NONPOINT SOURCE SUCCESS STORY

South Carolina

Ecological Restoration by Daylighting a Smith Branch Tributary

Waterbody Improved

For over a century, a tributary that once ran through Hyatt Park in downtown Columbia had been piped, and the natural ecosystem that was once an enjoyable part of the park had been lost. The Hyatt Park Revitalization project began in 2018 to restore and celebrate the stream and its natural habitat by daylighting a piped Smith Branch tributary and implementing vegetated buffers and bioretention areas. The project also included a constructed beaver dam and native plantings to further reconnect the park to a natural ecosystem. This stream daylighting and restoration is the centerpiece of the community-driven overall revitalization of Hyatt Park and serves as an educational opportunity for the highly popular park. For more information, see https://www.youtube.com/watch?v=0M88iODlDtM.

Water Quality Challenge

A stream running through Hyatt Park in downtown Columbia had previously been routed into an underground pipe (Figure 1). Historical photos show barren land, a line of stormwater culverts tracing the piped stream, an abandoned road, and a parking lot (Figures 2 and 3). Stormwater flowed swiftly across impervious surfaces in the park, accumulating pollutants, and conveying them to the city's drinking water source. The now-daylighted tributary converges with Smith Branch, which is impaired for macroinvertebrates. The Smith Branch Watershed Management Plan was developed in 2017 as an addendum to a watershed assessment. This plan prioritized community engagement, educational outreach, and green infrastructure projects to address impaired waters.

