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Storm Water Drainage System GIS Pilot Project

October 1, 1996

NH Coastal Program

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U.S. GOVERNMENT
INFORMATION
GPO

Funding Source

This project was funded in part by a grant from the Office of State Planning, New Hampshire Coastal Program, as authorized by the National Oceanic and Atmospheric Administration (NOAA), Grant Award Number NA570Z0320.

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NARRATIVE

The City of Dover was awarded supplemental NH Coastal Program Funds to develop a Geographic Information System pilot project. The project goal was to design and build a database layer for the stormwater drainage system in a portion of Dover from which the entire stormwater drainage system could be built over time. The pilot area is located in the downtown area of Dover where the highest concentration development occurs adjacent to the tidal portion of the Cocheco River. The development of a GIS data layer for the stormwater drainage system is important for several reasons. It will provide timely access to the stormwater system for emergency crews in the field responding to spills that occur on City streets. It will allow the City Engineer to model stormwater management on existing system and proposed modifications to the system. It will allow the DPW to create a maintenance program to inspect and clean the drainage structures. Maintenance directly affects the ability of the stormwater system to reduce sediment load reaching the discharge points.

The NH Coastal Program provided a maximum of $10,000 for the project with the City of Dover providing match as in kind services.

Project Summary

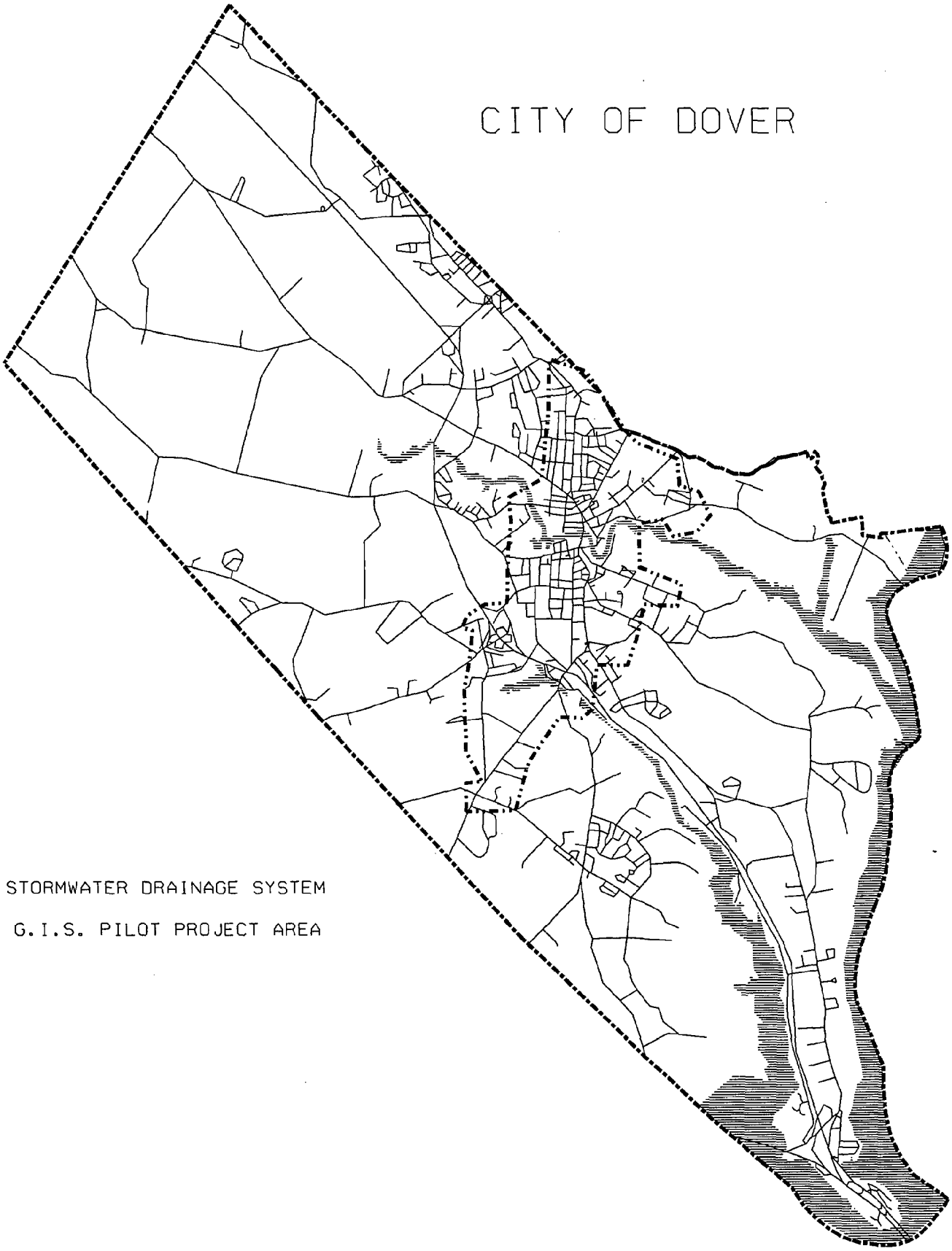
PROJECT SUMMARY

The pilot project consisted of three parts. Project design, data collection, and data conversion. The project design evolved as the project progressed. Our initial thoughts about the best way to capture the data were not the method we used. We believed that a GPS data collector would be the most efficient way to collect structure locations then fill in the pipes between. After analyzing our existing hard copy records, the intimate knowledge that some DPW personnel who maintain the stormwater drainage system possess, and the limited resources we had to complete the project we settled on a strategy that utilized our DPW personnel to highest advantage. This strategy paid big dividends as the maps the DPW Drain Division Supervisor prepared which we thought would be a preliminary map were so meticulously done that we were able to use the for data conversion purposes. We consider ourselves most fortunate to have had Dave Quint prepare these maps. As a result of the map quality we hired Integrated Mapping Services Inc. of Holderness NH to digitize a small portion of the project area as a test. Integrated Mapping Services Inc was chosen because of their experience with data conversion and their ability to provide the graphic maps and linkages in the same format used by the City's GIS without translations. The test area showed that the maps

prepared by Dave Quint were of high enough quality for project development. The success obtained in converting the test area maps to digital maps cleared the way to continue converting the remaining maps in the pilot project area. In concert with the data conversion the City employed the use of student interns to collect field data about each stormwater drainage structure. The data collected included such items as depths of inlets and outlet pipes, pipe diameter, pipe material, size of sump, and condition of the structure. These records were then loaded into a relational database linked to the structures and pipes.

A map of the pilot project area is included in the report as well as a sample of the stormwater drainage system. The pilot project was performed economically using the available resources in the City and the services of a contractor.

Maps



STORMWATER DRAINAGE SYSTEM

G.I.S. PILOT PROJECT AREA

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