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 proposed development and as a guide in the preparation of future capital improvement projects.

The City and NRD have previously adopted watershed master plans for the Beal Slough and Southeast Upper Salt Creek basins (Figure 1-1). The Stevens Creek Watershed Master Plan (Master Plan) is the third master planning effort to date and is summarized in this report, together with the study components that served as its foundation. The Master Plan for the Stevens Creek Watershed has been prepared because significant near-term growth within the basin is expected as identified in the Lincoln-Lancaster County Comprehensive Plan.

The Stevens Creek Watershed is located immediately east of the City's existing municipal limits (Figure 1-1). The watershed drains approximately 55 square miles from the headwaters near Highway 2 to its confluence with Salt Creek located just north of Highway 6. The watershed is approximately 15 miles in length with a maximum width of about 6 miles. The purpose of the Master Plan is to outline long-term planning tools and improvement projects to address water quality, flood management, and stream stability to provide guidance for sustainable urban growth in the watershed.

The project team was lead by the City and NRD, in cooperation with Lancaster County (County). The City/NRD retained the consultant team of Camp Dresser & McKee Inc. (CDM), in association with Intuition & Logic (I&L), Heartland Center for Leadership Development (HC), Kirkham Michael Consulting Engineers (KM), and E&A Consulting Group, Inc. (E&A) to provide assistance with the planning effort. Figure 1-2 shows the project organizational chart. At the outset of the study process, the project team developed a study logo depicting the over reaching theme of providing a "bridge" between preserving the watershed's natural resources while embracing future growth.

