Local Planning Guide for Wetland and Riparian Areas In Kansas

State Of Kansas

1993

Wetland and Riparian Areas Project

Local Planning Guide for
Wetland and Riparian Areas
In Kansas

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State and Federal Agencies
- Kansas Biological Survey
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- Kansas Department of Health and Environment
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- U.S.D.A. Agriculture Stabilization and Conservation Service

Advisory Organizations

(Several organizations were invited to review and comment on the development of this manual. Their presence on the list does not necessarily mean that they endorse this manual in whole or in part.)

- Kansas Association of Conservation Districts
- Kansas Chapter of American Planning Association
- Kansas Wildlife Federation
- Kansas Recreation and Parks Association
- League of Kansas Municipalities
- Kansas Audubon Council
- Home Builders Association of Kansas
- Kansas Farm Bureau
- Kansas Society of Architects
- The Nature Conservancy
- Kansas Engineering Society
- Kansas Association of Counties
- Kansas State Grange

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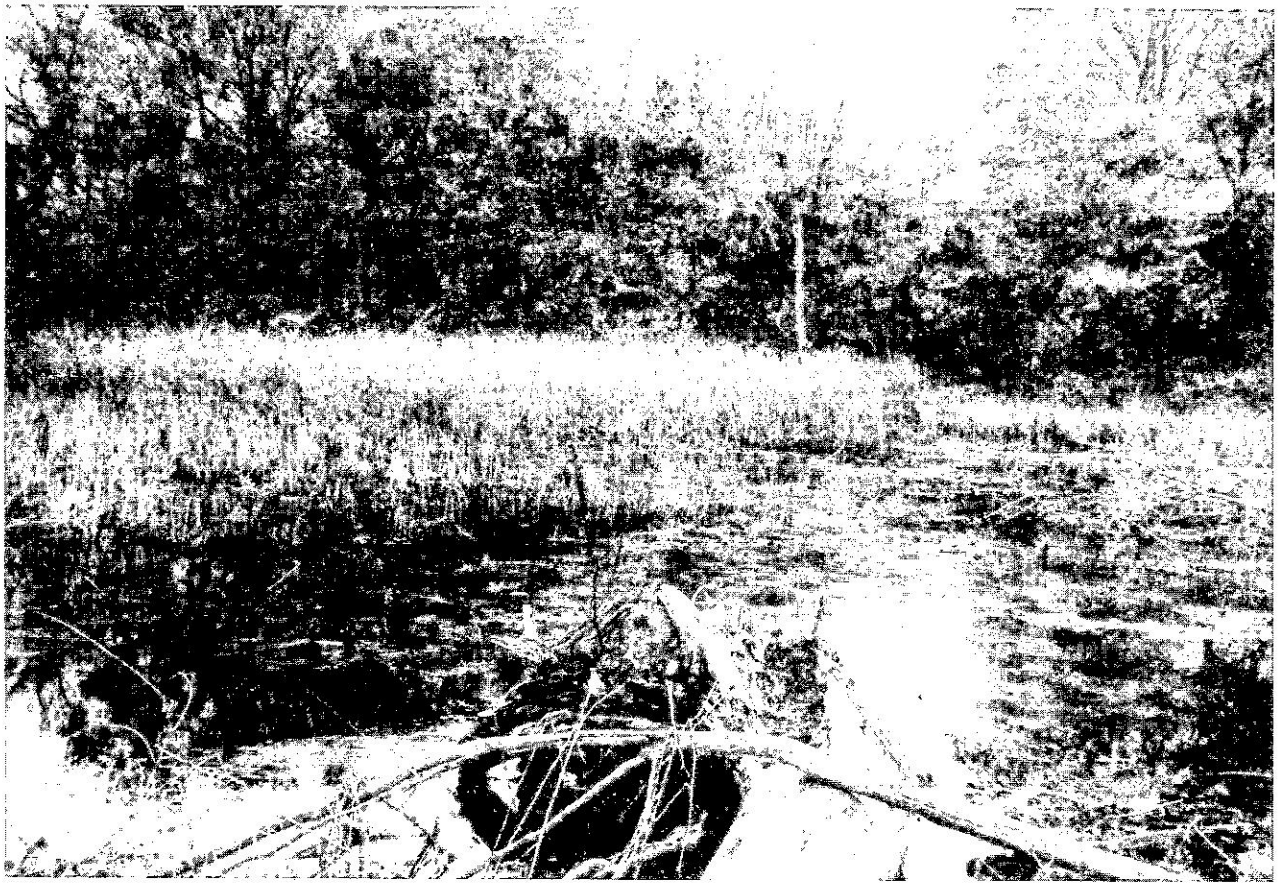

Figure 1.1: A Kansas wetland area.

