



CASE STUDY | Taking Steps to Protect Our Communities

SAVE THE RAIN MAKES A SYRACUSE PARK A SAFER SPACE FOR KIDS

In 2017, Syracuse, New York, worked with Onondaga County, New York's Save the Rain program to plan, construct, and finance the renovation of the McKinley Park basketball court and parking lot with green infrastructure. The project was designed to reduce the volume of stormwater that flows into the combined sewer system along surrounding streets. By reducing impermeable spaces and increasing rainfall capture, the project prevents sewer overflows while supporting principles of social and environmental justice and enhancing community unity and pride.

BACKGROUND

Onondaga County, New York's Save the Rain program is an award-winning stormwater management program that focuses on preventing rainwater from entering the combined sewer system. The program provides grants to local municipalities to install innovative green infrastructure in their communities to reduce stormwater flow into the sewer system that could ultimately pollute Onondaga Lake.

Designed and installed in the early 1900s, Onondaga County's sewer system collects stormwater and sewage in one set of pipes called a combined sewer system. Major weather events can lead to untreated overflows from this system. Save the Rain's goal is to minimize combined sewer overflow events by capturing stormwater before it enters the sewer system and protect the lake from pollution.

Before the Save the Rain Program, nearly one fourth of combined sewer overflows were left untreated on an annual basis. In 2009, Onondaga County began promoting stormwater management techniques, and it set a goal to capture

AT-A-GLANCE

PROJECT NAME:

McKinley Park

LOCATION:

Syracuse, New York

TIMELINE:

2016 - 2017

COST:

\$690,000

GREEN INFRASTRUCTURE:

Bioretention areas and porous pavement with an underground infiltration system

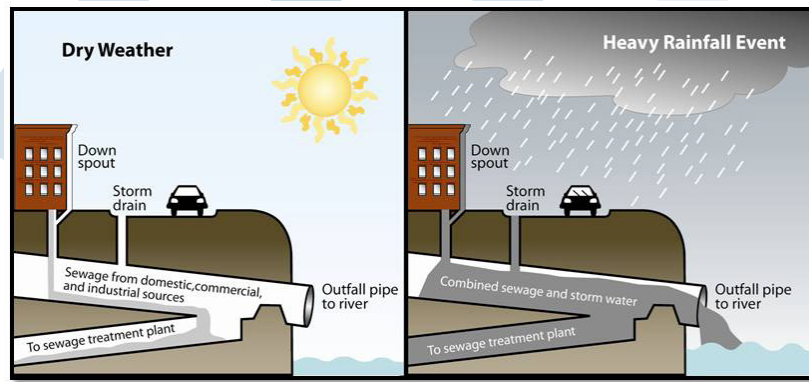
CAPTURE AREA:

Nearly 52,000 square feet

RESULTS:

Reduces stormwater runoff by an estimated 945,000 gallons per year

95 percent of total sewer and stormwater volume by 2016. With grants for a wide variety of projects in the county, Save the Rain managed to hit that goal several years early.



Courtesy of Save the Rain

A combined sewer system shares underground pipes for both sewage from homes/buildings and stormwater that flows off streets. Heavy precipitation can overflow the system with diluted sewage that releases pollutants into local waterways.

PLANNING

Save the Rain projects are identified through community need and a stormwater management model, which runs calculations to determine the impact of green infrastructure improvements to the combined sewer system. The McKinley Park project was a partnership between the city of Syracuse and Onondaga County to share costs and derive mutual benefits to achieve the program's triple bottom line of environmental, social, and economic improvements.

McKinley Park is located on the south side of Syracuse in a neighborhood with a high poverty rate. Creating a safe place to play and a new basketball court would provide the benefit of an improved community space for residents. The area is also in a combined sewershed. Because of its location, the park was a great candidate for installing green infrastructure to help better manage stormwater before it drains into the combined sewer system.

To enhance McKinley Park's sports equipment, the project received a grant from the Jim and Juli Boeheim Foundation's Courts4Kids Program, which provides funding for renovation of outdoor community basketball courts. It focuses on socio-economically disadvantaged areas around Syracuse and the surrounding region to give children the opportunity for healthy activities and improved play spaces. Courts4Kids provided the basketball hoops, benches, and other equipment that was not directly contributing to the green infrastructure effort.



McKinley Park. Courtesy of Save the Rain

SEWERSHED

A sewershed is an area of land where water flows and drains into pipes to treatment plants and surrounding waterways.