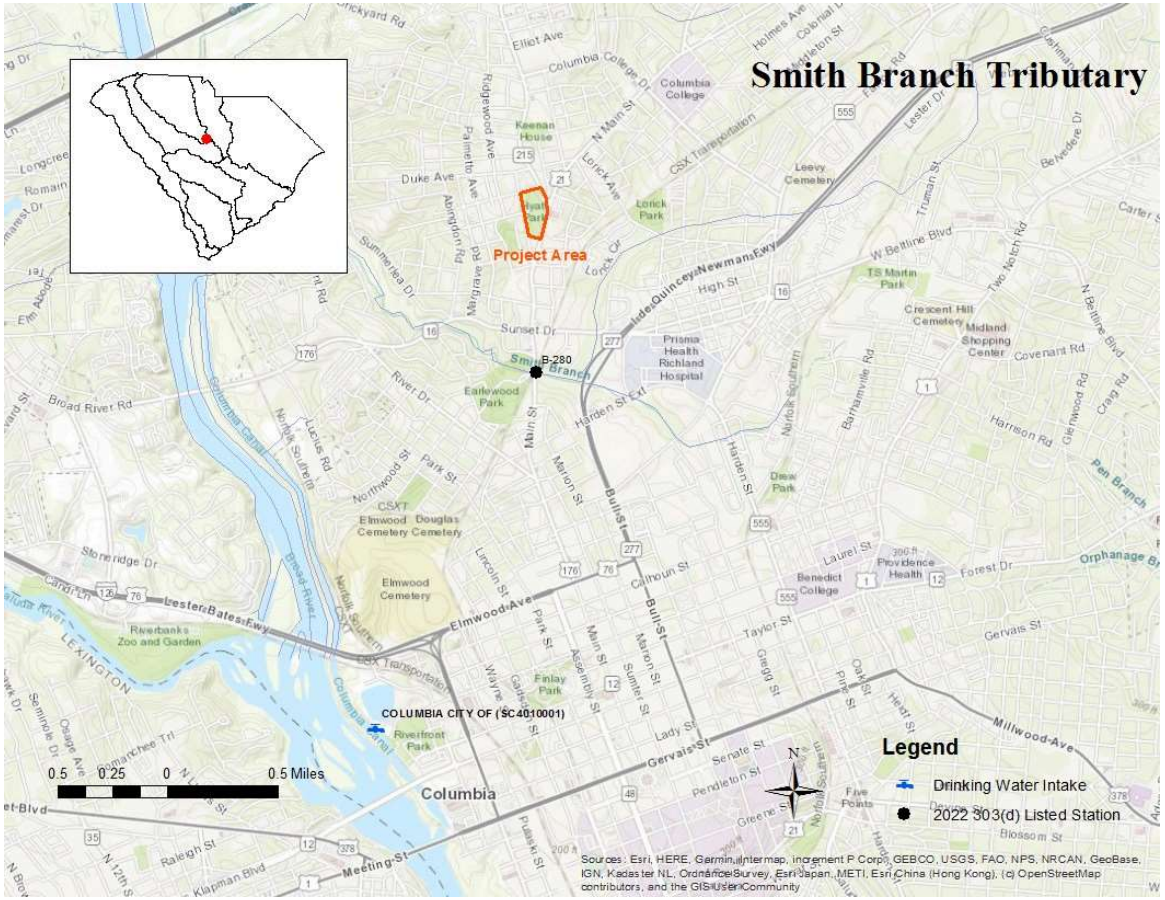

Figure 1. Project area location in Columbia, South Carolina

Project Highlights

The completed stream daylighting, stream restoration, vegetated buffers, and bioretention areas serve to improve water quality and reduce the impact of urban runoff downstream by creating a more natural and efficient stream habitat. A total of 1,150 linear feet (LF) of stream was daylighted, 1,490 LF of vegetated buffers was installed, and 8,115 square feet (SF) of bioretention areas were constructed (Figure 4). The original workplan anticipated implementing restoration work on the existing stream that converges within the park. During design, and with stakeholder input, leaving the existing stream and buffer undisturbed was deemed more beneficial. This allowed additional project funds to be used to increase the length of the stream uncovered by more than double, as well as nearly doubling the area of vegetated buffer and bioretention area installed (Figures 5 to 7). Inlet and outlet structures were modified to open the stream channel and allow the stream to flow through the park. The streambanks were restored with vegetated buffers and a mix of native plants that mimic the natural surrounding area (Figure 8). Two bioretention areas were constructed as part of the new stream

network, which includes native plantings. Educational signage was installed to inform park visitors about the water quality benefits of riparian buffers (Figure 9). The area also provides an outdoor learning space to be used by the community center at Hyatt Park (Figure 10).

Rather than being discarded after removal, the old piping was repurposed as educational play elements in the park (Figure 11). The City of Columbia led the project with support and volunteer labor provided by local groups, including Sustainable Midlands and the surrounding Keenan Terrace neighborhood. This project is part of a larger master plan to revitalize the park and its natural habitat, recreation areas, and community center, all of which have been spearheaded by the local community (Figure 12). Hyatt Park has been an important resource for the Keenan Terrace community, which is identified as low-income by the U.S. Environmental Protection Agency's EJScreen Community Report. Keenan Terrace community members were integral in the planning to restore and celebrate the historic ecosystem by daylighting the stream. The Hyatt Park Keenan Terrace Association also assisted in educational outreach, volunteer labor, and the selection of the project design. The Hyatt Park revitalization project has been featured in Landscape Architect magazine, and the stream daylighting was highlighted in a South Carolina Education Television segment. This project has also been an inspiration and demonstration site for several other stream restoration and green infrastructure efforts in the Columbia area.

Figure 2. Barren and uninviting park landscape before stream daylighting.

Best Management Practice	Number Installed	Units	Comments
Vegetative Buffer Strips	1490	LINEAR FEET	
Raingarden/ bioretention basin	8115	SQUARE FEET	
Natural Channel Restoration	1150	LINEAR FEET	

Results

The stream restoration project led to reduced stormwater velocity, enhanced filtration, and habitat diversity. This revitalized park now offers a place for the local community to exercise, gather and enjoy a peaceful greenspace, and learn how natural spaces benefit the environment (Figure 13). Visual observations show clear water leaving the new stream in comparison to the murky water entering the tributary, and the stream has been shown to handle major precipitation events. The exponential growth in vegetated buffers provides natural filtration and successful control of stormwater flow, directly benefitting downstream water quality by improving and increasing upstream habitat. This project has revitalized a natural, wild habitat and welcomes new species (Figure 14). Tadpoles, frogs, birds, kingfishers, dragonfly nymphs, damselfly nymphs, and riffle beetles now inhabit this newly available ecosystem. The health of the stream is expected to improve further, and surveys of macroinvertebrates and water quality will continue.

Figure 3. Path of storm drains in Hyatt Park before stream daylighting.

Partners and Funding

Partner Type	Agency	Funding	Notes
Federal	Clean Water Act Section 319	$125,000	
City	City of Columbia	$245,750	
Other	SUSTAINABLE MIDLANDS	-	
Other	HYATT PARK KEENAN TERRACE NEIGHBORHOOD ASSOCIATION	-	

Figure 4. Excavation of the piped Smith Branch tributary

Figure 5. Daylighted stream in Hyatt Park after construction.

U.S. Environmental Protection Agency
Office of Water
Washington, DC

For additional information contact:

Shea McCarthy
SC DHEC
803-898-4401 • mccartsm@dhec.sc.gov