SECTION ONE:
INTRODUCTION

This planning guide has been prepared for use by community decision-makers -- elected officials, planning commissioners, public agency staff, property owners, private developers and citizen leaders---who are considering the planning and management of wetland and riparian areas at the local and regional levels in Kansas. This guide is intended to acquaint the layperson with the basic purpose, general scope, and practical methods of planning and managing wetland and riparian areas using existing local, state and federal programs. It will help people to work with conservation and planning professionals and officials. The goals of planners and conservationists include the improvement of coordination and cooperation among federal, state, local and private entities responsible for wetland and riparian stewardship.

It is recognized that decisions by individuals have an impact on wetland and riparian areas. The value of wetland and riparian areas to the quality of life in rural and urban communities is a major consideration of this planning guide. It is appropriate that community decision-makers, public and private, include consideration of wetland and riparian areas in rural and urban land-use planning and farm management.

The Wetland and Riparian Areas Project (WRAP) was established in 1991 to help coordinate state wetland and riparian areas programs, aid land managers, and promote public awareness of wetland and riparian values and functions. The goal of WRAP is to provide a foundation for interagency implementation and coordination of wetland and riparian conservation strategies in Kansas. Responsibilities for the stewardship of wetland and riparian areas in Kansas are shared by thirteen state and six federal agencies. City and county agencies may also be responsible for managing these resources. Private organizations also play an active role in wetland and riparian area conservation.

The operational definitions of a wetland and riparian area are discussed in detail in a later section. Basically, a wetland is an area wet enough to have different plants and soils than surrounding areas, and a riparian area is the shore area along a river, stream, lake, or pond, usually with trees and other plants (see Section Two).

It is important to recognize two major viewpoints about the use and protection of natural resources in the United States. First, it is well established that local governments have a responsibility to take action that will serve the public health, safety, and welfare of their citizens. Second, it is equally well established that property owners have a guaranteed use and enjoyment of the economic benefit of their private property as long as their enjoyment is not harmful to others. It is acknowledged that there are competing interests for the use of wetland and riparian areas that are not conservation uses. This planning guide is intended to serve conservation values. In fact, the mission of conservationists is to maintain and enhance wetland and riparian areas and their contribution to our society and environment in harmony with socio-economic considerations. One of the strategies of planners is to balance public benefits supplied by wetland and riparian resources with the rights of private property owners. The decision-making process for wetland and riparian areas must reflect the relationship between public interests and property rights (see Section Three).

This guide is designed to assist local government officials, public interest groups, property owners, and other citizens to plan and manage wetland and riparian areas in Kansas consistent with state and federal programs. Much of the public, including landowners, lack a full understanding of the functions and values of wetland and riparian areas, the appropriate techniques for protecting and managing them, and where to acquire this information from various local, state, and federal agencies, professional societies, Cooperative Extension Service, private conservation groups, and industry organizations (see Section Four). Community education will play a critical role in achieving an effective local program.

Many conservation organizations advocate the responsibilities of individuals in the protection of wetland and riparian areas. One strategy of both conservationists and planners is to develop programs that target specific groups and provide educational opportunities on wetland and riparian values and functions. It is critical that community residents also appreciate the value of wetland and riparian areas, otherwise it is difficult for local decision-makers to establish a protection program (see Section Five). Education is essential in developing community-wide support for the protection program. This educational process can range from informal to formal techniques, including fair and museum exhibits, special events, media releases, workshops, newsletters, and other activities specialized for local interests. A successful education program is the key to implementing a successful voluntary wetland and riparian areas protection program.

It is very important to provide information to the public and landowners of the value of riparian and wetland areas. Such information might include:

- Definition of wetland and riparian areas,
- Location of priority wetland and riparian areas,
- Problems associated with poorly managed wetland and riparian areas,
- Benefits derived from appropriately managed wetland and riparian areas, and
- Recommended management practices and financial assistance for wetland and riparian areas available to protect, enhance, or restore such areas.

Figure 1.2: A Kansas wetland area. Some wetlands may be covered by standing water for part of the year.

