

# Section 1

## Introduction and Purpose

### 1.1 Introduction

The City of Lincoln (City) and the Lower Platte South Natural Resources District (NRD) are in the process of developing a *Comprehensive Watershed Management Plan for the City of Lincoln* and its future growth areas. This comprehensive watershed plan is being developed basin by basin, through the completion of watershed master plans for individual basins. Watershed master plans are used as planning tools to be referenced in conjunction with future development and to serve as a guide in the preparation of capital improvement projects (CIPs).

The Cardwell Branch watershed planning process was conducted using a two-phased approach. Phase 1, called the Cardwell Branch Watershed Assessment was completed by the United States Geological Survey (USGS). The USGS report provided the foundation for Phase 2, called the Cardwell Branch Watershed Master Plan (Master Plan). The Cardwell Branch Master Plan is summarized in this report, together with the study components that served as its foundation.

The Cardwell Branch Watershed is located within and immediately southwest of the City's existing municipal limits (Figure 1-1). The Master Plan study area included areas downstream of Yankee Hill Lake, as well as areas draining to the south tributary. The study area, as shown on Figure 1-1, includes about 7.7 square miles of the approximately 16.3-square-mile watershed.

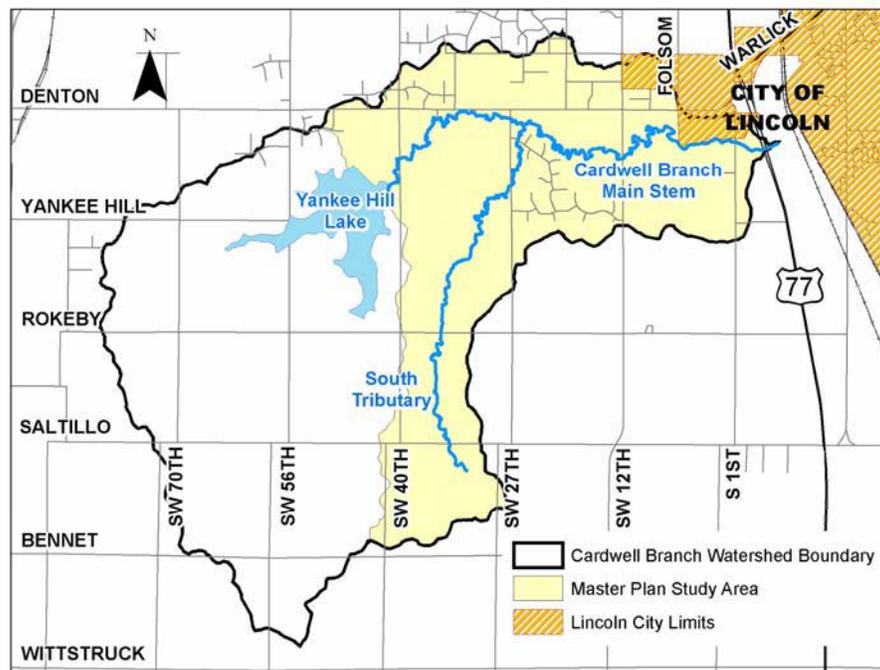


Figure 1-1  
Cardwell Branch Study Area Map

The Master Plan has been prepared because future growth within the basin is expected as identified in the Lincoln-Lancaster County Comprehensive Plan. The purpose of the Master Plan is to identify needed CIPs for flood management, water quality, and stream stability. The City and NRD have previously adopted watershed master plans for the Beal Slough, Southeast Upper Salt Creek, and Stevens Creek basins (Figure 1-2).

The project team was led by the City and NRD, in cooperation with Lancaster County (County). The City and NRD retained the consultant team of Camp Dresser & McKee Inc. (CDM), in association with Mead & Hunt (M&H), Applied Ecological Services (AES), and Heartland Center for Leadership Development (HC), to provide assistance with the planning effort.

## 1.2 Goals and Objectives

The goal of the study was to develop a watershed master plan with planning tools and improvement projects to address flood management, water quality, and stream stability to provide guidance for achieving sustainable urban growth in the watershed. This approach places emphasis on preservation and prevention rather than future reactive measures that are difficult and costly to implement. The study included a wide range of services organized into the following major components:

### Data Collection and Development

- Watershed inventory to collect existing information applicable to the watershed
- Development of digital data sets

### Hydrology and Hydraulics

- Review of the hydrology and hydraulic computer models developed by the USGS as part of the Phase 1 planning effort
- Utilization of the existing computer models to evaluate potential watershed improvements

### Water Quality Assessment

- Natural resource assessment to identify critical, unique, endangered, or sensitive natural resources that need to be protected and preserved
- Watershed management evaluation to provide guidance on future stormwater practices

### Stream Stability

- Review of the USGS report *An Assessment of the Hydrology, Fluvial Geomorphology, and Stream Ecology in the Cardwell Branch Watershed, Nebraska*,
- Geomorphic field investigation to verify the condition of the stream and potential stream stability improvement projects

