

LANDSCAPE ARCHITECTURE FOUNDATION

## Canal Park Landscape Performance Study

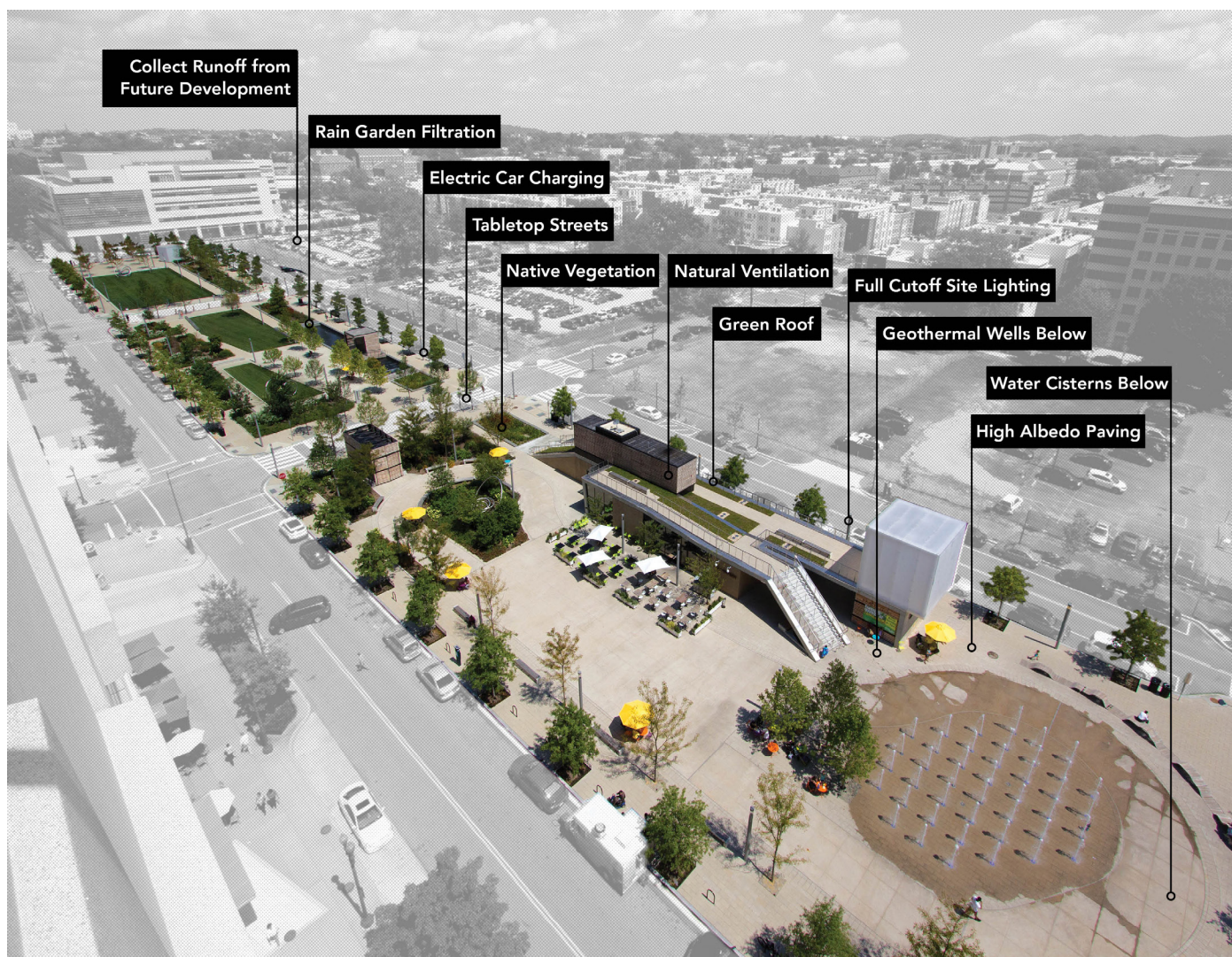


To date, one of the most sustainable park projects in the United States, Canal Park began as a LEED Gold and 3-Star SITES Certified landscape – one of seven in the country. But the park's legacy has not only been its capacity to absorb 1.5m gallons of stormwater onto the site for re-use in irrigation, toilet-flushing, and, singular among other parks, re-use of cleansed water to top off human-engaged fountains, it is also an equitable space welcoming the breadth of the neighborhood's constituency. This is the first Housing and Urban Development (HUD) project to retain all of the vibrant community that call the Southeast District home.

