

## Norfolk Chooses Living Shoreline Erosion Control Techniques to stabilize an Eroding Shoreline and Rejuvenates a Popular Public Walkway to Resist Flooding and Become More Resilient with Sea Level Rise

**Project Summary:** Responding to the need for shoreline stabilization, the Department of Public Works installed ~1,260 linear feet of living shoreline erosion control, installed educational signage, rejuvenated and increased the resiliency of a popular public pedestrian walkway, and restored ~6,900 sq. ft. of wetlands and ecosystem services in the Lafayette River.

**Project Name:** Haven Creek Wetland and Walking Path Restoration

**Location:** Western shoreline of Haven Creek, west of Llewelyn Avenue, and north of Delaware Avenue, Norfolk, VA



**Background:** A popular pedestrian walkway provided waterfront views along the western shoreline of Haven Creek. An old and derelict bulkhead allowed for recurrent flooding, eroding the paved walkway threatening its integrity and function. Over time, poor drainage and ponding water provided favorable conditions for invasive Phragmites to invade and outcompete native wetland vegetation. Tall Phragmites grasses blocked the water views of adjacent landowners. To address the erosion and flooding problems and to restore wetlands, a living shoreline erosion control project was proposed.

**Approximate Cost of the Project:** \$1,238,294.57

**Resource Challenges Addressed:** Unnecessarily-hardened shoreline and deteriorated, non-functional shoreline stabilization structure, low and deteriorated public walkway subject to frequent flooding, loss of walkway functionality, invasive species, loss of water views, aesthetics, and property values.

**Key Partners (Public and Private):** Funding was provided by the Department of Public Works and the project was completed by a private contractor.

**Types of Jobs Created:** Environmental engineering services, marine contracting, private wetland planting/landscaping contractual service, heavy equipment rental, businesses that supply wood stakes, plastic fencing, sand, geotextile fabric, stone, fuel, etc., and specialty wetland plant suppliers.

**Results and Accomplishments:** Construction began in May of 2011 and was completed in the spring of 2012. A new pedestrian pier was installed to restore public access to the shoreline and it quickly became a popular waterfront promenade. Positive drainage was resorted and flapper valves were installed on stormwater pipes to reduce flooding impacts. ~1,290 linear feet of shoreline was stabilized with natural vegetation and ~10,950 sq. ft. of invasive species were controlled. Wetland flowers were harvested and transplanted from other impacted sites and others were added to the project site to increase diversity and wildlife habitat. Under the shade of the pedestrian walkway, oysters were used to stabilize the bottom where plants would not grow. The Chesapeake Bay Foundation documented high larval recruitment of live oysters and a developing natural reef. Interpretive signage was installed to support passive education and environmental literacy.



**Website:** [public works]

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