

# ROUGE RIVER AOC HABITAT RESTORATION – FIREFIGHTERS PARK SPRAGUE DRAIN HABITAT IMPROVEMENT PROJECT

Project Funding Request: \$753,250

## PROJECT ABSTRACT

The Rouge River watershed is a designated Area of Concern (AOC) under the Great Lakes Water Quality Agreement (GLWQA) and has three Beneficial Use Impairments (BUIs) associated with fish and wildlife habitat: Degraded Fish and Wildlife Populations, Degradation of Benthos, and Loss of Fish and Wildlife Habitat. In March 2016, The Rouge River Advisory Council (RRAC), the Public Advisory Council (PAC) for the Rouge AOC, approved a list of projects that need to be completed in order to remove the Rouge AOC habitat BUIs. As part of that list, the restoration of Sprague Drain will have a significant impact on the removal of the BUIs. The Firefighters Park Sprague Drain Habitat Improvement Project will result in 1,500 feet of stream restoration that includes 400 feet of riffle habitat restoration, 4 acres of riparian habitat restoration with native plantings, 5 acres of invasive species control, and public education and outreach.

## PROBLEM STATEMENT

Grant funding is requested for the Rouge River Area of Concern (AOC) Firefighters Park Sprague Drain Habitat Improvement Project as part of the efforts to delist the Rouge River AOC. The Rouge River watershed is a designated AOC under the Great Lakes Water Quality Agreement (GLWQA) and has three Beneficial Use Impairments (BUIs) associated with fish and wildlife habitat: Degraded Fish and Wildlife Populations, Degradation of Benthos, Loss of Fish and Wildlife Habitat.

During the last century, the Rouge River has suffered from declining water quality and increased flood conditions, primarily due to increasing urbanization within the watershed. The flat river slope and the meandering channel could not pass the large flows associated with major precipitation events. Upstream urbanization continued to exacerbate this problem due to increased amounts of impervious surfaces culminating in floods within downstream local communities. Since 1992, water quality has gradually improved thanks to the federally-funded Rouge Project. For example, 89 of the 127 miles of the larger streams and tributaries in the watershed are now free from public health threats associated with uncontrolled combined sewer overflow discharges. Water quality improvement is exhibited by increased dissolved oxygen levels needed to sustain fish and aquatic life. Increased populations and diversity of benthos, fish, and wildlife have been measured along the river since 1999. Additionally, the U.S. EPA Office of Inspector General declared the Rouge Project “a blueprint for success” (EPA OIG report number 2002-P-00012).

Many of the previously completed reports [Ex: Habitat Delisting Targets (2008), Rouge River Delisting Strategy (2012), Upper Rouge Delisting Strategy (2012), and Rouge River BUI Report Card (2013)] listed project types, in addition to specific projects, that needed to be completed in the watershed to remove the Habitat BUIs and delist the AOC have already been implemented by the ARC. The EPA, MDEQ (now EGLE), MDNR, RRAC, and ARC staff began facilitating the development of the formal list for removal of the Habitat BUIs in 2015. This work resulted in the development of a final Rouge AOC Habitat list that was approved by the PAC/RRAC and submitted to EGLE in March 2016. On that list was the Firefighters Park Sprague Drain Habitat Improvement Project, which was considered by EGLE, MDNR and EPA to be a top priority project.

Significant portions of the Sprague Drain run through the City of Troy-owned Firefighters Park located just north of W. Square Lake Road and east of Coolidge Highway. This Drain is a part of the Rouge Main 1-2 branch of the Rouge River Watershed. Sprague Drain has been selected as a Fish and Wildlife Beneficial Use Impairment (BUI) habitat restoration target due to the poor benthos and degraded terrestrial and aquatic habitat.

This site has excellent restoration potential because mussels and other sensitive aquatic species are present within the watershed. Sensitive macroinvertebrate species include clubtail dragonflies and dobsonflies, and sensitive fish species include stonecats. These species are found at few other sites in the watershed and are considered intolerant to pollution. Mussels found in the Sprague Drain include the white heelsplitter, common floater, brook heelsplitter, and paper pondshell.

Sprague Drain has been channelized which has resulted in bank erosion and its disconnection from the floodplain. The downstream portion of the drain connects to two online detention basins that are the outlet for stormwater runoff from neighboring residential communities. This project aims to rehabilitate Sprague Drain to improve habitat and channel stability.