MAKING STORMWATER EDUCATIONAL

Save the Rain partners with the Syracuse City School District to add green infrastructure during school renovation projects. For example, the Hughes Magnet School features a bioretention area and tree trench in what used to be a vacant lot. This project serves as an educational site for students at the school and captures over one million gallons of stormwater annually.

PROJECT DETAILS

Following a six-month design effort, project partners determined that the McKinley Park project should incorporate various green infrastructure technologies to capture stormwater runoff. Two bioretention areas were installed adjacent to nonporous pavement areas to assist in capturing precipitation that would normally flow off of those surfaces

and into the sewer system. Much like rain gardens, bioretention areas feature native plants and soils, but they are designed for larger-scale purposes to allow for collecting and filtering stormwater.

To replace the park's asphalt parking lot and basketball court, which were in poor condition, the partners chose porous pavement with an underground infiltration system, which allows water to filter through the lot and court instead of flowing directly into the sewer. That captured water then re-enters the combined sewer system at a much slower rate that will not overwhelm the system and cause overflows. What's more, the basketball court was able to double in size, from a half-court to a full court, which allows more local children to enjoy the space.

In addition to improving stormwater management of the area, this project has enhanced McKinley Park through increased green space. The park once had tennis courts, but they were in



Plantings in the bioretention area on the North side of the park. *Courtesy of Save the Rain*

MAKING STORMWATER A RESOURCE

Save the Rain also has a **Rain Barrel Program** that distributes free rain barrels to residents. The program conducts classes to teach residents how to construct and use rain barrels. Each attendee takes home their barrel at the end of the course to collect rainwater that can be used for watering landscaping and washing cars.

The barrels collect rainwater from rooftops that would otherwise flow into the sewer system.

disrepair and rarely used. Because there was low interest from the community in having tennis courts, they were removed from the park and replaced with open green space consisting of topsoil and grass. By removing this nonporous asphalt from the park, the new green space allows stormwater to slowly soak into the ground or evaporate, eliminating excess runoff into the sewer system.

The project faced a few obstacles before it was completed. For example, the utility survey did not pick up some electrical



The old, half-court basketball court before the project. *Courtesy of Save the Rain*

conduit the city was unaware of, and a gas main was incorrectly located due to incorrect information from the utility owner. Both of these issues caused some minimal delays, and adjustments were made to the subsurface green infrastructure elements to avoid any complications. Nevertheless, construction was completed in three months.

RESULTS

Green infrastructure in McKinley Park now captures stormwater runoff from the park and neighboring areas (totaling over 51,000 square feet of drainage area), helping to prevent combined sewer overflows and reduce pollution in the Onondaga Lake watershed. The green infrastructure features installed remove an estimated 945,000 gallons of stormwater runoff per year from the combined sewer in the area. Following are some of the broader benefits to Syracuse residents from the McKinley Park project.

HEALTHIER WATERSHED:

The Save the Rain green infrastructure projects help the county capture 98.1 percent of combined sewage and stormwater flows. This effort, combined with the many other



The new, porous parking lot. *Courtesy of Save the Rain*

Save the Rain projects, has significantly reduced phosphorus and ammonia levels in Onondaga Lake, resulting in better water clarity and aquatic plant life and a significant increase in the lake's fish population.

IMPROVED AESTHETICS:

Before the green infrastructure improvements were installed at McKinley Park, the basketball and tennis courts were in poor condition. A new, full-sized basketball court, bioretention areas, and more green space enhanced the space for park visitors and the surrounding community.



IMPROVED SAFETY:

By partnering with Courts4Kids to replace the old basketball hoops with more modern equipment and remove the crumbling tennis courts, Save the Rain was able to make McKinley Park a safer place for local children to play.



LESSONS LEARNED

Following are some tips and strategies the project team and its stakeholders learned through this effort:

- **Map it out.** Be sure to secure a detailed and accurate utility survey before beginning a project to avoid running into any potential challenges. For McKinley Park, the unlabeled gas main and unidentified electrical conduit required the project partners to pivot during the installation.
- **Timing is critical.** When planting a bioretention area, it helps to plant



Local children and Courts4Kids representatives celebrate the new full-court space. *Courtesy of Save the Rain*

during a time of year when plants are more likely to take root in that region. The plantings at McKinley Park were installed in the summer, so they took a little longer to become established due to harsh weather conditions.

- **Get the dirt.** For plants in bioretention areas to thrive, it is important to use the correct soil mix. The McKinley Park project used local suppliers to reach the right pH range in the soil to drive the nutrient availability for plants.

ACKNOWLEDGEMENTS

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