

SECTION 1. INTRODUCTION

1.1 STUDY AUTHORITY

This project is authorized by Section 206 of the Water Resources Development Act of 1996, P.L. 104-303, as amended. Section 206 authorizes the US Army Corps of Engineers (USACE) to carry out aquatic ecosystem restoration projects that improve the quality of the environment, are in the public interest, and are cost effective. USACE Engineering Pamphlet EP 1165-2-502 provides policy guidance for Section 206 ecosystem restoration projects.

1.2 STUDY PURPOSE AND SCOPE

The overarching goal of the project is to restore the aquatic and riparian resources of the Mill River to a healthy, viable, and self-maintaining river system. Where possible habitat restoration proposals take into consideration the requirements for ecological function, public open space, and recreational amenities for the city of Stamford. The immediate focus is the restoration of the reach of the Mill River flowing through downtown Stamford including the Mill River Park.

The purpose of this Detailed Project Report (DPR) and Environmental Assessment (EA) study is to:

- Document the project objective
- Display opportunities and constraints
- Describe existing and potential future conditions
- Identify alternative means to achieve the project objective
- Analyze the feasibility, effects, benefits, and costs of the alternatives
- Recommend an alternative that best meets project objectives in a cost-effective manner

This report documents the study results for the proposed Section 206 aquatic ecosystem restoration project at the Mill River and Mill Pond in the 5th Congressional District, within Fairfield County, Connecticut.

The attached EA complies with Council on Environmental Quality and USACE regulations for implementing the National Environmental Policy Act of 1969 (NEPA). NEPA requires the Federal government to consider the environmental effects of a proposed action and to coordinate with interested agencies, groups, and the public during the planning process. The EA describes the proposed action and alternatives, environmental resources in the affected area, and environmental effects of the proposed project. This report also includes a Finding of No Significant Impact (FONSI).

1.3 STUDY AREA

The Mill River is generally considered to be the lower eight miles of the Rippowam River in southwestern Connecticut, from the North Stamford Reservoir to Stamford Harbor (Figure 1). The Rippowam River watershed drains 37.5 square miles that extend from just north of the New York border to Long Island Sound. The upper watershed contains the North Stamford Reservoir, formed in 1908 with the construction of the North Stamford Dam, and created primarily for regional water supply. The land surrounding the reservoir, which forms the headwaters of the Mill River, is protected and is therefore undeveloped. The river cascades 35 feet down a spillway from the reservoir. It drops an additional 162 feet in elevation before reaching Long Island Sound, or an average of 20.4 feet per mile. The river flows eight miles through the city of Stamford, combining with Poorhouse Creek and Toilsome Brook.

The focus of the study is the reach of river from Cold Spring Road to Long Island Sound, a length of 2.5 miles. For the purposes of this study, all portions of the Rippowam River south of the North Stamford Reservoir will be referred to as the Mill River.

The Mill River is impounded behind the Main Street Dam, downstream from the Broad Street Bridge and adjacent to Stamford's central business district (Figure 2). This area of slow flowing water is known as Mill Pond. A half-mile downstream from the Main Street Dam, Mill River discharges into Long Island Sound through the West Branch of Stamford Harbor.

