



# LANDSCAPE PERFORMANCE SERIES

## Lurie Garden – Chicago, IL Methodology for Landscape Performance Benefits

### Environmental

- ***Reduced stormwater runoff by 60%, or nearly 100,000 gallons annually, by converting the old surface parking lot into a garden that is 66% pervious. This eliminated the need for an onsite stormwater detention facility, saving an estimated \$159,000.***

Before construction of Millennium Park, the Lurie Garden was a surface parking lot. It is now a civic garden space built over a large parking structure. The design site boundary is approximately 3 acres (130,862 sq ft). Planted areas compose about 2 acres (86,575 sq ft) and gravel pathways compose 0.1 acre (4,568 sq ft) of the finished garden, making the site 66% pervious.

Based on historic weather data, an average of 22,000 cubic feet (164,560 gallons) of rainwater falls on the site each year. Compared to a fully impervious site, project engineers estimate that the garden's pervious areas reduce the average annual stormwater runoff by 13,200 cubic feet (98,900 gallons) or 60%. The avoided cost of an onsite stormwater detention facility was calculated by estimating the linear feet of 4-ft pipe needed for an underground detention system. The 100,000 gallon/year runoff reduction eliminates the need for 1,058 linear feet of pipe, which costs approximately \$150/ft to construct, resulting in a savings of \$158,700.

Runoff reduction was also calculated for a 100-year design storm (24-hr duration) using the City of Chicago Department of Water Management's Stormwater Spreadsheet Tool. According to this tool, a 100% impervious site would generate 58,697 cubic feet (439,084 gallons) of stormwater runoff, while the Lurie Garden (with 66% of the site in native planting areas and 3.5% in gravel paths) generates only 23,413 cubic feet (175,141 gallons) of runoff during the 100-year design storm, a reduction of 60.1%

- ***Saves \$17,800 in annual irrigation costs (890,000 gallons of water) by using native and adaptive plants instead of the turf and concrete path design outlined in the site's original master plan.***

The site's master plan originally called for turf and concrete paths. The irrigation consultants ran models for this scenario and for the final design with mixed native prairie and gravel paths. The use of native and adapted plant materials was estimated to save 888,543 gallons of water annually. The cost of domestic water in Chicago is approximately \$0.02/gallon, resulting in a projected savings of \$17,770 per year.

- ***Attracts more than 27 species of birds, according to counts by garden staff, along with butterflies and bees in the 2 acres of habitat with over 60% native Midwestern plant species.***

In the last five years, garden staff have observed more than 240 birds in 27 species in the garden and park. This figure has been published in the Lurie Garden promotional material and staff is working on a more extensive bird list for the garden. The planted areas of the Lurie Garden form nearly 2 acres (86,575 square feet) of wildlife habitat. No synthetic pesticides are used in the garden which may contribute to the number of species observed. Information provided by the

Lurie Garden Factsheet, GreenMark Public Relations, Inc and Lurie Garden Executive Director, Jennifer Davit.

- ***Sequesters over 55 tons of carbon annually in 46 new shade trees and the more than 1,600 trees that comprise the large shoulder hedge.***

This figure will continue to increase as the plantings mature. The calculation is not inclusive of the carbon sequestration benefits provided by the extensive perennial plantings, but focuses on the shade trees and the evergreen hedges present in the garden. The online National Tree Benefit Calculator ([www.treebenefits.com](http://www.treebenefits.com)) was used to calculate the total carbon sequestration from the 46 shade trees of mixed species planted throughout the garden as well as the more than 1600 trees that compose the large shoulder hedge. Shade tree species include Black Locust, Burr Oak, Eastern Redbud, Higan Cherry, and Sargent Cherry. Hedge species include European Beech, European Hornbeam, and several cultivars of Eastern Arborvitae.

## **Social**

- ***Is a significant tourist destination within Millennium Park, which was visited by 4 million people from 21 countries in 2009.***

Millennium Park was visited by 4 million people from 21 countries in 2009, making it the second most visited tourist attraction in the city. (Nave Pier was the most visited.) Attendance data provided by the Lurie Garden Factsheet, GreenMark Public Relations, Inc and Lurie Garden Executive Director, Jennifer Davit. Tourist attraction ranking provided by Crain's List of Chicago's Largest Tourist Attractions 2009 (Sightseeing), Crain Communications Inc. There are no specific counts for visitors to the Lurie Garden separate from the larger Millennium Park complex. The garden's executive director, Jennifer Davit, roughly estimates that 1/3 of all park visitors might visit the Lurie Garden.

- ***Provides workshops for adults and families, guided walks, and other educational opportunities to nearly 10,000 visitors annually.***

The Lurie Garden conducts 24 adult-specific workshops and lectures and 35 family-specific workshops, attended by 6,800 people annually. The garden also offers guided walks and an "Ask Me" program, which were attended by 1,663 guests and 1,152 guests respectively in 2010. Data on programming provided by the Lurie Garden Factsheet, GreenMark Public Relations, Inc and Lurie Garden Executive Director, Jennifer Davit.

## **Economic**

- ***Contributes to Millennium Park's \$2.6 billion in projected visitor spending and \$1.4 billion in projected residential development between 2005 and 2015.***

Figures are from the 2005 Millennium Park Economic Impact Study which analyzed the economic impact on Chicago for the 10 year period (2005-2015) directly attributable to the construction of Millennium Park. The report was produced by consultants Goodman Williams Group and URS Corporation for the City of Chicago's Department of Planning and Development in 2005.

## **Sources:**

Jennifer Davit, Lurie Garden Executive Director and Lead Horticulturalist.

The Lurie Garden Fact Sheet. GreenMark Public Relations, Inc. March 07, 2010.

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Chicago Business (Crain Communications Inc) p21. March 22, 2010. Botts, Beth. "A Garden Grows up: Six-year-old Lurie Garden continues to amaze visitors – as well as its new executive director." Chicago Tribune: October 4, 2010. [http://articles.chicagotribune.com/2010-10-04/features/ct-sun-garden-1003-davit-20101004\\_1\\_terry-guen-shoulder-hedge-lurie-garden](http://articles.chicagotribune.com/2010-10-04/features/ct-sun-garden-1003-davit-20101004_1_terry-guen-shoulder-hedge-lurie-garden)

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[http://egov.cityofchicago.org/webportal/COCWebPortal/COC\\_EDITORIAL/Millennium\\_Park\\_Economic\\_Impact\\_Study.pdf](http://egov.cityofchicago.org/webportal/COCWebPortal/COC_EDITORIAL/Millennium_Park_Economic_Impact_Study.pdf)

Stormwater Spreadsheet Tool, City of Chicago Department of Water Management

[http://www.cityofchicago.org/city/en/depts/water/provdrs/engineer/svcs/2009\\_sewer\\_construction\\_andstormwatermanagementrequirements.html](http://www.cityofchicago.org/city/en/depts/water/provdrs/engineer/svcs/2009_sewer_construction_andstormwatermanagementrequirements.html)