Study Logo

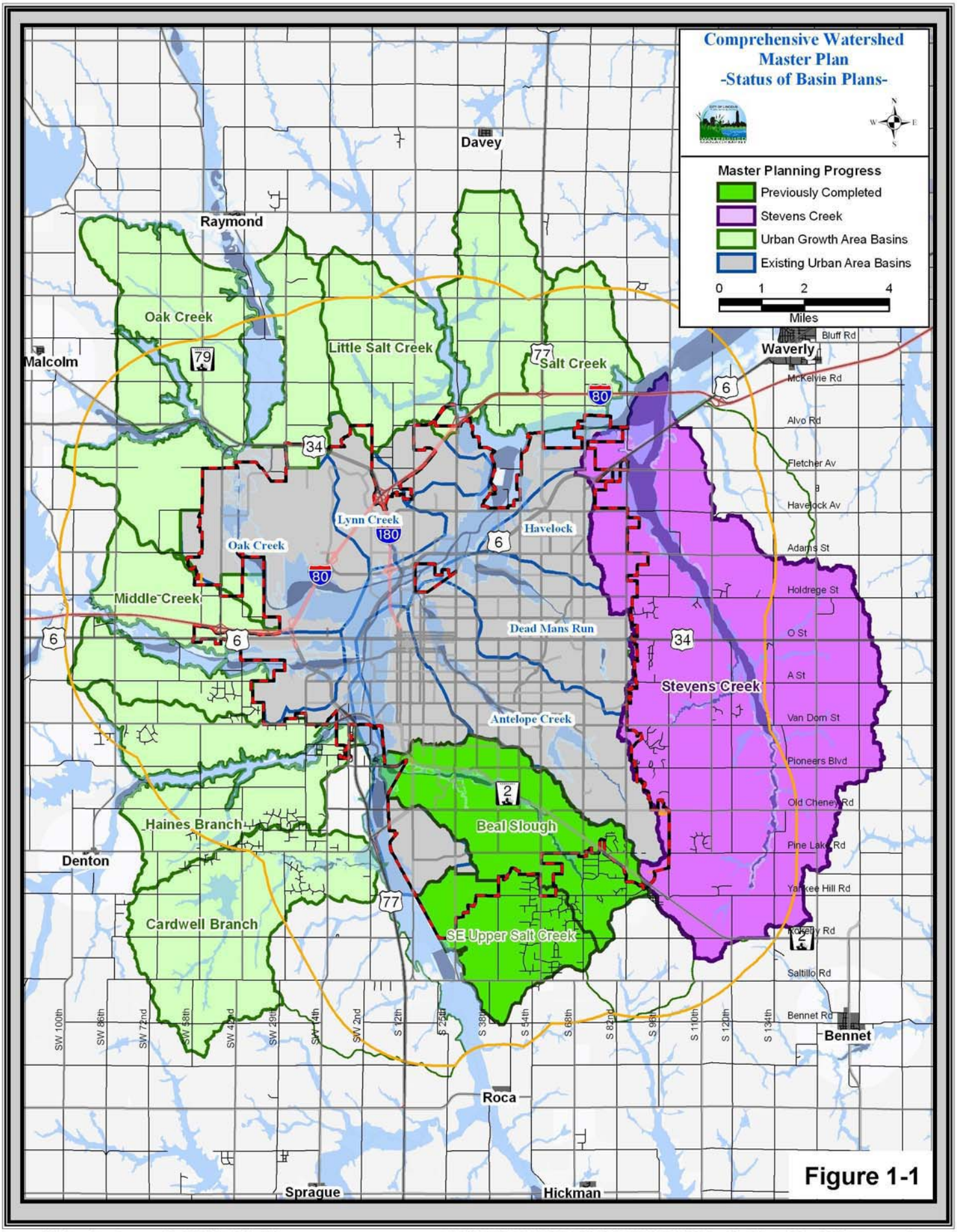

Comprehensive Watershed Master Plan
-Status of Basin Plans-
Master Planning Progress
Previously Completed
Stevens Creek
Urban Growth Area Basins
Existing Urban Area Basins
0 1 2 4
Miles
Davey
Raymond
Malcolm
Oak Creek
Little Salt Creek
Salt Creek
Waverly
Bluff Rd
McKelvie Rd
Alvo Rd
Fletcher Av
Havelock Av
Adams St
Holdrege St
O St
A St
Van Dorn St
Pioneers Blvd
Old Cheney Rd
Pine Lake Rd
Yankee Hill Rd
Rokeby Rd
Saltillo Rd
Bennet Rd
Bennet
Lynn Creek
Havelock
Oak Creek
Middle Creek
Dead Mans Run
Stevens Creek
Antelope Creek
Beal Slough
Haines Branch
Denton
Cardwell Branch
SE Upper Salt Creek
Roca
Sprague
Hickman
SW 100th
SW 86th
SW 72nd
SW 58th
SW 43rd
SW 29th
SW 14th
SW 2nd
S 12th
S 25th
S 38th
S 54th
S 68th
S 82nd
S 96th
S 110th
S 120th
S 134th

