

Partnership aims to improve stormwater controls, stimulate economy

A collaborative initiative involving a community-based public-private partnership focuses on green and gray infrastructure and sustainability while improving the local economy, stormwater management, and water quality. **Keisha Brown** of Corvias explains how the partnership is moving ahead to realize these goals.

The Stormwater Authority of Chester and Corvias have formed a community-based public-private partnership (CBP3) to plan, implement, and manage an integrated water quality program within the City of Chester, Pennsylvania, United States (US), with an initial US\$50-million commitment toward water quality infrastructure development, including a long-term, 30-year operation and maintenance program. The effort will support greater greening efforts in the region, build local contractor capacity, drive economic development, and provide education and training in water quality developments for this impoverished urban community in the Delaware River watershed. This transparent framework aligns the needs of public, private, and community stakeholders and forms a long-term relationship that stimulates the economy by engaging local disadvantaged businesses while achieving regulatory goals.

City leaders established the Stormwater Authority of Chester to address unfunded federal and state mandates to reduce the amount of pollutants entering the Delaware River, the Chesapeake Bay, and local waterways. The City's existing water infrastructure, which suffered from flooding and pollution challenges, was burdened with extensive deferred maintenance, and funding was not available to make necessary upgrades.

The Stormwater Authority of Chester provided the City with a new revenue source that was dedicated specifically to stormwa-

ter practices and did not compete against other municipal priorities funded from its general fund. The partnership recently sourced \$15 million in long-term low interest rate loans from the Pennsylvania Infrastructure Investment Authority (PENNVEST) to retrofit existing stormwater assets and install new green infrastructure devices that will remove pollution and improve the health of local waterways including Ridley Creek, Chester Creek, and the Delaware River.

The City's stormwater control solution involves catch basins that drain excess rain and surface water from impervious surfaces such as paved streets, parking lots, roofs, footpaths, and sidewalks. The catch basins were installed many years ago – and, in some cases, decades ago. Catch basins

can be very effective in capturing and directing water flow, but they must be maintained so that the flow of water can occur as designed.

Currently, however, the stormwater infrastructure is insufficient in its current form to meet the needs of the community. A number of problems have been prevalent including the impairment of the Chester and Ridley Creek watersheds, localized flooding, erosion and sediment issues, and degradation in water quality from the increased volume and rate of stormwater runoff that has resulted from urbanization. The Stormwater Authority of Chester in partnership with Corvias allows for the improvement of the stormwater infrastructure, which will aid in reduced flooding, addressing water quality, and providing resiliency for the existing city infrastructure.

In 2018, the partnership worked with the community, city representatives, and the industry to identify project priorities, select delivery teams for the first two phases of work, and begin work cleaning and inspecting existing basins. Examples of current projects within the partnership include Chester High School and Eyre Park Green Infrastructure projects and the Catch Basin Retrofit project.

For the Chester High School and Eyre Park project, the partnership will capture and manage stormwater runoff from impervious surfaces associated with the parking lot of the school property. Inlets in the parking lot will capture stormwater to convey it to a single

74-square-meter (8,057-square-foot) bioretention basin.

Native vegetation will supplement stormwater controls by intercepting runoff that falls on the planting beds and managing it through the bioretention system. The plantings will also beautify the area and require minimal maintenance once they are established. For the Catch Basin Retrofit program, the partnership will continue cleaning and inspecting drainage structures and then repair and/or retrofit identified basins requiring improvement.

The partnership is developing multiple options for retrofits across the projects with a focus on ease of long-term maintenance. Each entry point into the system is retrofitted according to its location and function within the system. Examples range from installation of trash racks to easily capture floatables within the combined sewer overflow (CSO) areas to full-scale retrofits using tree boxes, high flow media, and porous concrete panels, or pavers. To support the collection and analysis of data, collector applications are being used along with mobile technology to capture key data at each asset. The data allows the partnership to make strategic decisions related to deferred maintenance, enhancements, replacements, retrofits, and new additions to the aging infrastructure.

New and innovative programs such as this partnership between the Stormwater Authority of Chester and Corvias require commitment, collaboration, and



The contractor ISS builds, cleans, and inspects catch basins for the Stormwater Authority of Chester. Mason Negvesky (left) of ISS helps clean and inspect an existing catch basin. Photo by Corvias