

Engineering With Nature Project Fact Sheet



Maximizing EWN in Urban Landscapes and Environments

Background

The Engineering With Nature® (EWN®) Initiative has been advancing sustainable and resilient projects and outcomes through the use of nature-based solutions (NbS) that are socially acceptable, viable, and equitable. Yet to date, EWN has not focused on applications in the urban environment where many opportunities exist to apply NbS to solve complex infrastructure challenges. For this reason, this project research task (RT) focuses on urban environments, waterfront developments, and watersheds.

Objectives

Managing flood and coastal storm risk-related challenges in urban landscapes by applying EWN principles has the potential to increase multiple benefits while managing flood and coastal storm risk in urban areas. Urban landscapes and watersheds can suffer from historical channelization, severing the connection between land and river interface. Additionally, the large expanses of impermeable surfaces lead to the loss of valuable aquatic and terrestrial habitat, reduced water quality, and increased flooding. The benefits of working with landscape architects to design EWN principles into restoration projects can include reestablishing stream hydraulics and morphology, restoring riparian zone habitat, preventing and removing invasive species, etc., while providing additional economic and social benefits to the area (Figure 1). Experiences gained will be transferred to other areas with potential to achieve similar positive outcomes.

Approach

This project will capture how the triple-win elements of environmental, economic, and social benefits can be implemented when approaching the challenges of urban landscapes and watersheds. Environmental benefits may include ecosystem functions and processes associated with inland, wetland, and riparian habitat. Economic benefits may include improved public health through increased water quality and flood protection and through improving operational efficiencies of water resources infrastructure. Social benefits may include educational and recreational outcomes. This EWN RT will consolidate learning gained from previous research and development efforts and application by U.S. Army Corps of Engineer Districts and the U.S. Environmental Protection Agency, among others.



Figure 1. The greenspace restoration project on Claiborne Avenue in New Orleans incorporates native trees and bioretention areas along the median.

Outcomes

EWN projects in urban environments have multiple benefits. Communities and local, state, and federal government entities that implement EWN projects will realize engineering, environmental, social, and economic benefits.

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