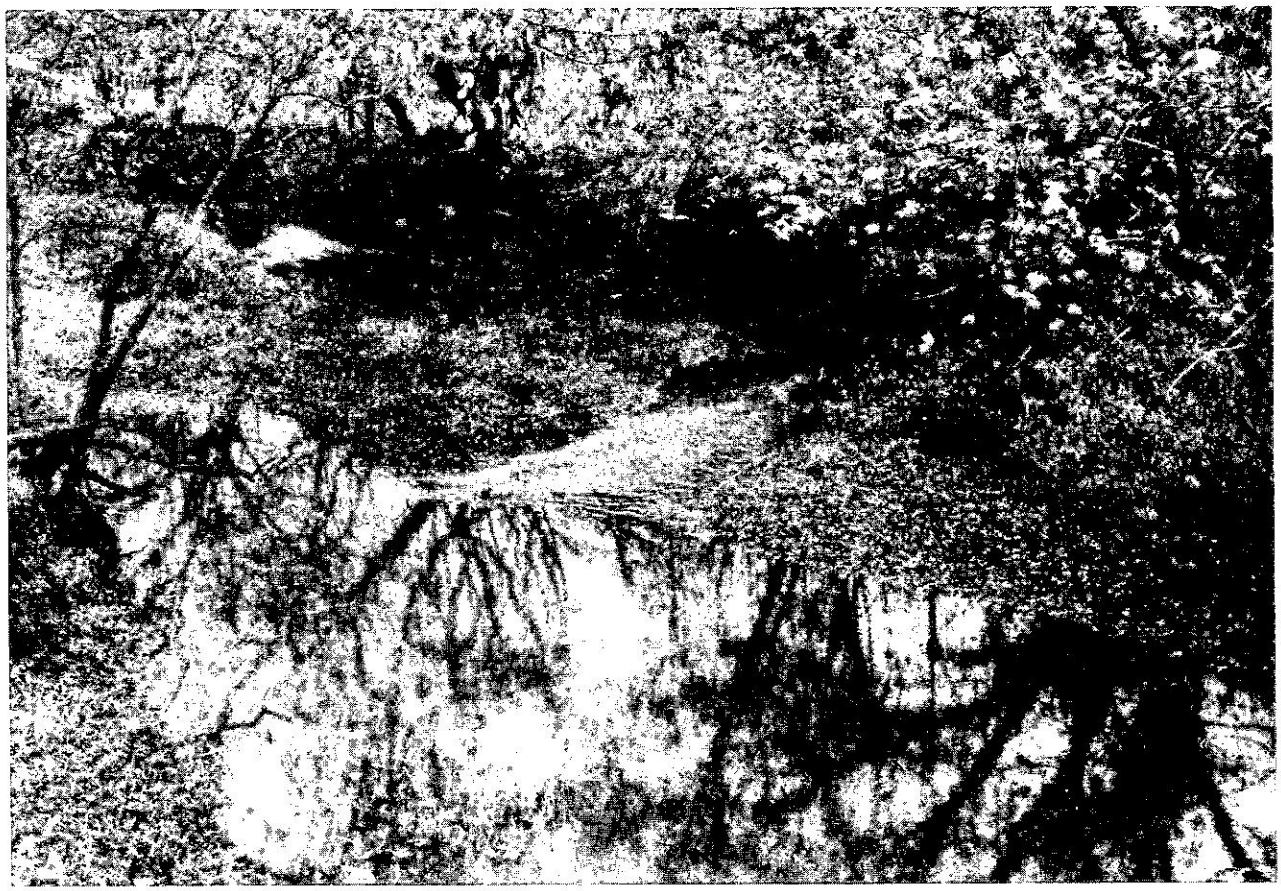

Figure 2.1: A typical Kansas riparian area.

SECTION TWO:

KANSAS WETLAND AND RIPARIAN AREAS

Marshes teeming with wildlife, lines of trees following winding streams and rivers, prime areas for hunting and fishing, and areas of high scenic value. These are just a few of the images many of us associate with wetland and riparian areas in Kansas. What exactly are wetland and riparian areas, and why are they important to us? This section explores a range of definitions and classifications used by various government agencies. It also describes the current condition of wetland and riparian areas in Kansas and why these areas are important to all of us.