### Capital Improvement Projects

- Conceptual improvement projects to alleviate stream instability and severe flooding problems
- Integrated resource planning to provide coordination efforts with other planning initiatives within the watershed

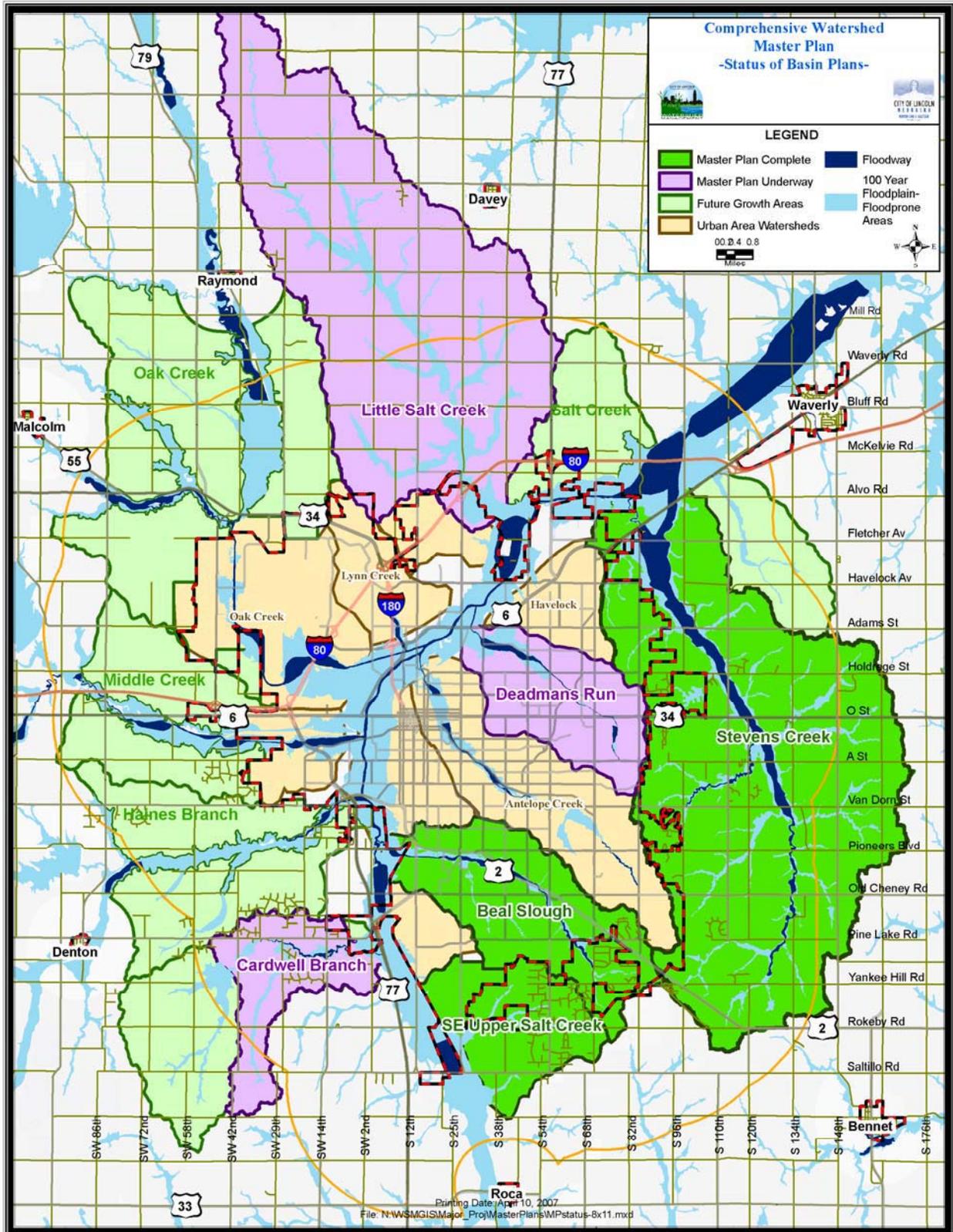


Figure 1-2  
City of Lincoln Comprehensive Watershed Management Plan

### Public Participation

- Open houses and information meetings to disseminate information and solicit feedback from the public
- Newsletters and study website designed to inform the public about the study and to post preliminary results

### Geographic Information System Services

- Geographic Information System (GIS) products designed to enhance the usability of key study products

## 1.3 Public Participation Process

The public participation process offered a variety of ways to provide input to the study and to contribute to the development of alternative solutions. Each public involvement activity provided the project team with ideas for presenting and refining its recommendations.

Following is a summary of the various components of the public participation process.