Figure 1-1

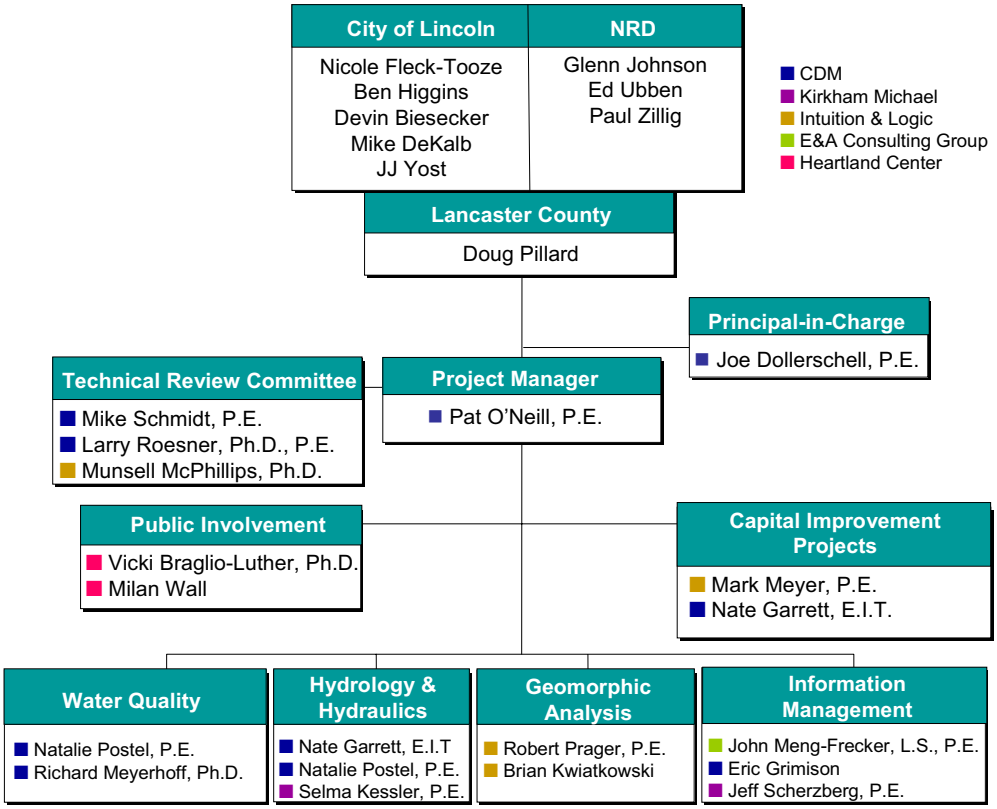


Figure 1-2
Project Organizational Chart

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. The study included a wide range of services organized into the following major components. 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

- Watershed inventory to collect existing information applicable to the watershed
- Field survey to collect data describing the physical aspects of the drainage system

Hydrology and Hydraulics

- GIS based HEC-HMS and HEC-RAS computer model simulating the hydrologic and hydraulic aspects of the watershed, using subareas no larger than 150 acres at the upper reaches of the drainage system.
- Floodplain boundaries using HEC-GeoRAS that represent existing land use conditions. In addition, floodway boundaries were developed.
- Federal Emergency Management Agency (FEMA) submittal documents necessary for Digital Flood Insurance Rate Map (DFIRM) application.

Water Quality
- Stream bioassessment to characterize the current ecological health of the stream
- Stream sustainability analysis to provide guidance for providing long-term stream stability
- Watershed management evaluation to provide guidance on future development practices
- Review of the City's Drainage Criteria Manual to provide guidance on applying applicable best management practices (BMPs)

Stream Stability
- Geomorphic field investigation to document the condition of the stream
- Geomorphic analysis to diagnose the stability of the stream

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

Public Participation
- Questionnaire mailed to property owners and others to solicit input about various watershed topics and issues
- Open houses, property owner meetings, and stakeholder sessions to disememinate information and solicit feedback from the public
- Citizen advisory meetings and bus tours to receive input from various interest groups and elected officials
- Newsletters and study website designed to inform the public about the study and to post preliminary results

Geographic Information System (GIS) Services
- GIS products designed to enhance the usability of key study products. The GIS product descriptions are described in Section 11 and provided in Appendix A, located in Volume II of this report.

1.3 Public Participation Process

Through each stage of the study, active citizen participation was a hallmark of the watershed evaluation process. Citizens and stakeholders were offered a variety of ways to provide input to the study and to contribute to the development of alternative concepts and solutions. Each public involvement activity provided the project team with ideas for presenting and refining its recommendation. The following is a summary of the various components of the public participation process.

1.3.1 Questionnaire Survey

A questionnaire on the Stevens Creek Watershed was sent out in mid-December 2003 to about 4,000 Stevens Creek landowners, local and state agency staff, a broad range of interest groups, and others.

The City received responses from 74 people. The responses were categorized based on the demographics depicted on Figure 1-3. The number of years for those living or working in the watershed ranged from 1 to 70.