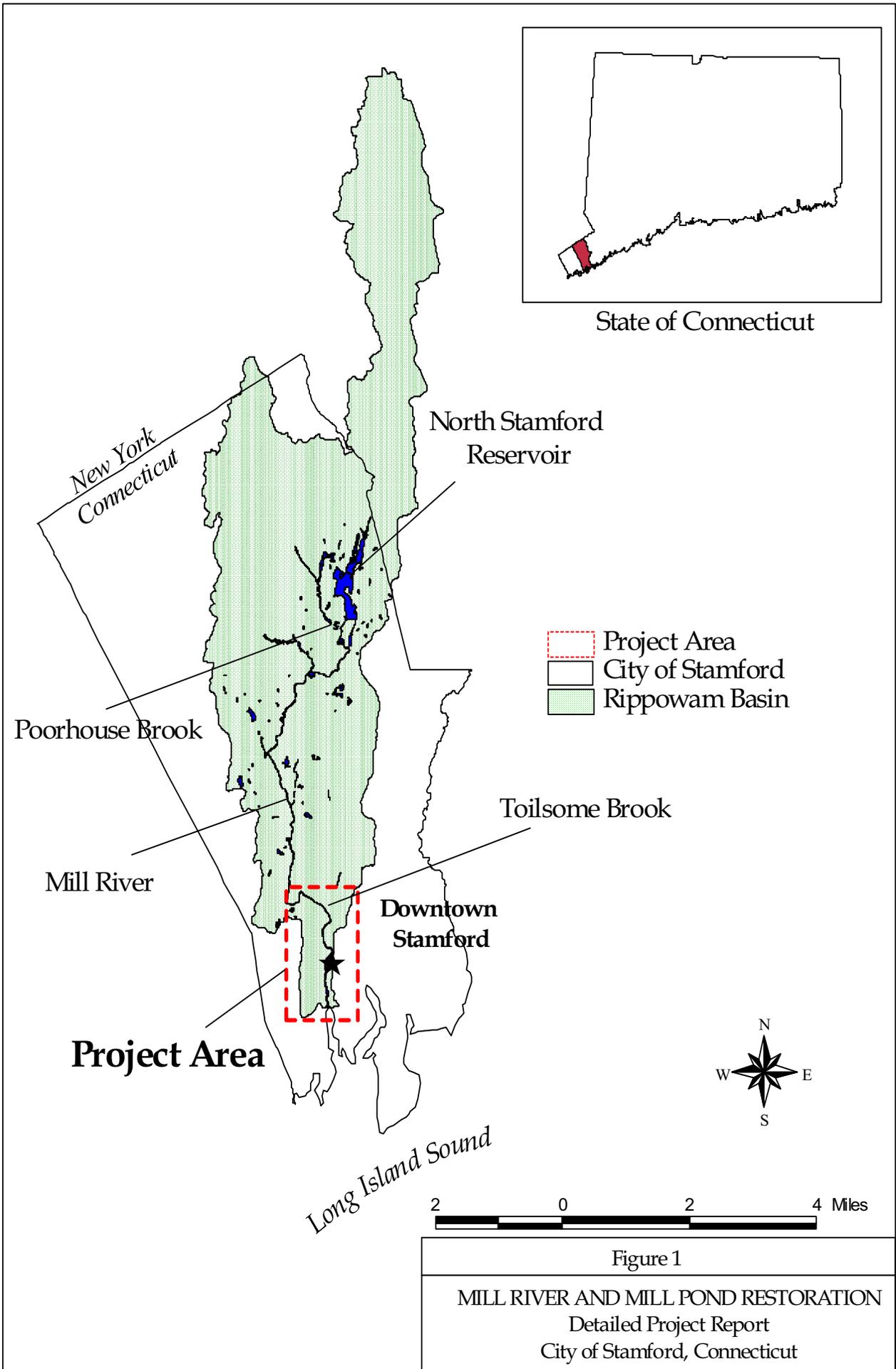


FIGURE 1: The City of Stamford and the Rippowam Basin, New York and Connecticut

Figure 1
 MILL RIVER AND MILL POND RESTORATION
 Detailed Project Report
 City of Stamford, Connecticut

