



# Green Infrastructure & Stormwater Management CASE STUDY

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## Asphalt to Turf - Serrano

**Location:** The Bronx, New York City, NY

**Client:** NYC Parks & Recreation

**Design Firm(s):** ABB

**Landscape architect/Project contact:** John Butz, ASLA

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**ASLA Chapter:** New York

### Project Specifications

**Project Description:** The Asphalt to Turf project involved the conversion of deteriorating asphalt sports fields in densely populated neighborhoods throughout the five boroughs of New York City into durable synthetic turf fields. The project was broken down into five bid contracts for a total of 22 fields at 18 different sites. The most environmentally sustainable materials and construction methods were used. A hybrid sub-surface retention/infiltration system (with the addition of perimeter rain gardens where possible) was designed to capture and recharge approximately 90% of annual rainfall for the majority of the parks; a reduction in excavation and the amount of aggregate used minimized hauling; and trees were planted locally to offset the carbon footprint. This resulted not only in greener sites, but also in recreation areas that better met the needs of the local communities.

#### Project Type:

Open space - park

A retrofit of an existing property

**Design features:** A cistern system which reduces and controls stormwater was developed for under the synthetic turf fields. This system, which was used at all sites, consists of a series of perforated polyethylene pipes wrapped in stone-lined infiltration trenches with overflow connections to the city system. Recharging 90% storm on-site vs. existing 90% off-site discharge.

#### This project was designed to meet the following specific requirements or mandates:

Local ordinance

**Impervious area managed:** 1 acre to 5 acres

**Amount of existing green space/open space conserved or preserved for managing**

**stormwater on site:** Less than 5,000 sq/ft. There was no existing green space. Approximately 90% of the existing site was used to manage stormwater (sub-surface).

**The regulatory environment and regulator was** supportive of the project.

**Did the client request that other factors be considered, such as energy savings, usable green space, or property value enhancements?** ADA compliance and overall enhancement of the value of the properties.

## Cost & Jobs Analysis

**Estimated Cost of Stormwater Project:** \$1,000,000-\$5,000,000 (Public funding: Local - New York City - PlaNYC)

**Was a green vs. grey cost analysis performed?** No

**Cost impact of conserving green/open space to the overall costs of the site**

**design/development project:** Sites consisted of asphalt ballfields. Costs associated with converting impervious surfaces to pervious surfaces and infiltration system were no higher than those of standard construction practices.

**Cost impact of conserving green/open space for stormwater management over**

**traditional site design/site development approaches (grey infrastructure)?** Slightly reduced costs (1-9% savings). There was no existing green space. The conversion to pervious surfaces and infiltration system lead to the reduction in cost.

**Number of jobs created:** Not available

**Job hours devoted to project:**

Planning and Design: 600 hrs

Construction: 125 hrs

Annual Maintenance: Not available

## Performance Measures

**Stormwater reduction performance analysis:**

A minimum of 1" of stormwater on average will be recharged (not including rate of infiltration) before being released into the city storm/sewer system through an overflow, thereby retaining 90% of the rainfall events typical for NYC.

**Community & economic benefits that have resulted from the project:** In addition to decreasing off-site discharge and recharging ground water, the conversion of the asphalt fields

to synthetic turf provided local communities with more durable, low maintenance playing field surfaces that can accommodate more intensive usage. The preservation of existing trees at field perimeters and the addition of new plantings and new site amenities, coupled with designs that are ADA compliant, resulted in safer, greener, updated facilities that benefit a wide demographic and accommodate a variety of uses.

### **Additional Information**

**Links to images:** <http://www.abnyc.com/Projects/NYCDPR/AsphaltToTurf.html>