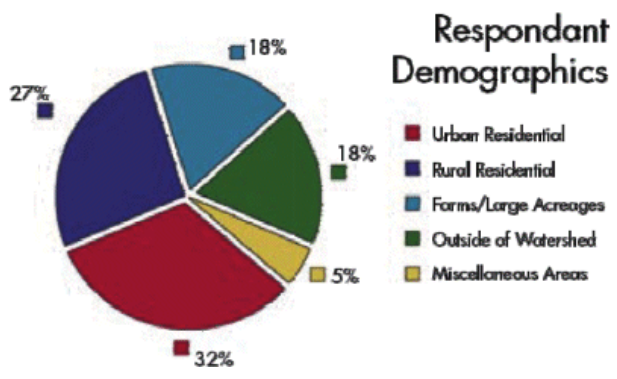


Figure 1-3
Watershed Demographics

About 20 percent of the respondents with comments had concerns about issues (potable water, wastewater, east beltway, recreation) not directly addressed by the study. Copies of those responses were forwarded to the responsible agencies for their information and reply as appropriate. Information on the responses that related to specific drainage issues was forwarded to the project team for their use.

Over half of the respondents with comments had concerns about flooding (i.e., negative impacts from development, specific issues, or general concerns). Slightly less than half stated that much of the existing area should be left in a natural condition and/or that the floodplain/floodprone areas should remain as open space or buffer area. About 10 percent recommended specific flood control structures such as dams. One respondent said that levees should be constructed. A little more than 5 percent said the flooding was minimal and not an important concern. Figure 1-4 summarizes the questionnaire responses.

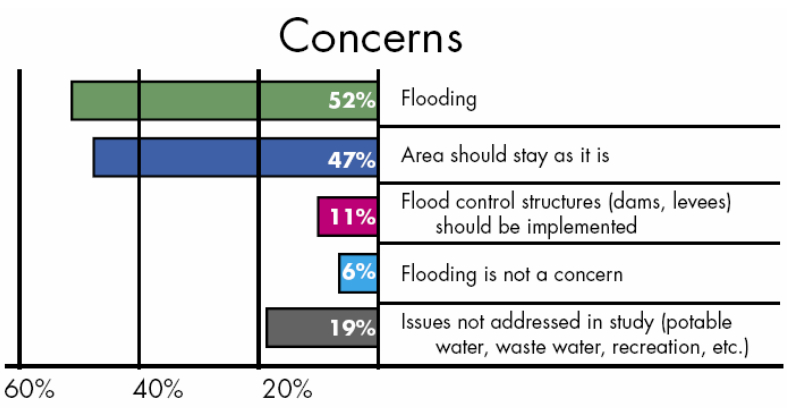


Figure 1-4
Questionnaire Responses

In regard to the natural and beneficial functions of floodplains, approximately 15 percent specifically identified stream water quality as an important issue, and over 15 percent cited multi-use of open space (e.g., trails) as an important consideration. A little less than 20 percent stated that habitat and wildlife preservation were critical for the watershed, and about a third of the respondents mentioned that up-front planning was an important component toward developing a sustainable watershed. Less than 5 percent mentioned that development should proceed without restrictions and/or that property rights were the most critical item to be considered.

Input received through the questionnaire was used by the project team in the evaluation of the watershed and development of alternative concepts for public review and comment.

1.3.2 Open House Events

A series of three open house events was held during the study to present preliminary results and solicit input from the public. All three events followed the same general format consisting of formal presentations offered at 5:30 and 7:00 p.m. Following the formal presentations, participants were encouraged to visit information stations and to discuss their concerns with representatives from the project team. The events were held at the Boy Scouts Cornhusker Council located near Walton, Nebraska. A summary of each open house event is provided below.

Open House Events were well attended and provided valuable information to the public.

Information Stations were used to display preliminary study results.

