



US Army Corps  
of Engineers  
New England District

# Project Information Sheet



## Malden River Ecosystem Restoration Feasibility Study Medford, Malden & Everett, Massachusetts

November 26, 2013

696 Virginia Road, Concord Massachusetts, 01742-2751

**PROJECT NAME:** Malden River Ecosystem Restoration Feasibility Study

**STUDY AUTHORITY:** On February 10, 2009, the Department of the Army approved the design and implementation of the project under the Section 206 Authority (Aquatic Ecosystem restoration) of the Continuing Authorities Program.

**CONGRESSIONAL DISTRICT:** Massachusetts – 7th

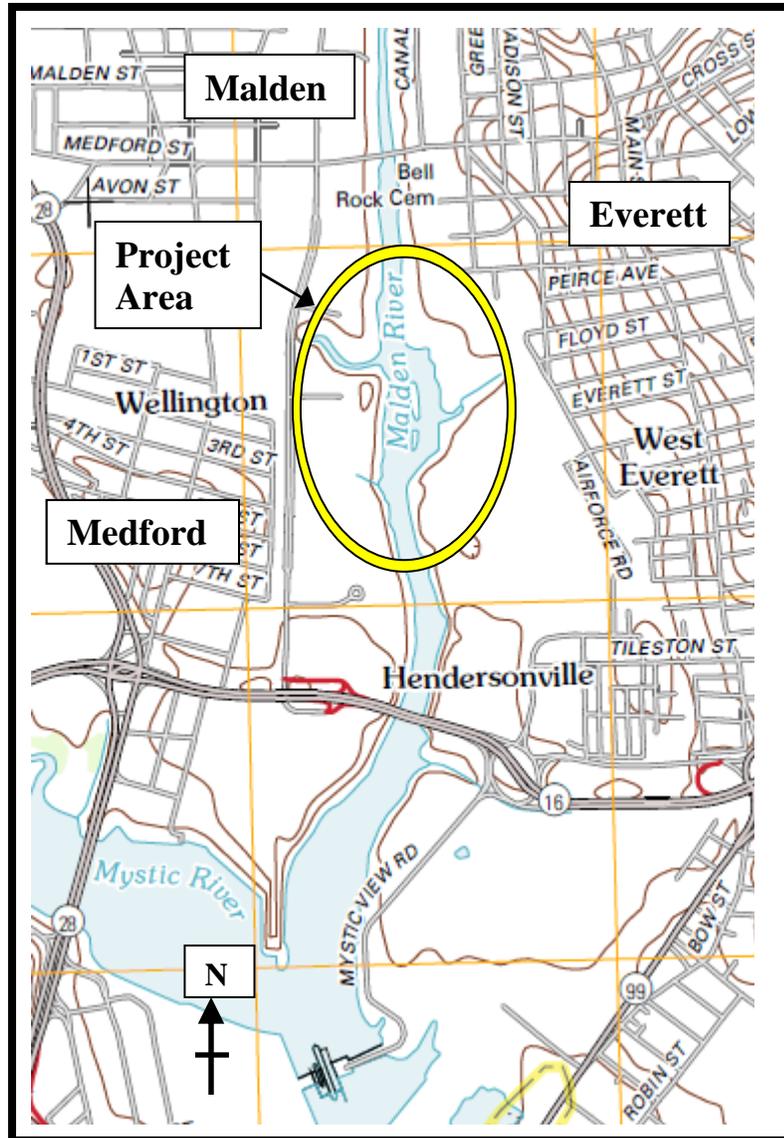
**PROJECT SPONSOR:** Mystic River Development Commission (MVDC) is a tri-city legislative body established by the Commonwealth of Massachusetts to address commonly shared issues such as land development and river restoration opportunities within the Malden River watershed.

**LOCATION AND DESCRIPTION:** The Malden River watershed is a sub-basin of the much larger Mystic River watershed. The Malden River watershed is approximately 11 square miles, located in the towns of Wakefield, Stoneham, Melrose, Malden, Medford and Everett. The Malden River originates from the outflow from Spot Pond in the Fells Reservation and passes beneath or through the cities of Melrose and Malden in underground culverts or channelized conveyances. The river daylights from two sets of stormwater culverts south of Malden Center and flows for approximately 2 miles as open surface water through the densely populated cities of Malden, Everett and Medford prior to its confluence with the Mystic River. The project area is shown in Figure 1. Within the project area there are three small tributaries flowing into the Malden River. Little Creek is on the western side and two unnamed tributaries on the east side referred to as North Creek and South Creek.