The project will focus on restoring instream habitat along Sprague Drain. Invasive species will be controlled along the entire 2,450 ft of Sprague Drain, the perimeter of the connecting basin, and throughout the wetlands in Firefighters Park. Areas with invasive removal will be reseeded or replanted with native species. The project will restore subtle meanders within a low flow channel and increase pool depths. Benthic habitat will be improved for the mussel species through constructed riffles and wood or stone toe protection will provide increased fish cover. Restoration efforts will also focus on restoring herbaceous under-story vegetation and improving the bedform diversity to help dissipate energy and improve aquatic habitat. A native vegetative buffer will be established along 400 feet of the existing swale.

Relevance to Existing Restoration Plans and Priorities - The proposed project responds directly to multiple plans and priorities within the Rouge River AOC:

- The Rouge RAP Advisory Council's *2016 Rouge River Remedial Action Plan Habitat Projects List* identifies these activities as a top priority for delisting the Rouge River AOC.
- The Rouge River Watershed Management Plan, prepared by the ARC, recognizes river and lake habitat restoration as a key factor in the watershed's restoration.
- Activities respond to the *Great Lakes Regional Collaboration Strategy* focus on "Riverine Habitats and Related Riparian Areas" and its long-term goals including conservation of rivers and sustaining native/migratory fish and aquatic biota/wildlife.

Project activities will design, permit, and implement the Rouge River AOC's Firefighters Park Sprague Drain Habitat Improvement project. These will specifically include development of invitation to bid documents for design & construction engineering (Engineer of Record) services; attainment of EGLE, Oakland County construction and SESC permits; and construction of the habitat improvements. A construction contractor will be hired through a competitive bid process to construct the Firefighters Park Sprague Drain Habitat Improvements according to approved design, permit conditions, and construction contract documents.

The Firefighters Park Sprague Drain Habitat Improvement project has been identified as a priority project within the Rouge River AOC to address the degraded fish and wildlife populations, loss of fish and wildlife habitat, and degradation of benthos beneficial use impairments (BUIs) as approved by the Rouge River Advisory Council (RRAC). This project would consist of the following restoration elements:

- Restoration of the aquatic benthic substrates and riparian habitat. The addition of new substrates would include sandy gravels, cobbles, and boulder clusters in strategic locations that would provide spawning substrate, attachment points, and cover for mussels, fishes, aquatic insects, crustaceans, and other aquatic fauna. Efforts will focus on restoring herbaceous under-story vegetation and improving bedform diversity to dissipate energy and support aquatic habitat. A native buffer will be established along 400 feet of the existing turf grass swale.

- Invasive species management will be conducted within the current vegetative Sprague Drain corridor, connected pond, wetlands and drainage swales (approximately 5 acres). This corridor will be adjusted once field investigation determines the extent of the invasive species. Target invasive species include Phragmites, buckthorn, honeysuckle, autumn and Russian olive, privet, Siberian elm, tree of heaven, and garlic mustard. In addition, dead trees will be harvested to create room for new native trees. Areas with significant invasive vegetation removal will be reseeded or replanted with native species. Some dead trees will be kept to provide snag habitat for birds, mammals, bats, and other animals that use them.

## RESTORATION OUTPUTS

The Sprague Drain Habitat Improvement Project will produce the following outputs and outcomes:

### Outputs

- 1,500 feet of stream restoration (includes 400 feet of restored riffle habitat)
- 4.0 acres of riparian habitat restoration with native plantings
- 5.0 acres of invasive species control

*Great Lakes Restoration Initiative Action Plan III*, Measures of Progress (MoPs) for the overall project when implementation is completed are:

- **Focus Area 2: Invasive Species - Objective 2.2. Control established invasive species.**
  - 2.2.1. Aquatic/terrestrial acreage controlled: 5 acres of invasive species management
- **Focus Area 4: Habitats and Species - Objective 4.1. Protect and restore communities of native aquatic and terrestrial species important to the Great Lakes**
  - 4.1.1. Acres of coastal wetland, nearshore, and other habitats restored, protected, or enhanced: 1,500 linear feet of stream habitat restored and 9 acres of riparian habitats (includes the 5 acres of invasive species management)