



Green Infrastructure & Stormwater Management CASE STUDY

Cermak Road Sustainable Streetscape

Location: Pilsen Neighborhood, Chicago, IL

Client: Chicago Department of Transportation (CDOT)

Design Firm(s): Knight E/A, Wight & Company

Landscape architect/Project contact: Jay Womack, ASLA, LEED AP

Email: jwomack@wrdenvironmental.com

ASLA Chapter: Illinois

Project Specifications

Project Description: The Cermak Road Sustainable Streetscape project began as a community driven neighborhood improvement project and a commitment to high quality sustainable design. CDOT set out to determine what the equivalent of a “platinum-rated” streetscape might look like and to demonstrate the environmental, cultural, and economic benefits it could provide. When complete, the 1.5-mile-long streetscape project is expected to be one of the most environmentally friendly stretches of roadway in Chicago, transforming the south edge of the Pilsen neighborhood into a vibrant and innovative community asset.

Project Type:

Transportation corridor/streetscape

A retrofit of an existing property

Design features: Rain garden, bioswale, porous pavers, and curb cuts. Entire sidewalks and portions of the road, for each side of the city block, were designed to have open graded stone below the surface to accept and infiltrate 80% of the average annual rainfall that falls within the entire ROW. A water feature in the ROW was designed to take runoff from an adjacent school,



which was not part of the streetscape project, in order to create a feature that was 100% rain water activated, allowed for interaction with the students, and made a statement about the importance of rain as a visible element in the streetscape. Overflow from the water feature moves into a bioswale before re-entering the schools detention facility. Another water feature is a pocket park that accepts runoff from the city street and incorporates it into a series of infiltration planters that take advantage of a small amount of grade change, which is very rare in the city.

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

Developer/client preference

Impervious area managed: greater than 5 acres

Amount of existing green space/open space conserved or preserved for managing stormwater on site: 1 acre to 5 acres. The existing streetscape did not use any green space for stormwater management. The new streetscape design will use new green space/planters/bioswales/stormwater features/ permeable pavements for managing stormwater.

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? Numerous goals and objectives were set that included alternative transportation, water efficiency, stormwater management, energy efficiency, recycling, urban heat island/air quality, beauty/community, and commissioning. Specific techniques include the use of recycled content materials, recycling of construction waste, use of regional materials, elimination of irrigation, use of drought tolerant and native plants, creation of attractive spaces that celebrate the community, allow for interaction and observation of community, educate the public about the highly innovative and sustainable elements of the streetscape, and monitor and report on stormwater benefits.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: <\$5,000,000 (Public funding: Federal, local)

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: Throughout the existing streetscape there was minimal green space to conserve, most of which consisted of pits in the sidewalk for trees or bare earth adjacent to a railroad.

Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)? Did not influence costs.

Number of jobs created: 0

Job hours devoted to project:

Planning and Design: >1,000

Construction: >1,000

Annual Maintenance: Not available

Performance Measures

Stormwater reduction performance analysis:

The goal for the streetscape is to divert 80% of the typical average annual rainfall and at least two-thirds of the rainwater that falls within the catchment area into stormwater best management practices that promote infiltration, provide water for new landscape amenities, improve water quality, and reduce stormwater that enters the combined sewer system. This will all be monitored and quantified through equipment set up and maintained by the Metropolitan Water Reclamation District of Chicago (MWRDC).

Community & economic benefits that have resulted from the project: It is too early in the project to tell the economic benefits but the community benefits are numerous. Working closely with the Benito Juarez HS, Janet Attarian, with CDOT, and the art teacher have coordinated efforts to develop mosaics that will be installed in seating blocks at the water feature. A walking map in conjunction with solar/wind powered information kiosks is being developed that will showcase the sustainable elements within the streetscape. Green space and trees have been greatly increased to help reduce urban heat island effects and airborne pollutants. Photocatalytic cement on permeable pavers has been installed to help improve air quality and better distribute light from overhead fixtures. Badly degraded sidewalk and vaults have been repaired, and two community plazas have been created that integrate sustainable design techniques.

Additional Information

Links to images:

http://www.cityofchicago.org/content/dam/city/depts/cdot/CBISS_flier_2010.pdf

<http://www.slideshare.net/cntweb/the-cermakblue-island-sustainable-streetscape>

<http://www.slideshare.net/cntweb/going-green-begins-by-thinking-blue-rainwater-strategies-for-ce>

The success of this project is completely attributable to the collaboration between the Owner (CDOT), Janet Attarian's commitment to sustainable design principles, the landscape architect, civil engineer, and all agencies involved throughout the city of Chicago. In particular, the continual work by Janet Attarian and CDOT to create interagency alliances helped the project move through design and permitting phases.