Approximately 245 citizens participated in the first open house held on September 16, 2003. 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. Following the formal presentations, participants were encouraged to visit four information stations set up around the room. The four stations addressed the following major topics: major study components, NRD activities, City-County Comprehensive Plan, and Parks and Recreation activities.

Over 150 people attended the second open house held on September 13, 2004. The second open house covered the preliminary findings of the three major study themes including hydrology and hydraulics, water quality, and geomorphology. Alternative management methods to address future urbanization were also discussed at length and were included as handouts for all participants. Following the formal presentations, participants were encouraged to visit numerous information stations that provided additional detail on the alternative management methods, the draft Stevens Creek floodplain and floodway maps, and stream erosion problem areas.

Nearly 125 people attended the third open house held on January 26, 2005. The third open house focused on presenting the Master Plan recommendations consisting of four major elements: 1) Floodplain Management Tools, 2) Capital Improvements Projects, 3) Site-Specific Structural Best Management Practices, and 4) Opportunity Areas. The draft

Executive Summary and fact sheets covering the various components of the study were included as handouts for all participants. Following the formal presentations, participants were encouraged to visit information stations covering the four major Master Plan elements. In addition, participants were encouraged to fill out comment cards regarding the Master Plan recommendations. A copy of the submitted comment cards is provided in Appendix B, located in Volume II of this report.

1.3.3 Citizen Advisory Committee

An important part of the study was the participation and review process of the Citizen Advisory Committee. At the first open house event, an Expression of Interest Form was made available for those citizens interested in serving on the committee. The form was also made available on the study website.

Balancing interests, perspectives, geography, and gender resulted in a 25-member group with City/NRD/County representatives. Roughly one-third of the group represented land and homeowners from the watershed, another third the interests of conservation and preservation, and the remaining third representing the development and business community. The mission of the committee was to provide review and input on preliminary study results, offer advice and oversight, and to serve as a liaison to the rest of the community. The committee members included Ann Bleed, Andrew Campbell, Robert Christiansen, Dick Dam, Mike Eckert, Peggy Fletcher, Beth Goble, Rick Hodtwalker, Tony Koester, Marvin Lambie, Russell Miller, Kathy Newberg, Patte Newman, Brock Peters, Dean Petersen, Marleen Rickertsen, Jane Schroeder, Alan Slattery, Jason Smith, Steven Smith, Lyle Vannier, Jack Wagener, John Watson, Bob Wolf, and Bob Workman.

The project team held a series of 6 monthly committee meetings that started in May 2004 and ended in October 2004. In addition, special makeup sessions were organized for members who were unable to attend all six meetings. In response to requests for an additional session, a seventh meeting was held on January 20, 2005 to review the draft study recommendations.

As a way to disseminate study findings and draft recommendations, the project team developed a series of summary documents that addressed key findings of the study. These summary documents were distributed to the committee members during the course of the seven meetings, were also made available at the second and third open houses, and were posted on the study website.

A copy of the summary documents, meeting minutes, and attendance records are provided in Appendix B, located in Volume II of this report.

1.3.4 Property Owner Meetings and Stakeholder Sessions

Six separate property owner meetings were held at the Boy Scouts Cornhusker Council on September 8 and 9, 2004 to discuss special issues and potential impacts regarding alternative watershed management approaches. The meetings were conducted and facilitated by members of the project team.

A series of three stakeholder session meetings was held to solicit input on draft study recommendations. The first session, held on September 20, 2004, was conducted to obtain feedback from developers, realtors, and legal entities; the second session, held on September 21, 2004, was designed to obtain feedback from environmental groups; while the third session, held on October 12, 2004, was an open forum format representing all interest groups. The first two sessions were held at the F Street Community Center, while the third session was held at the Boy Scouts Cornhusker Council.

WATERSHED NEWS

NOVEMBER 2004

WATER QUALITY AND STREAM STABILITY: COST SHARING AND MAINTENANCE

The question of who bears the cost for offsetting impacts to water quality and stream stability caused by future urbanization is a policy issue that must be determined by the community. In some communities, each private development bears these costs, while other communities provide some public funding for construction and maintenance.

