

# Improving our nation's front lawn

**A**fter several years of planning, the National Mall, our nation's front lawn, is receiving a well-deserved makeover. There may be no natural grass area in the world that receives the traffic and use that the National Mall has to deal with annually. The National Park Service (NPS) issues more than 3,000 permits a year for the lawn and it entertains 20,000,000 visitors a year. Ironically the number one complaint by people who visit the Mall is its appearance. The long overdue renovation is underway and is projected to be finished just before the next Presidential Inauguration in January 2013.

## HISTORY

Over the past 20+ years, the National Mall has had numerous temporary renovations. They've had several turf consultants over the years provide various reports and evaluations for improvement but as usual lack

of funding, overuse, poor soils, and compacted earth resulted in dead grass. The NPS manages the lawn and they have used protective flooring systems, engaged in major sodding projects, added new irrigation and taken out old irrigation.



## The Trust for the National Mall

**THE NATIONAL MALL**, which stretches from the Lincoln Memorial to the US Capitol Building, will be transformed from a swath of trampled grass to a grand urban park with spectacular gardens, a skating rink and a tree-framed theater, the Trust for the National Mall said.

The Trust, which is working with the National Park Service to revitalize the Mall, unveiled the winners of a design competition to remake three sections. The projects are part of a \$700 million plan to transform the nation's "front yard" into a world-class park.

Former first lady Laura Bush, the honorary chairwoman of the fundraising campaign, said she often donned sunglasses and a baseball cap for anonymous early morning strolls on the Mall during her White House years. She said the "innovative" designs will enhance the experience for the Mall's 24 million visitors each year.

"The Mall is suffering from overuse," said landscape architect Kathryn Gustafson of Gustafson Guthrie Nichol, who helped create the winning design for Union Square, the area that includes the reflecting pool at the base of the Capitol lawn. The first project is scheduled to be done by 2016 to mark the centennial of the National Park Service.

### Highlights of the three projects:

➤ At Union Square, a reflecting pool that morphs from fountain to hard surface to pool will accommodate different events and minimize damage to the grass, Gustafson said. The design includes an outdoor museum of gardens extending from the US Botanical Garden.

➤ Constitution Gardens, the park and pond north of the Lincoln Memorial's reflecting pool, will be updated to be ecologically sustainable and to revive the "social life" of the park, said Peter Walker, whose firm, Peter Walker and Partners, created the winning design with Rogers Marvel Architects. In summer, picnickers will be able to rent toy boats to sail on the pond, architect Rob Rogers said. In winter, the pond will become an ice rink. The design includes intimate areas for reading, picnicking and resting, and an indoor pavilion with a restaurant and terrace.

➤ The Sylvan Theater amphitheater, on the grassy slope around the Washington Monument, will be framed by trees that landscape architect Hallie Boyce of OLIN called a "magical setting for performance."

Early in 2009 a project was proposed to the government by the Trust for the National Mall (TNM) and the NPS to perform another study and a plan to renovate the Mall. This time the request was to complete a major renovation instead of applying band aids. Well-known architect HOK was selected to provide design services for the first phase of this multi-year project.

Late in 2009, I was selected as the Official Turf Consultant to the Trust for National Mall & Memorial Parks. The National Trust is raising funds from private sources to continue the improvement of the National Mall for the current phase and the remaining turf panels. In a collaborative approach to improving the turf conditions, HOK engaged additional specialists in the sports turf management world. They brought in consultant Steve Legros from Turf & Dirt, Hagerstown, MD to assist with developing an operational plan; Dr. Peter Landshoot, Penn State professor of turfgrass science, was tapped to provide assistance with selecting the turfgrass; Dr. Norm Hummel, president of Hummel & Company, was brought on aboard to develop the soil structure; and Drs. Erik Ervin and Mike Goatley (current STMA President) of Virginia Tech were asked to perform studies on protective flooring surfaces for the new turfgrass system.

