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2004 Coastal Municipal Stormwater Infrastructure Mapping Project

2004 COASTAL MUNICIPAL STORMWATER INFRASTRUCTURE MAPPING PROJECT

A Final Report to The New Hampshire Estuaries Project

Submitted by

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EXECUTIVE SUMMARY

The New Hampshire Department of Environmental Services (DES) received funds in 2004 from the New Hampshire Estuaries Project (NHEP) to provide assistance to coastal communities to develop storm sewer infrastructure maps. This final report describes the grant project that was completed in Rochester.

NHEP chose to fund stormwater infrastructure mapping projects for a number of reasons. Primarily, this grant was established in order to fulfill one of the water quality action plans identified in the NHEP Management Plan. In addition, the Coastal/Piscataqua watershed has been identified by DES as a priority watershed in need of restoration. Updated and comprehensive maps are a valuable tool for identifying pollution sources in the storm drainage system. Finally, the community that was awarded a grant is regulated as small municipal separate storm sewer systems (MS4s) under the Phase II federal stormwater regulation. The financial assistance the municipality received has helped them comply with one of the requirements of the Phase II regulations.

INTRODUCTION

This final report describes the grant program funded by NHEP and administered by DES. A Memorandum of Agreement (MOA) between NHEP and DES created a grant program to provide assistance to coastal communities to develop storm sewer infrastructure maps. A total of \$50,000 was made available for assisting municipalities with illicit discharge correction and storm sewer mapping projects. DES issued a request for proposals (RFP), chose grant recipients, and managed the grant agreements. This report provides details on the grant project completed by the City of Rochester. The deadline for completion of all grant activities was December 31, 2005.

PROJECT GOALS AND OBJECTIVES

The goal of the project was to provide financial and technical assistance to coastal municipalities to map their storm drainage systems. The project's objective is derived from one of the Action Plans identified in the NHEP Management Plan relating to water quality. Action WQ-4B aims to assist Seacoast communities in completing and maintaining maps of sewer and stormwater drainage infrastructure maps. The grant summarized in this report was established to help carry out this action plan.

METHODS

On February 11, 2004, the Governor and Executive Council approved a MOA between the New Hampshire Office of Energy and Planning and DES to implement several NHEP actions to improve the environmental quality of the state's estuaries, including funding for municipal stormwater infrastructure mapping.

DES issued a request for proposals (RFP) to all communities within the coastal watershed, announcing the availability, announcing the availability of funding for storm drainage system mapping. The requirements for the use of the NHEP funds were as follows:

1. Maps should show catch basins, underground and above ground storm drainage, direction of flow, and outfall locations.
2. Maps must have the ability to be stored electronically, using a system that is compatible with the computer mapping system the municipality uses. Ideally, the system would also be compatible with the NH GRANIT system, so that regional planning commissions and other interested parties can use the data.
3. The proposed project meets the program criteria, as specified in the Request for Proposal (RFP). Criteria listed below. The criteria include a 50% local (non-federal) match.
4. All projects must be completed by December 31, 2005.
5. All projects must be within the coastal watershed.

DES reviewed the proposals and assessed their merit based on the following criteria:

1. Proposals were submitted by eligible municipalities (NH coastal watershed).
2. Maps should be available in an electronic form consistent with the Town or City's GIS system. It is encouraged that the mapping format be compatible with regional planning commissions and the NH GRANIT system.
3. Maps should ideally show all of the following details:
 - catch basins
 - underground and above-ground (ditches, swales) storm drainage
 - direction of flow
 - outfall locations
4. If the town lies on the Coastal/Merrimack watershed boundary, NHEP funding will only apply to the part of town that drains into the Coastal watershed.

The Rochester grant application was the only application deemed to be eligible and acceptable. A Grant Agreement was developed for the project and approved by the city manager, the DES commissioner, and the NH Governor and Executive Council.

RESULTS AND DISCUSSION

The outcomes of the activities performed as part of the grant are discussed in this section.

Rochester

The City of Rochester is an urbanized area as defined by the EPA rules and has a network of storm drains that discharge to various surface waters throughout the city. The City did not know where all of the outfalls were located, nor did they know the characterization of them. The City needed to locate and map these outfalls and their contributing piping networks in order to comply with the terms of the general permit and its stormwater management plan. The goal of this project was to continue the stormwater mapping work that was begun in 2001, when many of the stormdrains in the downtown area were located using GIS technology. Rather than hiring a consulting company, the city decided it would be more cost effective to hire college intern(s) to do the labor-intensive work of accessing and locating each structure using the City's Geographical Positioning System (GPS). Two interns worked full time for the months of July and August to collect field data. One of the students remained on staff part-time through

September and returned for the month of May to complete additional survey work and data entry.

As a result of this mapping effort, the City identified and mapped 171 outfalls along each of the major rivers in the city including the Cocheco, Salmon Falls, and Isinglass Rivers and their tributaries. The City also located 2,969 other structures including 1,124 manholes, of which 193 were stormdrain manholes, with the remaining being sanitary sewer manholes. There were also 1,845 catch basins located. The location of all structures was added to the City's GIS system as a data layer. Additionally, digital photographs of each outfall were obtained, and crews recorded thirty areas of dry weather flows for future investigation and possible remediation.

The original Grant Agreement with Rochester was in the amount of \$10,000. Rochester utilized the full grant amount and provided \$10,075 in matching funds or services.

CONCLUSIONS AND RECOMMENDATIONS

This grant has assisted the community in complying with federal Phase II stormwater requirements, and has alleviated some of the strain on the municipal budget. The products of the grant project will allow the municipality can increase pollution source reduction by removal of illicit discharges that are found through investigations using the improved tool of up-to-date and accurate storm drain infrastructure maps. DES and coastal municipal staff rely on these maps during illicit discharge detection surveys. Efficiency during the investigations is improved using the new maps that show the infrastructure components and flow patterns.

Based on the experience of the 2004 grant administration, the following changes are recommended for future grant opportunities with NHEP.

- Additional funding for this grant is recommended until most communities in the coastal watershed have adequate maps. There is continued interest, particularly among regulated MS4s, for the grant to be offered again.
- Rochester staff noted that meeting the MS4 requirements places additional demands on their already overtaxed staff, meaning that the availability of funding to procure outside assistance is becoming more critical than ever.