Definitions of Wetland and Riparian Areas. Although most of us can conjure up images of wetland and riparian areas, many may find it difficult to define them. Part of the problem is that wetland and riparian areas are transition areas between aquatic ecosystems (lakes, ponds, and rivers) and upland ecosystems (relatively dry land above the aquatic ecosystems). Therefore, they are not always wet nor are they always dry. To complicate matters further, different government agencies use different definitions. Since various agencies have differing missions, their definitions are usually developed to address their responsibilities.

Consequently, it is sometimes unclear which definition is appropriate for a given situation. This section summarizes the principal wetland and riparian area definitions used in Kansas.

Several federal, state, and local agencies help protect and manage wetland and riparian areas in Kansas. Each agency has its own definitions of wetland and riparian areas based on its specific objectives. Most of these definitions refer to three characteristics:

- wetland soils (called hydric soils),
- wetland vegetation (called hydrophytes), and
- water (or hydrology).

For the purpose of promoting stewardship of wetland and riparian areas in Kansas, the Wetland and Riparian Areas Project (WRAP) adopted the definitions described in the 1986 Kansas Water Plan. State agencies, private organizations, and the public worked together to develop these definitions.

Kansas Water Plan Definition of a Wetland. The Water Plan defines a wetland as follows:

> *"Any area of predominantly hydric soils where standing water or wet soil conditions exist for a significant part of the growing season of most years. When surface water is present, depth generally does not exceed six feet. Vegetation is dominated by water tolerant plants (hydrophytes)."* (*Kansas Water Plan*; Fish, Wildlife and Recreation Section; Wetland Protection Subsection; January 1986; Page 4).

Based on this definition, wetlands include areas such as saline or fresh water marshes, shallow basins and other depression areas, oxbows, and spring areas. Altered or constructed areas, such as stormwater holding ponds, can also be considered wetland as long as they exhibit the characteristics described in the above definition. Removal of natural wetland vegetation does not change the wetland status of an area. There are no size requirements for wetland, so they can range in area from a few square yards to hundreds of acres or more.

Other areas that are not defined as wetland include open-water areas (such as lakes, ponds, and reservoirs) that are over six feet deep and therefore cannot support wetland vegetation. However, an area can have both open-water and wetland. An example of this is a reservoir with both deep, open-water areas and vegetated, shallow water areas.

Kansas Water Plan Definition of a Riparian Area. The Water Plan defines riparian areas as follows:

> *"An area of stream-side vegetation along any perennial or intermittent stream including the stream bank and adjoining floodplain which is typically distinguishable from upland areas in terms of vegetation, soils or topography."* (*Kansas Water Plan*; Fish, Wildlife and Recreation Section; Riparian Protection Subsection; January 1986; page 4).

Based on this definition, riparian areas commonly include bottomland forests adjacent to streams and rivers. However, in some cases, especially in western Kansas, riparian vegetation consists mostly of grasses and shrubs.

Federal Wetland and Riparian Area Definitions. Neither the Wetland and Riparian Areas Project nor the Kansas Water Plan attempts to identify specific wetland and riparian areas that are under the regulatory control of federal agencies or programs. When a federal agency is involved, it will use its own definitions.

Several definitions for wetlands exist at the federal level. Each was developed for specific objectives. The principal federal agencies involved with wetland and riparian areas include the Army Corps of Engineers, the Environmental Protection Agency, the U.S. Department of Agriculture/Soil Conservation Service, and the U.S. Fish and Wildlife Service.

Classification of Wetland and Riparian Areas in Kansas. A variety of wetland and riparian areas exist in Kansas. Some are almost always wet, while others are almost always dry. Some are dominated by trees, while others are dominated by grasses. Classification systems help planning and management of these diverse areas by organizing similar areas into groups.

Several classification systems exist at the federal level. However, to help meet planning and management needs in Kansas, the Wetland and Riparian Areas Project adopted the following classification systems (Monda, *et al.*, 1992. *Classification of Wetland and Riparian Areas in Kansas*, available in Conservation District Offices).

Wetland Classification. The Wetlands and Riparian Areas Project classification system groups wetlands into four principal categories: (1) permanent, (2) semi-permanent, (3) seasonal, and (4) temporary.

In *permanent wetlands*, surface water covers the soil surface throughout most of the year, except during extremely dry years. Plants that are growing in permanent wetlands are almost exclusively plants that live only in wetlands. (Refer to Monda, *et al.*, 1992, for a list of wetland plants that grow in Kansas.)