The following writing has been excerpted from a case study prepared by: Jennifer Salazar, University of Maryland, and others.



## ENVIRONMENTAL BENEFITS



**Reduces annual energy consumption in the park by 12.6%, saving almost \$26,000 per year in utility costs by using geothermal ground source heat pumps for heating and cooling the pavilion and restaurant, and exterior light fixtures that use 67% less power.**

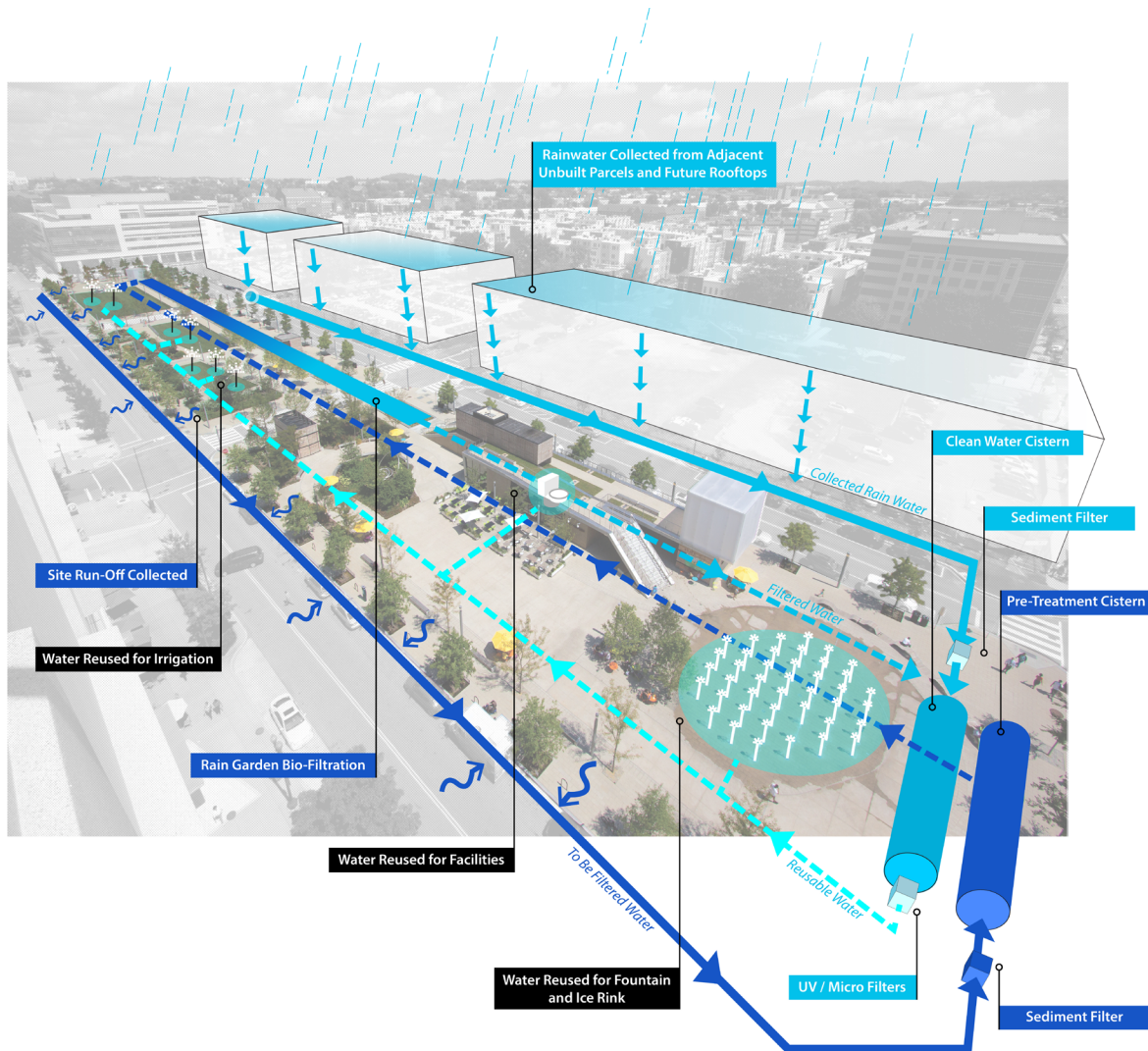
**Diverted 1,782 tons of material from landfills by recycling 100% of concrete, brick, block, and asphalt during construction and demolition. This reduced greenhouse gas emissions by an estimated 157 metric tons, equivalent to the annual emissions from 33 passenger vehicles.**