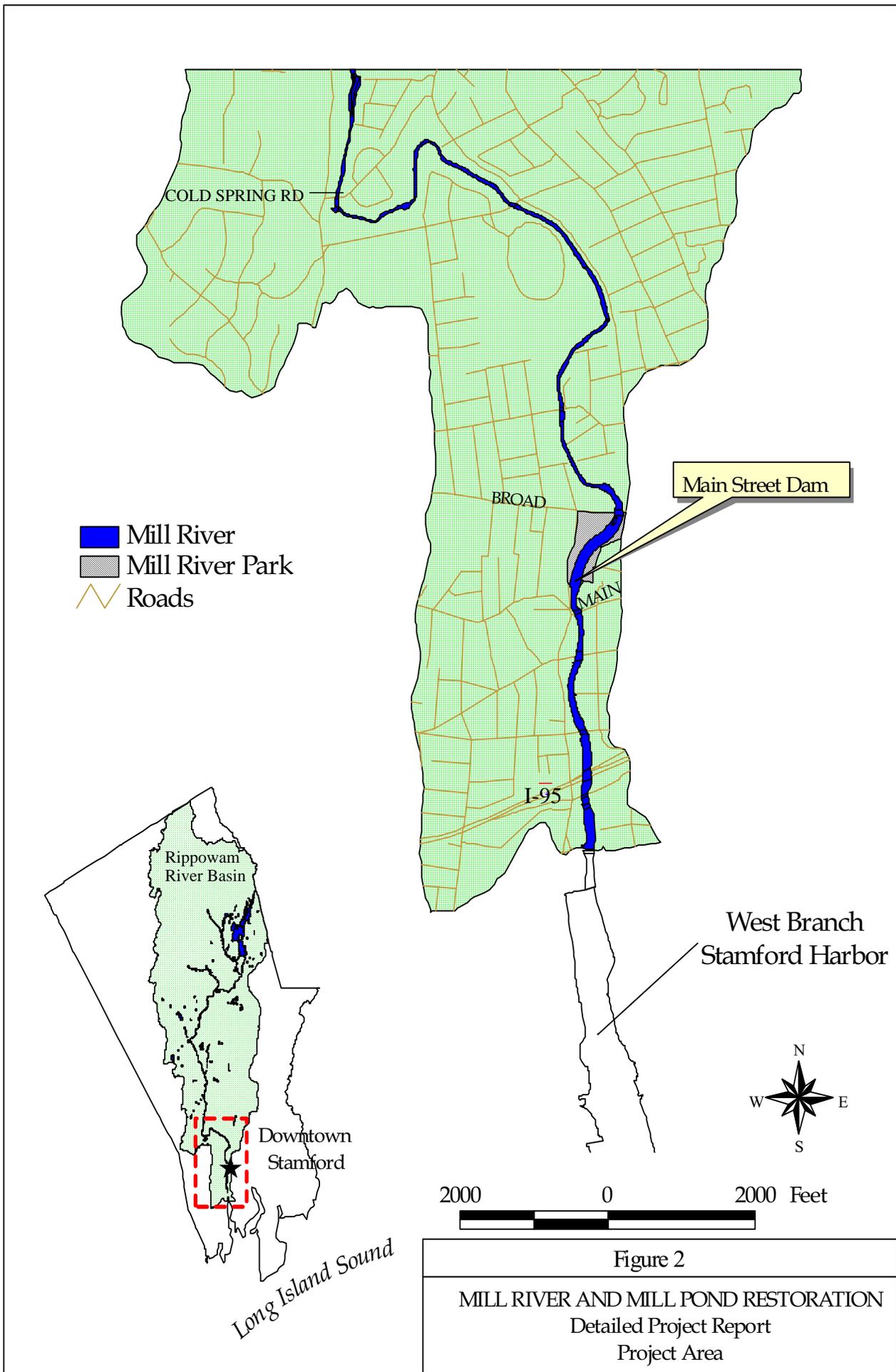


FIGURE 2: Project Area within the City of Stamford.

1.4 STUDY PROCESS

The feasibility study process was conducted in six steps: Step 1) identification of problems and opportunities; Step 2) inventorying and forecasting conditions; Steps 3) formulation of alternatives; Step 4) evaluating alternative plans; Step 5) comparing alternative plans; and Step 6) selection of the recommended plan. Below is a summary of the planning steps.

Identification of Problem and Opportunities

The study team 1) reviewed existing information and developed a restoration goal for the area; 2) conducted a site reconnaissance to identify problems and opportunities; 3) identified and evaluated potential restoration locations; 4) identified techniques for habitat restoration and bank stabilization; 5) outlined the approach and treatment locations for riparian and stream channel restoration; and 6) developed objectives to address the problems and opportunities.

Inventory and Forecast of Conditions

The team identified existing conditions along the lower 2.5 miles of Mill River. The team then forecasted the future conditions of the reach if no restoration projects were performed on the reach.

Formulation and Evaluation of Alternatives

Based on the restoration opportunities, objectives, and constraints and inventory, the study team developed options to address the problem areas. These options pertain to restoration issues within and along the Mill River, with an emphasis on restoring habitat within the Mill Pond area. The options were then combined in various ways to form three construction alternatives for detailed analysis along with the no-action (without project) alternative. Each option was evaluated in terms of the qualitative improvements that can be achieved, as well as cost effectiveness.

Comparison of Alternatives and Selection of the Recommended Plan

The Study Team estimated habitat benefits and total project costs for the restoration options and then compared the relative value of the options through a cost effectiveness and incremental cost analysis. Based on the qualitative and quantitative comparison of alternatives, the team identified the cost-effectiveness of various combined options to identify cost-effective alternatives. The team then selected a recommended restoration plan, called the National Restoration Plan, based on cost-effectiveness, acceptability, and other factors.