Semi-permanent wetlands have surface water present throughout most of the growing season. The water table is usually at or near the soil surface when surface water is not present.

In *seasonal wetlands*, surface water persists for long periods, especially early in the growing season, but it is absent by the end of the season. The water table is usually near the soil surface when surface water is not present.

Temporary wetlands have surface water present for only brief periods during the growing season. The water table usually lies well below the soil surface for most of the season. Many plants that grow in temporary wetlands are able to grow both in wetlands and uplands.

The wetland classification system lists nine habitat types under the four principal categories of wetland (see Figure 2.2). For further explanation of these overlapping habitats, refer to Monda, *et al.*, 1992.

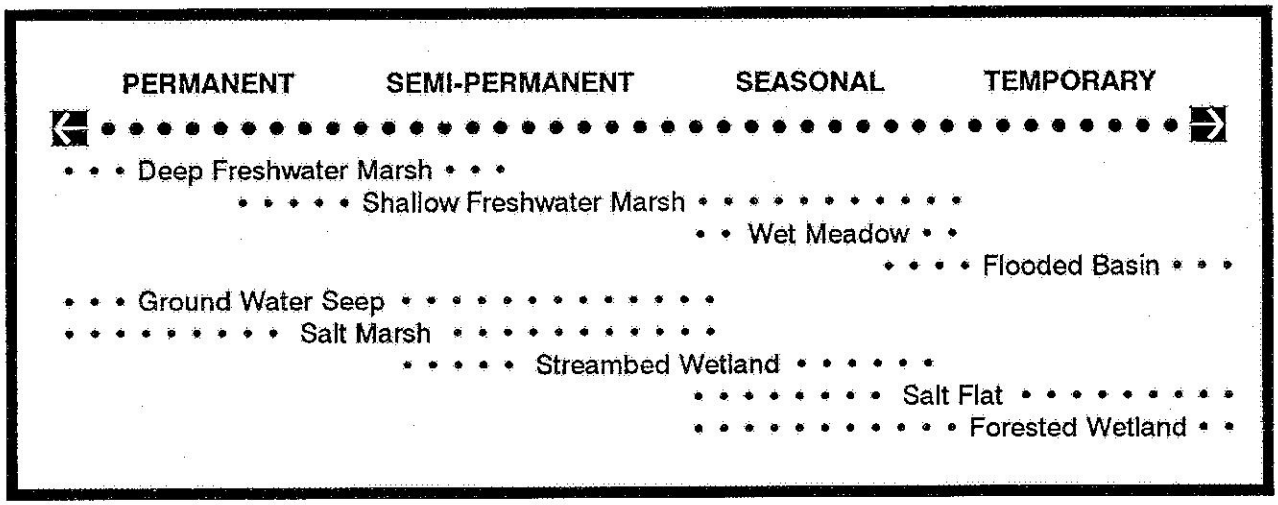

Figure 2.2: Classification of Wetland Types in Kansas (after Monda et al. 1992)

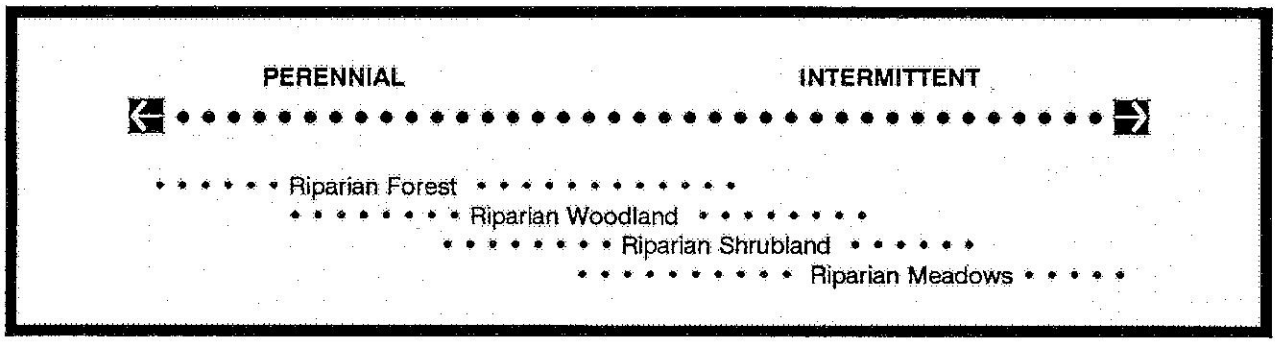

Figure 2.3: Classification of Riparian Types in Kansas (after Monda et al. 1992)

Riparian Areas Classification. The WRAP classification system for riparian areas groups riparian areas into two categories: intermittent and perennial.

