSE CROWN OBEDIENT PLANT
<i>Ratibida pinnata</i>	YELLOW CONEFLOWER
<i>Rudbeckia fulgida</i> var. <i>fulgida</i>	ORANGE BLACK-EYED SUSAN
<i>Rudbeckia fulgida</i> var. <i>sullivantii</i>	SULLIVANT'S BLACK-EYED SUSAN
<i>Ruellia humilis</i>	WILD PETUNIA
<i>Schizachyrium scoparium</i>	LITTLE BLUESTEM
<i>Silphium terebinthinaceum</i>	PRAIRIE DOCK
<i>Solidago rigida</i>	STIFF GOLDENROD
<i>Solidago speciosa</i>	SHOWY GOLDENROD
<i>Sporobolus heterolepis</i>	PRAIRIE DROPSEED
<i>Vinca minor</i> 'Bowles'	BOWLES COMMON PERIWINKLE

Shrubs	
Botanical Name	Common Name
<i>Corylus americana</i>	AMERICAN HAZELNUT
<i>Cotoneaster lucida</i>	HEDGE COTONEASTER
<i>Forsythia</i> 'Meadowlark'	MEADOWLARK FORSYTHIA
<i>Forsythia</i> 'Northern Gold'	NORTHERN GOLD FORSYTHIA
<i>Forsythia</i> 'Sunrise'	SUNRISE FORSYTHIA
<i>Fothergilla major</i> 'KLMsixteen'	MAY BOUQUET [™] LARGE FOTHERGILLA
<i>Hamamelis vernalis</i>	VERNAL WITCH-HAZEL
<i>Hamamelis virginiana</i>	COMMON WITCH-HAZEL
<i>Hydrangea paniculata</i> 'Pink Diamond'	PINK DIAMOND PANICLED HYDRANGEA
<i>Hydrangea paniculata</i> 'Unique'	UNIQUE PANICLED HYDRANGEA
<i>Hydrangea quercifolia</i> 'Snow Queen'	SNOW QUEEN OAK-LEAVED HYDRANGEA
<i>Rhus aromatica</i> 'Gro-low'	GRO-LOW FRAGRANT SUMAC
<i>Rosa carolina</i>	PASTURE ROSE
Botanical Name	Common Name
<i>Rosa</i> 'JACruwhi'	WILD SPICE [™] RUGOSA ROSE
<i>Viburnum dentatum</i> 'Ralph Senior'	AUTUMN JAZZ [®] SOUTHERN ARROWWOOD
<i>Viburnum dentatum</i> 'Synnestvedt'	CHICAGO LUSTRE [®] SOUTHERN ARROWWOOD
<i>Viburnum prunifolium</i>	BLACK-HAW
Trees	
Botanical Name	Common Name
<i>Acer campestre</i>	HEDGE MAPLE
<i>Acer miyabei</i> 'Morton'	STATE STREET [®] MIYABE MAPLE
<i>Acer x freemanii</i> 'Autumn Blaze'	AUTUMN BLAZE FREEMAN'S MAPLE
<i>Acer x freemanii</i> 'Marmo'	MARMO FREEMAN'S MAPLE
<i>Celtis occidentalis</i>	HACKBERRY
<i>Cercis canadensis</i>	REDBUD
<i>Corylus colurna</i>	TURKISH HAZELNUT
<i>Fraxinus americana</i> 'Autumn Purple'	AUTUMN PURPLE WHITE ASH
<i>Ginkgo biloba</i>	GINKGO
<i>Gymnocladus dioicus</i>	KENTUCKY COFFEETREE
<i>Juniperus chinensis</i> 'Fairview'	FAIRVIEW CHINESE JUNIPER
<i>Malus</i> 'Adams'	ADAMS CRABAPPLE
<i>Malus x zumi</i> 'Calocarpa'	REDBUD CRABAPPLE
<i>Ostrya virginiana</i>	IRONWOOD
<i>Quercus bicolor</i>	SWAMP WHITE OAK
<i>Quercus macrocarpa</i>	BUR OAK
<i>Syringa pekinensis</i> 'Morton'	CHINA SNOW [®] PEKING LILAC
<i>Syringa reticulata</i>	TREE LILAC
<i>Taxodium distichum</i>	BALD-CYPRESS
<i>Tilia tomentosa</i> 'Sterling'	STERLING SILVER [™] SILVER LINDEN
<i>Ulmus</i> 'Morton Glossy'	TRIUMPH [™] ELM