The client's original vision for the project was to create a zero-energy park demonstrating sustainable strategies. Although the project did not achieve this ambitious net zero goal, the client's vision did make sustainability a priority in the design. Sustainable solutions were utilized throughout the park, with the 28 geothermal wells located beneath the southern block included in the design to help reduce energy consumption. The geothermal wells are used to transfer heat to and from the earth to provide more energy-efficient heating and cooling for the large pavilion and restaurant.

As part of the LEED and SITES certification processes, a waste management plan was developed and implemented during construction to minimize the amount of waste created by the project. The plan identified the disposal method of all waste materials generated on-site with the majority of materials to be recycled or salvaged for reuse. A procedure for tracking and documenting the disposal of all materials removed from the site was put into place to verify the amount of waste diverted from landfills. The documentation demonstrates that 774 tons of Concrete, Brick, and Block, and 1,008 tons of Asphalt were recycled and no material was sent to landfills.



## ENVIRONMENTAL BENEFITS: WATER



[Canal Park] captures and treats 95% of average annual runoff from the site and neighboring streets, approximately 3 million gallons per year, helping to prevent combined sewer overflows to the Anacostia River.

Runoff from approximately 69,000 sf of the site's surface is captured and directed to an aqua-swirl system for sediment removal through vortex separation. From there, the stormwater enters one of the two 40,000 gallon cisterns located below the southern block referred to as the pre-treatment cistern. Stormwater leaves the pre-treatment cistern and is sent to the linear rain gardens along the eastern edge of the park to undergo bio-filtration. This treated water is then returned to the second cistern, referred to as the clean water cistern. Rainwater collected

from the roofs of the pavilions on-site is piped directly to the clean water cistern, and when the parcels adjacent to the park have been developed, the system is designed to collect rainwater from these off-site roof drains, which will be sent to the clean water cistern as well. Treated stormwater leaves this cistern and undergoes a micro-filtration process and disinfection using ultraviolet (UV) light to prepare it for reuse. Water is reused on-site for irrigation, make-up water for the ice rink and in the park's two interactive fountains, saving a significant amount of potable water.



## SOCIAL BENEFITS



**Draws almost 28,000 annual visitors through year-round programming and special events. Over 20,000 skaters use the ice rink during the winter months and 5,000 visitors participate in a 3-day outdoor holiday market. A summer movie series attracts 2,200 attendees, with 38% of neighborhood residents attending at least one movie screening per season.**

**Attracts an average daily peak of 58 visitors, ranging from a high of 88 average peak users during summer days, to a low of 25 average peak users during fall days.**

**Provides well-designed space for visitors with 86% of survey respondents describing the park in positive terms and 44% saying they would not change anything about the park.**

**Provides an inviting space that encourages social interaction between visitors, with 90% of survey respondents agreeing that they felt welcome in all parts of the park and more than 25% confirming they have made new acquaintances in the park.**

**Provides a safe space for 94% of survey respondents who had been to the park at night. The park also contributes to perceptions of neighborhood safety with 70% of respondents perceiving the neighborhood as safe in 2014 compared to only 6% in 2007.**