1.5 HISTORY OF DAM CONSTRUCTION

Mill Pond is a 3.5-acre impoundment formed by the Main Street Dam. The first dam in this location was constructed in 1641 for Stamford's original gristmill and subsequently changed ownership several times for use as a carding mill, a rolling mill, a foundry and a woolen mill. In these early years of dam operation, Mill Pond was much wider than it is

today. In 1922, the city of Stamford rebuilt the dam and narrowed the pond, building 2,200 feet of 15-foot high reinforced concrete walls and filling behind them to create additional parkland (Figure 3). Today, the Stamford Housing Authority owns the Main Street Dam.

The Main Street Dam prevents the passage of anadromous fish to spawning grounds upstream. Since 1999, Save the Sound, Inc. and the Connecticut Department of Environmental Protection (CT DEP), with the support of the federal agencies National Oceanic and Atmospheric Administration (NOAA) and National Marine Fisheries Service (NMFS), had investigated methods to restore fish passage in Mill river, and they developed conceptual plans to install a small fish ladder (Alaskan steep pass ladder) at the dam. In 2000, the city of Stamford approached the USACE to investigate opportunities to improve aquatic habitat in the lower reach of the Mill River. This includes the restoration of aquatic habitat in Mill Pond behind the Main Street Dam. USACE accepted city's request and initiated the Section 206 ecosystem restoration study in 2002. This study expands the investigation of river restoration to include not only a fish ladder alternative but also dam removal alternatives and restoration of riparian areas and wetlands along the entire lower river corridor. Save the Sound, Inc., CT DEP, and NMFS are participants in this current Section 206 study and are supportive of exploring more options to river restoration than the initial fish-ladder option.

Many smaller dams have been constructed on the upper Mill River. A number of these old dams remain on the upper reach of the river, but most have been breached, allowing fish passage. For more information on dams along the river see Section 6.3 of the EA and Appendix I.

1.6 RESTORATION OF HISTORIC FISH MIGRATION CORRIDOR

Several anadromous fish species historically populated the Mill River and its tributaries. Anadromous fish hatch in freshwater, migrate to the ocean as juveniles, and return to freshwater as adults to spawn. The Atlantic salmon (*Salmo salmar*) once thrived in New England's coastal rivers, but by the mid-1800's the species had disappeared from rivers south of the Penobscot River in Maine (USFWS 2002). In the last twenty years salmon have been restored to the Connecticut River in moderate numbers through a process of dam removal, water quality improvement, and habitat restoration. Alewife (*Alosa pseudoharengus*) and blueback herring (*Alosa aestivalis*) collectively referred to as river herring have declined since the 1800's, with some return in population in the 1960's as a result of early restoration efforts (Gephard, personal communication). However, numbers continue to decline due to pollution, over fishing, and restriction of fish passage (USFWS 2002). Salmon, alewife, and blueback herring are protected under the Anadromous Fish Conservation Act. The Mill River could also support American shad (*Alosa sapidissima*), a popular sport and pan fish, as well as white perch (*Morone americana*), also very popular with anglers.

The major barrier to anadromous fish in the Mill River is the Main Street Dam. The dam is 9.3 feet high, and prevents fish from passing upstream to potential spawning habitat. Large concrete remnants of a previous structure under the Pulaski Bridge also prevent fish passage at low tide. The CT DEP is currently transporting alewife upstream of the Main Street Dam. A restored Mill River, including dam removal, would open access to an additional 4.5 miles of valuable habitat for anadromous and other freshwater and saltwater species. In total, 5.2 miles of river from the Pulaski Street Bridge would be restored to fish passage. Section 6 of the Environmental Assessment provides detail on fish species of concern and habitat.

1.7 NON-FEDERAL SPONSOR INVOLVEMENT IN THE STUDY

The city of Stamford is the non-Federal sponsor for the implementation of the accepted restoration plan. As the local sponsor, the city is required to provide 35% of total project costs along with 100% of project operation and maintenance costs. The city is also required to provide all needed lands, easements, rights-of way, relocations and disposal areas for the project. Project study participants include, the city of Stamford; CT DEP; Save the Sound, Inc.; US Fish and Wildlife Service (USFWS); US Environmental Protection Agency (USEPA), and National Marine Fisheries Service (NMFS).