The Malden River channel is approximately 6 feet deep by 100 to 150 feet wide from the Medford Street Bridge in Malden to its confluence with the Mystic River. In locations outside of the channel, water depths have been observed to be as shallow as 2 feet.

**EXISTING ECOLOGICAL PROBLEMS:** The existing ecological impairments to the Malden River have been recognized as degraded water quality, degraded wetland habitat and poor sediment quality.

Current sources of contamination to the water quality of the Malden River include contaminated sediments, stormwater, leaching groundwater, and product discharge. Degraded water quality is exacerbated by the lack of flushing in the river, either by sufficient freshwater inflow or by tidal exchange. Low channel gradients and little inflow result in low water velocities, creating impoundment-like conditions throughout the Malden River.



**Figure 1 – Project Area**

Primary causes for wetland habitat loss include filling for industrial and commercial development, channelization for navigation, and historic dredging by Federal, state and private interests. Wetlands that currently remain have undergone varying effects of anthropogenic degradation because of impacted stormwater runoff, industrial contamination, invasive species colonization, habitat fragmentation, and discontinuation of tidal cycling. The cumulative effects of wetland loss and degradation on the Malden River system are significant, and include: 1) reduced nutrient, toxicant, and suspended solids removal from stormwater, 2) loss of nesting and foraging habitat and travel corridors for wildlife, 3) reduced floodwater storage, 4) reduced erosion protection along the river's shoreline, 5) loss of macroinvertebrate habitat among submergent and emergent wetlands, and 6) reduced shade, cover, and structure.

General conclusions regarding the current characterization of the sediment quality in the Malden River are as follows:

- Semi-Volatile Organic Compounds (SVOC) are present at levels several orders of magnitude above the ecological screening bench marks throughout the river. The highest levels of semi-volatile organics are present near the Medford Street Bridge and at the confluence of Little Creek and the Malden River. SVOCs are present at levels exceeding the MA Department of Environmental Protection's Upper Concentration Limits (UCL) only in these areas. Separate phase pollutants may be present in sediments in these areas. SVOCs are present at elevated levels (over 100 ppm) in the immediate vicinity of the Medford Street Bridge.
- Metals were not detected at levels exceeding the UCLs, but they exceed the ecological screening benchmarks throughout the river. The highest levels of combined metals (e.g., arsenic, lead, zinc) are present above the Revere Beach Parkway. Elevated lead and zinc levels are present at various locations throughout the river.
- The thickness of sediment ranges from 2 to 18 feet. Pollutants are present at all depths.
- Stormwater discharges as well as atmospheric deposition will continue to provide a degree of pollutant loading in the system.

**RESTORATION OBJECTIVES:** The overall goal of the project is to restore the Malden River ecosystem to the highest quality that it can reasonably support and sustain. The primary objectives of the project are the enhancement or restoration of freshwater coastal wetlands and improvements to water quality. The secondary objectives (or non-ecosystem issues) that address identified watershed stakeholder concerns include increasing public access to and the recreational use of the river while reducing potential human health concerns regard surface water or sediment exposure.

**RESTORATION PLAN:** The primary elements of the project plan are depicted in Figure 2. The elements are as follows:

- Removal of invasive species along 14.9 acres of the riverbank corridor and replanting with native plant species;
- Creation of emergent islands with wetland habitat in the river oxbow

**CURRENT PROJECT STATUS:** The Project Partnership Agreement (PPA) between the Government and sponsor (MVDC) was executed in June 2009. The development of the plans and specifications is expected to be completed in 2014.

**CONTACT:** For additional information on this project, please contact the Project Manager, Mr. David Larsen, at the New England District at 978-318-8113 or at [david.a.larsen@usace.army.mil](mailto:david.a.larsen@usace.army.mil) or the Biologist, Mr. Mike Penko, 978-318-8139 or [michael.penko@usace.army.mil](mailto:michael.penko@usace.army.mil).

Figure 2 – Malden River Restoration Areas

