

Crooked Branch Pedestrian Trail

Final Design: Urban Design Committee

June 6, 2024

Project Purpose:

The Department of Parks, Recreation, and Community Facilities will construct a bridge across Reedy Creek in Crooked Branch Ravine Park at 42nd Street and develop a trail through Crooked Branch Ravine Park to Crutchfield Street. The bridge is designed to the 100-year 24-hour storm event. The goal in designing to this event is to provide a bridge design with a service life that balances with project cost to provide the best use of the City's funding.

This connectivity project provides access for pedestrians and cyclists to move from the forthcoming James River Branch Trail, through Crooked Branch Ravine Park, and Forest Hill Park to the James River Park System and is part of the James River Park System Master Plan. An existing footpath cuts through portions of this site, highlighting the need for a more permanent trail.

Project Context:

Lying just south of the James River, the site is in the Northrop neighborhood to the north of George Wythe High School. To its north and east the park is flanked by a single-family residential neighborhood, and to its west lies multifamily housing. Crooked Branch Ravine Park is a natural area with mature mixed deciduous forest leading to the riparian areas buffering Reedy Creek and Crooked Branch. A tree inventory conducted in November of 2023 revealed 132 trees with a DBH (diameter at breast height) of 6" or larger within a 100' offset from early iterations of the proposed trail. Most of the trees are native and in healthy condition. Common species include tulip poplar, sweetgum, American beech, and various species of oaks trees

Community outreach efforts included door to door flyering and in-person conversations conducted by Andrew Alli of the Parks, Recreation, and Communities Facilities Department for the City of Richmond. The project is posted on the City of Richmond website; the information posted includes the purpose of the project, a map showing the proposed trail, and frequently asked questions regarding the project. A community meeting open to the public was held in January of 2024 to incorporate additional community comments into the project.

Project Design:

The first phase of the project includes the design and plan development for a prefabricated single-span bridge measuring 107'- 8" in length. The bridge will be a weathering steel structure

with an asphalt riding surface. The retaining walls leading up to the bridge will be reinforced concrete with galvanized steel HW-1 type III handrails. The channel slopes and front faces of the retaining walls will be lined with Class 1 riprap.

The project also includes the design and plan development for a proposed 10' asphalt trail connection between 42nd Street and Crutchfield Street in the City of Richmond. The trail will be approximately 1,350 feet in length, with a trail head at the Crutchfield Street entrance. Amenities at the trail head will include trail signage, a bench, a trash can with a lid, and a trash receptacle for dog waste. The trailhead location includes a proposed pedestrian crossing to coordinate with the layout of George Wythe High School, currently under construction. The trail will be designed to shared-use path standards in accordance with the latest editions of the 2012 AASHTO Guide for the Development of Bicycle Facilities, 2004 AASHTO Guide for Planning, Design, and Operation of Pedestrian Facilities, and the 2011 AASHTO Green Book. The trail will initially be installed as unpaved crushed stone with a desired final surface of paved asphalt. The path will have two-foot shoulders, a unilateral slope to maintain existing drainage patterns, a minimum horizontal radius of 60 feet and a maximum vertical grade of 5.00%.

Site Concerns:

The site is heavily forested with healthy, mature trees. Because of the sensitive nature of the site, tree saving measures such as timber retaining walls will be utilized wherever possible to protect trees where grading is necessary in critical root zones. Measures such as air spading will be used to protect tree roots during the trail construction process. Where trees cannot be saved, for every one inch of DBH tree that is removed the re-vegetation plan stipulates that 1 caliper inch of tree be replaced or met offsite by paying into the City's fund for tree planting.

Project Maintenance:

The bridge must be added to the Department's bridge safety inspection program. Per statewide and federal regulations, it must be inspected at least once every two years. The channel slope protection shall be evaluated for damage following major storm events as well. Aside from regular asphalt maintenance, no preventative or regular maintenance is anticipated for the bridge.

The anticipated maintenance requirements for the interim trail condition, crushed stone aggregate, is periodic or quarterly surface regrading and compaction from environmental conditions and frequency of users, with annual or every two-years full surface replacement.

The proposed ultimate condition, asphalt paved surface, would expect to require annual maintenance to replace sections of the trail from minor potholes to full-width section replacement.

Due to the disturbance of the site, erosion control measures will be integrated into the landscape plan. A mix of cover crops and native groundcovers will be planted where the ground

has been disturbed, and watering for the first year will be required for successful establishment.

Project Budget and Funding Sources:

This project was submitted in a list of DPRCF projects for their ARPA grant funding application, with \$1M to allocate towards this project through ARPA by the end of 2024.

Construction Timeline:

- Outstanding work includes finalizing construction documents (EO June 2024), developing the associated hydraulic certifications (EO June 2024), and acquiring construction and environmental permits (July 2024- December 2024).
- Phase 1 of this project will include construction of the pedestrian bridge abutments and installation of the prefabricated pedestrian bridge crossing Reedy Creek. Associated site clearing and grubbing will be conducted in this phase as well.
- The next phase(s) of construction will be grading and retaining wall construction at the bridge approaches. By installing retaining walls, as opposed to placing fill over a wider swath, more of the original park topography and plant life will be preserved. They also minimize the hydraulic impacts; there will be no rise in flood elevations. This was an important design constraint set with the nearby residents in mind.
- The final phase of the construction will be finishing any remaining clearing and grubbing, grading for the proposed trail alignment, and laying the trail riding surface. At this time, both gravel and asphalt are being considered.
- Construction start date for Phase 1 depends on the backlog for the prefabricated bridge components. Target start and completion dates for the remaining phases depends only on when funding becomes available.