

Link to Community Greening Plan – Green Stormwater Infrastructure (GSI) Program for Harrisburg, Neighborhood Involvement, and Continued Engagement:

A project realized from the earliest stage of Capital Region Water’s (CRW) planning - the Summit Terrace Green Neighborhood was first identified as an early action project in the 2017 Community Greening Plan (CRW’s Green Stormwater Infrastructure Plan). Community engagement is at the forefront of Capital Region Water’s planning and implementation of GSI in Harrisburg, PA. In 2016, Capital Region Water launched its City Beautiful H2O Program to restore failing infrastructure, reduce combined sewer discharges, improve the health of local waterways, and beautify neighborhoods through community greening. In January 2017, CRW published a Community Greening Plan which included a concept for a series of green stormwater infrastructure (GSI) practices in the Summit Terrace Neighborhood. With construction completed in 2018, this project was the first GSI project implemented as part of the City Beautiful H2O Program.

CRW, with assistance from Jacobs and Viridian, led a series of community workshops with Summit Terrace Neighborhood Association, Harrisburg Redevelopment Authority (HRA - property owner), and other local stakeholders. The workshops were designed to educate residents on the importance of stormwater management and the benefits of street trees, and to gather feedback on what community amenities they wanted to see in the proposed detailed design. All the requested amenities were included in the final design – landscaping, seat walls, large planters with space provided for community-led plantings, fencing, trees, decorative grates, new sidewalks, and a flexible open lawn space for the Neighborhood Association to host events.

Capital Region Water recognizes that the implementation of GSI requires long-term commitment to the community which is why it established a GSI O&M Program alongside the initial planning. CRW entered into an Easement Agreement with the HRA to operate and maintain the GSI, including the community amenities in partnership with the Summit Terrace Neighborhood Association. CRW maintains the GSI assets monthly, often checking in with the residents to address any issues they notice.

Project Intent, Challenges & Unique Characteristic:

CRW’s overall intent and objective with all of our GSI projects, as our City Beautiful H2O Program name implies, is to beautify our city while making the required improvements to our infrastructure system, addressing water quality in Susquehanna River, and ultimately the Chesapeake Bay. We must take advantage of our role in implementing GSI to transform the character of the urban core of the greater Harrisburg area.

The Summit Terrace Green Neighborhood, convert 12 vacant lots into community amenities, helped establish the partnership with the Harrisburg Redevelopment Authority to develop the initiative ‘Green Vacant Lots’ noted in our Community Green Plan.

The project overcame several challenges during construction included the following:

- soils contaminated with arsenic and lead,
- sites located above historic retaining walls,
- socio-economically challenged neighborhood, and
- one of the wettest summers on record for construction.

Drainage

The drainage areas to the rain gardens and infiltration beds/trenches were optimized by both capturing flow from the gutters adjacent to the sites and by redirecting flow from existing curb inlets using new separate storm sewers within the larger existing combined sewer system. The first series of rain gardens (2) are located south of Bailey Street in the community-managed space where N Summit Street ends at Bailey Street. A trench drain diverts runoff from the south side of the street across the sidewalk and into the first rain garden. The second rain garden is fed by subsurface piping. The third rain garden is located at the southwest corner of the intersection of Bailey Street and 13th Street. A trench drain diverts runoff from the south side of Bailey Street across the sidewalk and into the rain garden. New inlets, with permanent sediment filters, were installed along Bailey Street, capturing runoff from the high point of Shrub Street between 13th and Linden Streets, Linden Street between Shrub Street and Bailey Street, and the north side of Bailey Street between Linden Street and 13th Street. A new inlet at the NW corner of 13th and Bailey connects directly to the subsurface infiltration bed below the rain garden to capture additional drainage from the high point of Shrub Street along 13th St. The total resulting drainage area of approximately 60,000 square feet consists of 50,200 square feet of existing impervious area, producing 1.1 million gallons of runoff during an average year.

Stormwater Design

Capital Region Water's hydrologic and hydraulic model of the combined sewer system and rainfall analyses demonstrate that by sizing the systems to store 1.4 inches of runoff, 94% of the annual runoff would be captured by the project, resulting in over 1 million gallons of stormwater capture per year. In addition to the extensive pollutant reduction that occurs through the inlet filter inserts, rain gardens, and in the storage beds/trenches, infiltration into the subgrade soil provides additional treatment. Discharge from the systems, if any, is at a controlled rate to reduce combined sewer overflows at the CSO outfalls, further reducing pollution to Paxton Creek and the Susquehanna River.

Planting Palette

The team carefully crafted durable site elements leaving flexibility of site use. The gardens showcase native plants of the region in a complete landscape – trees/shrubs/perennials/grasses/groundcovers – promoting biodiversity by mimicking our Eastern Forests. Trees include Eastern Redbud, a crowd favorite with its unusual spring blooms and wonderful heart-shaped leaves. The shrubs, perennials, grasses and groundcovers provide seasonal interest while stabilizing waterways and giving paths for rainwater infiltration. As neighbors wanted to add their gardening creativity annually, the team left room for them to elaborate the gardens with seasonal favorites. Raised planters give gardening access to residents of all ages and abilities. The client team received a maintenance plan to promulgate plant establishment and long-term care and as prototypes for their burgeoning maintenance program. Landscapes like this unite neighbors and return fragmented lands to pollinator paradises and we know, no pollinators = no life.

In conclusion, the project significantly manages stormwater, remediates contaminated soils and, with neighbors' input, repurposes derelict vacant lots into unique amenities. The parklets deliver beautiful, healing fresh-air places to an underserved community.