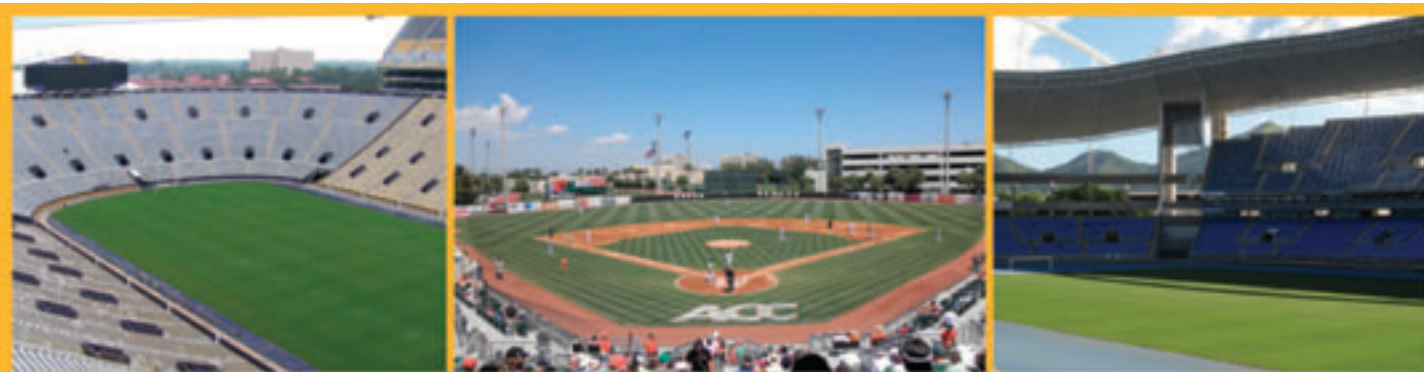
Through this group we developed design and construction specifications for the 36 turf panels on the Mall. Early in the process we made it very clear that the success of this project would require more than improved soils, turfgrass and state of the art irrigation. It

would also require a more efficient event management system to monitor and schedule the thousands of permit requests the mall receives each year. In addition to the event management upgrade, the NPS would need to develop a more aggressive turf management program. Calling it the “3 legged stool” became an acronym as without one of the legs the overall plan would fail. The exciting part is that everyone is on board to address each of the important components to ensure the Mall’s renovation is successful.

Once the design documents were completed in April 2011, the first Phase of the project was awarded to the Clark Company who began construction this past fall. The first phase includes installing two of four 250,000 gallon cisterns, installing a drainage system, irrigation system, improved soils and sodding with a three-way fescue blend of turfgrass. The first phase includes four panels totaling about 400,000 square feet (closest to the Capitol) and the infrastructure for the cistern system.

### TURF PROTECTION STUDY

Early in the process we determined there was a need to evaluate all the methods that our industry has to protect the turf once the project was completed. Defining the type of turf protection required testing so Virginia Tech was provided a grant to complete a study, the Trafficked Turf Systems (TTS). Dr. Ervin, Dr. Goatley and John Royse provided feedback on the study and the objectives. After all the hard work and investment restoring the National Mall



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“WITH 25 MILLION ANNUAL VISITORS and more than 3,000 permitted annual events, the National Mall is the country’s busiest national park. Unfortunately, this high level of use has taken a heavy toll: the grass is worn down to patches of dirt, the soil is

heavily compacted and irrigation systems have been compromised. That is why we, in partnership with the National Park Service, enlisted the help of Murray Cook of Brickman Sports Turf. Murray has helped guide the National Mall turf project with

state-of-the-art irrigation, soil and seed composition and maintenance plans. We are confident that with his guidance, the National Mall will be returned to its former glory.”—Caroline Cunningham, President of the Trust for the National Mall

grounds, the question was posed: “How can the renovated lawn areas be protected during events?”

To ameliorate the problem, they conducted seasonal research on the performance and recovery of several turf covering systems at Virginia Tech that will be used to protect the National Mall. Cover types included in the study range from those commonly used for seating areas, roadways or general turfgrass protection. Time of year and cover attributes greatly affect turf tolerance to extended covering. Tall fescue recovered following 9 days of summer covering with Terratile and Matrax panels, but the turf could withstand only 3 days of covering with plywood or plywood + Enkamat. Terratile and Matrax covers could be left on for up to 20 days in spring or fall, while plywood or plywood + Enkamat only worked for 5 days. The results of this research will provide other turf managers with scientific and technical information for maintaining the integrity of their turf regardless of the season.

### ROOTZONE SELECTION PROCESS

Dr. Norm Hummel took multiple tests of existing soil conditions at the Mall and developed a rootzone that was not only less

likely to compact but also one that allowed better drainage. There were a number of things that were considered when selecting the soils for the National Mall. A sand-based system was considered but was quickly ruled out for several reasons. For one, the National Park Service wanted to reuse soils if and where ever possible. Second, there are festivals held on the lawn that last several days. Irrigation wouldn’t be possible during these long stretches, which are often in the summer. Finally, sustainability of the lawn was a goal of the Park Service without having to incur high maintenance costs.