Information stations were used to discuss concerns

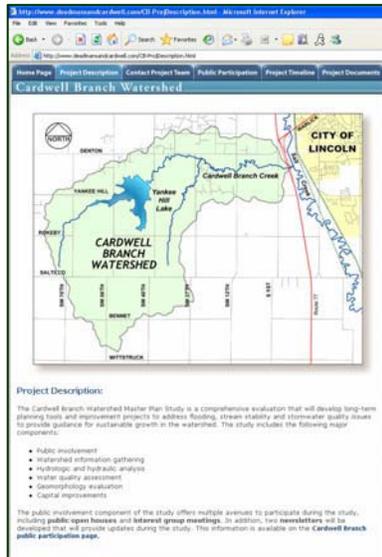
### 1.3.1 Open House Events

Two open house events were held during the study to present preliminary results and solicit input from the public. Both open houses followed the same general format consisting of formal presentations to discuss the overall goals and preliminary results of the study. Following the formal presentations, participants were encouraged to visit information stations and to discuss their concerns with representatives from the project team. The first open house was held at Scott Middle School and the second event was held at the Bess Dodson Walt Branch Library. A summary of each open house event is provided below.

Approximately 35 area residents participated in the first open house held on October 19, 2006. The first open house was designed to provide an overview of the study including background information, major technical themes, and the public participation process to be conducted throughout the study effort. The second open house attracted over 40 people and was held on August 21, 2007. The second open house focused on presenting the Master Plan recommendations. The Executive Summary of the study report, which summarized the key study recommendations, was provided as a handout for all participants. In addition, participants were encouraged to fill out comment cards regarding the Master Plan recommendations.

### 1.3.2 Newsletter and Website

A series of three newsletters (Watershed News) and a project website were used to disseminate information about the study process and Master Plan recommendations. Each newsletter edition was mailed to over 600 people and provided an effective means of informing the public about the key aspects of the project. See Appendix B for a copy of each newsletter.



The project website was another mechanism used to inform the public about the progress of the study. The website can be accessed by going to the City of Lincoln's website at [lincoln.ne.gov](http://lincoln.ne.gov), keyword "watershed." The website contains general background information, preliminary study results, and handout materials that were distributed at the open houses. The website was regularly updated throughout the study process and was used to advertise upcoming events.



June 2006 Issue

[lincoln.ne.gov](http://lincoln.ne.gov)

### 1.3.3 Information Meetings

A series of three information meetings was held to solicit input from area residents and other interested parties on the draft study recommendations. All three meetings were held on April 5, 2007, at the Walt Branch Library and were conducted and facilitated by members of the project team. A total of 17 people attended the meetings. A brief summary of each meeting is provided below.

**Meeting 1:** The property owners that could be affected by proposed CIPs, called CB-1 and CB-6 (Section 5.2) and two planning locations called Opportunity Areas (Section 3.5.3), were invited to the meeting. The meeting began with the project team describing the erosion problems along the stream and the proposed solutions for each improvement project. In addition, the project team discussed how the Opportunity Areas could be used to protect and enhance water quality and natural resources while integrating recreational amenities. Following the initial presentation by the project team, the group discussed the severity of the erosion problems and how the proposed solutions would impact specific property owners. In addition, the group discussed various land use designations and development techniques, such as environmental resource, green space, and cluster development, and what impacts these designations might have on properties.

**Meeting 2:** The property owners that could be affected by proposed CIPs, called CB-4, CB-7, and CB-8 (Section 5.2) and planning areas called Sensitive Areas (Section 3.5.2), were invited to the meeting. The meeting began with the project team describing the erosion problems along the stream, the proposed solutions for each improvement project, and the various environmentally friendly development practices that should be implemented at the Sensitive Area locations. Following the initial presentation by the project team, the group discussed the timeline for designing and constructing the improvement projects and how the property owners could get involved in protecting and addressing the stream erosion issues. In addition, the group supported the various development techniques, including the provision for requiring more open space.

**Meeting 3:** The property owners that could be affected by the proposed CIPs, called CB-2 and CB-3 (Section 5.2) and the flooding issue at Cardwell Woods development (Sections 5.2 and 5.3), were invited to the meeting. The meeting began with the project team describing the erosion problems along the stream and the proposed solutions for the flooding issue. Related to the erosion problems, the group discussed the presence of existing concrete structures and debris within the creek, and whether the homeowners' association could obtain assistance in maintaining the creek. In addition, the group discussed the overall construction process, including utility coordination and project funding. Also, several property owners noted the presence of an exposed sanitary sewer line just downstream of the Cardwell Woods stream crossing and requested the project team consider this problem area as an improvement project. After the meeting, the project team conducted a follow-up field visit to inspect the sanitary sewer crossing, which resulted in adding another CIP called CB-5 (Section 5.2).

Regarding the flooding issue, the group discussed the earth berm concept and the potential modifications to home residences, such as regrading around the perimeter of the buildings. The construction of the earth berm would provide significant flood protection. The regrading work would require the removal of walk-out basement doors and daylight windows, with the goal of removing the homes from the floodprone area. The home modification improvement measures would be funded by the property owners. The project team noted that the home modifications would likely have to be completed in 2007, if the goal was to remove the buildings from the floodplain that will be officially adopted by the Federal Emergency Management Agency (FEMA). In addition, the feasibility of constructing a levee was also discussed. The project team noted that this option was not considered feasible because of cost and permitting difficulties.