A proposed method of offsetting future urbanization impacts is a water quality/stream stability structural best management practice (i.e. structural BMP).

One of the issues we have heard expressed regarding this method is that consideration should be given to some cost sharing by the public sector. This approach assumes that there is both private responsibility to offset impacts from development, as well as public responsibility to ensure that best management practices (BMPs) function together as a system throughout the watershed.

The estimated construction cost to incorporate structural BMPs into the current design of detention/retention basins is approximately $200 per drainage acre that drains to the detention/retention basin. With a cost-share concept, the City and NRD would share the cost of constructing the structural BMP portion of the facility, jointly providing funding for $100 per acre of drainage area.

For example: In a 75-acre average drainage area, the construction cost for the structural BMP is estimated to be approximately $15,000. At $100 per acre, the City/NRD cost-share for construction would be $7,500. The

Integrated Detention Pond and Structural BMP

STRUCTURAL BMP COMPONENTS ARE HIGHLIGHTED

MEET THE TEAM

VICKI LUTHER

HEARTLAND CENTER FOR LEADERSHIP DEVELOPMENT
LINCOLN, NE

Q: What is your role in this project?

A: I am the Co-Director of the Heartland Center for Leadership Development, which serves as the facilitator for public involvement in the Stevens Creek Watershed Management Planning Study. Our role is to help provide citizens with information about this project and to gather input and feedback from the public that will inform the project team.

Q: How does public involvement work in a project like this one?

A: Our goal is to create opportunities for people to come together and share ideas about how future decisions will be made in the basin. The first step is to make

WATERSHED NEWS NOVEMBER 2004

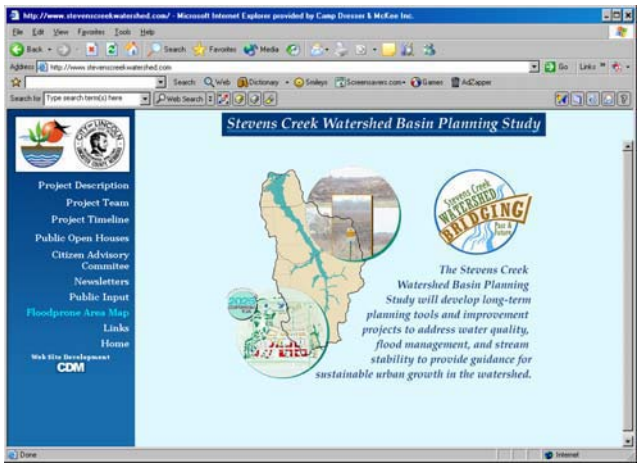
November 2004 Issue

Nearly 100 individuals provided feedback and suggestions during the three stakeholder sessions, which were recorded by the project team. The feedback was then consolidated into the nine most frequently raised issues and was utilized in developing the final Master Plan recommendations. These nine issues along with the project team's responses are provided in Appendix B, located in Volume II of this report.

1.3.5 Website and Newsletter

A series of eight 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 700 people and provided an effective means of informing the public about key aspects of the project. See Appendix B for a copy of each Newsletter.

The project website (www.stevenscreekwatershed.com) was another mechanism used to inform the public about the progress of the study. The website contains general background information, preliminary study results, and handout materials that were distributed at the Advisory Committee meetings and open houses. The website was regularly updated throughout the study process and was used to advertise upcoming events.



www.stevenscreekwatershed.com

1.3.6 Watershed Bus Tours

On April 15, 2004 the Citizen Advisory Committee toured the watershed on a route that highlighted stream conditions, drainage infrastructure, existing and proposed NRD projects, and cultural and historical features. A similar bus tour was conducted on October 18, 2004 for elected and appointed officials. The project team provided commentary during both bus tours.

Committee members and the project team discussed the creek's condition during the bus tour.