Soil samples were taken from all of the panels and were tested for particle size and organic matter content. Nearly all of the soils were fine textured, having about 40% sand on average. The soils will be harvested from the panels and will be modified with a coarse, uniform sand in sufficient quantities to increase the sand content of the soil to about 70%. Basically, we have specified that the soil be amended from a loam to a sandy loam. A compost of a specified quality will also be added to increase the organic matter content of the soils to about 5% by weight. In the end, we feel that we have specified a soil type that will hold up better to the intense use and abuse that the National Mall is subjected to.

## TURFGRASS SELECTION

As with any turf project you need select the best turfgrass that will meet not only the wear and tear of the events but also provide have the ability to thrive in the region. Dr. Peter Landschoot brought his recommendations to the committee as to the grass seed best suited for the Mall. The seed slated was to consist of 90% turf type tall fescue and 10% Kentucky bluegrass on a weight basis. The seed was recommended to be a mix of one the following groups of species and varieties:

- 30% Wolfpack II tall fescue, 30% Firenze tall fescue, 30% Turbo tall fescue, and 10% P-105 Kentucky bluegrass.
- 30% Rhambler SRP tall fescue, 30% 3rd Millennium SRP tall fescue, 30% Traverse SRP tall fescue, and 10% Bewitched Kentucky bluegrass.
- 30% Turbo tall fescue, 30% Bullseye tall fescue, 30% Hemi tall fescue, and 10% Midnight Kentucky bluegrass.

Due to some changes in construction schedules we are now planning to sod the lawn panels with a similar turfgrass variety using a sod that has yet to be determined [as of mid-April 2012].

As part of the turfgrass management program, Dr. Landshoot developed criteria to enhance the National Mall's existing IPM (integrated pest management) program. The goal of the National Mall IPM program is not to eliminate pests, rather to keep pest populations or damage to a tolerable threshold level. The threshold level is determined by the number of pests or the amount of pest damage

that can be sustained before an unacceptable reduction in turf quality occurs. Pests and pest damage during the grow-in will be monitored by daily or weekly scouting. Pest threshold levels vary with the condition of the turf, particular pest species, stage of turf development, weather conditions, and other factors that can influence pests and pest-related injury to the new turf.

Another key player in the development of the turf system for the Mall is Alice McCarty. She is the National Parks Service's landscape architect who has witnessed many of the failed attempts to renovate the mall and has been a staunch supporter of the natural grass system and its ability to sustain more traffic and provide a more aesthetically pleasing area for people to use. Alice explains the major issues the new design is addressing include compaction of soil, lack of irrigation and drainage, regional water management and the restoration of the original design intentions to establish a "greensward" that connects the Capitol and the Washington Monument.

The mechanisms that are being implemented to accomplish the goals set forth by the NPS include upgrading the existing soil structure. The new 12-inch depth sand-based soil placed over a 4-inch course sand bed will allow for better drainage. In addition to the improved rootzone soils a drainage system with laterals every 20 feet are being installed across the Mall at a 4-foot depth. The irrigation system main lines and drainage system will also be placed 4 feet deep to reduce being tapped by the long tent stakes that are used to support the many structures placed on the Mall throughout the year.



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The water collection system cisterns will save rain water from the trench drains as well as the walks and turf run-off, and potentially from the roofs of nearby museums. We will use captured recycled water to irrigate as often as possible rather than city potable water, and will keep water on site rather than dumping it into the Potomac River and Chesapeake Bay.

Another design component being implemented is the restoration of the Granite curbs that are installed along edges of the lawn panels. These contribute in several ways to the overall goals. They will define the drive-no drive areas; give a finished maintainable edge to the grass; respect the original street curbs that pre-dated the pedestrian paths; allow handicap access since they are so flat; and provide water collection points (trench drains).

The National Park Service will also make changes to the turf management program. They are hiring a turf manager with extensive experience in managing major events on high traffic natural turf areas similar to our sports fields and will also be developing a turf team. The turf management program will integrate with a new event management program. They will modify the event management program to improve the protection of the turf to the greatest extent possible by implementing rest periods into every permit so that a new event is not set up until after the rest period of the last event.

This is a major undertaking that will take several years to complete all but you had to start somewhere and come spring 2013, the National Mall will have 400,000 square feet of green grass managed by sports turf professionals that understand what high traffic turf needs to survive. ■

*Murray Cook is president of Sportsturf Services, a division of The Brickman Group, Columbia, MD, and a past president of the Sports Turf Managers Association.*

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