Intermittent streams generally flow only during part of the year. They flow even though there may be no surface runoff from rain or snow melts. However, during periods of little or no precipitation, intermittent stream channels may be dry. Perennial streams, on the other hand, flow continuously except during times of extreme drought.

The classification system for riparian areas lists four habitat types under the two principal categories of riparian areas (see Figure 2.3). For explanation of these habitats refer to Monda, *et al.*, 1992.

Status of Wetland and Riparian Areas in Kansas. The U.S. Department of Agriculture estimated that around the 1780s, the area that is now Kansas had roughly 841,000 acres of wetland or approximately 1.6 percent of the total area. The U.S. Fish and Wildlife Service reported that in the mid-1980s, Kansas had roughly 435,400 acres of wetland or approximately 0.8% of the total area of Kansas (Dahl, 1990). Thus, Kansas has lost nearly half of the wetland it once had. The Kansas Department of Wildlife and Parks identifies 28,766 acres of federally or state owned wetland in Kansas. Consequently, most wetland in Kansas are located on private lands.

Kansas State and Extension Forestry does not have forest acreage statistics specific to riparian forests. From a cooperative forest inventory conducted in 1980-81 with the USDA Forest Service, a total acreage of natural woodlands in Kansas was determined to be 1.5 million acres. Acreage of forests in the bottomland or lowland types that would be associated with riparian areas accounted for 581,400 or 43 percent of the total. It is these forest types that have been most subject to clearing for conversion to cropland. A forest inventory to be conducted in 1993-94 will make a general assessment of the extent and condition of riparian forests in the state.

Importance of Wetland and Riparian Areas in Kansas. There's an old axiom that says, "You don't know what you've got until it's gone." Unfortunately, this seems all too true when it comes to stewardship of wetland and riparian areas in Kansas. Now that about half of the wetlands and much of the riparian areas in the state have been eliminated, many people are beginning to realize how important these areas are. One need not be a landowner to reap the benefits of wetland and riparian areas. Here are some of the reasons why they are important to all of us:

• *Biological Values*. Wetland and riparian areas are vital areas for many plant and animal species. Migratory birds use wetlands extensively as feeding, resting, breeding, and wintering habitat. Over thirty percent of the birds found in Kansas depend on wetland for their survival and over forty percent of Kansas birds use riparian areas. In addition, eight of Kansas' 12 species listed on the federal threatened and endangered species lists are moderately to highly dependent on these areas. So wetland and riparian areas are not only important for human use and enjoyment, but they are absolutely critical for the survival of many plant and animal species.

• *Water Quality Values.* Many wetland and riparian areas act as filters that help remove sediments, nutrients, and other contaminants from water. In fact, cities and industries throughout the country are starting to use constructed wetlands as a means to help treat their sewage. Riparian areas in particular help stabilize stream banks. This, in turn, reduces erosion and contamination of our rivers and lakes.

• *Water Quantity Values.* Where an adequate number of wetland and riparian areas exist, they help prevent or reduce the severity of floods. Wetland and riparian areas can hold and slowly release a tremendous amount of precipitation that would otherwise flow directly into our streams and rivers.

• *Economic Values.* Properly managed, wetland and riparian areas provide landowners and communities many economic opportunities. For example, hunting and fishing at or near wetland and riparian areas can be profitable for both landowners and nearby businesses. Other economic opportunities include grazing livestock and haying vegetation at appropriate times of the year. Landowners can also selectively harvest timber in many riparian areas. In urban areas, riparian areas can enhance property values of adjoining property.

• *Social and Aesthetic Values.* Wetland and riparian areas provide landowners, wildlife enthusiasts, conservation groups, students, teachers, and others with areas for learning and enjoyment. Parkways along streams can provide excellent opportunities for recreation.

Threats to Wetland and Riparian Areas. Although many people have come to recognize the value of wetland and riparian areas, these areas are still threatened. Some of the major threats include the following:

• *Urbanization.* As the population of Kansas continues to grow, development pressures increase. While many developers and cities view wetland and riparian areas as an asset in their development plans, others do not. Poorly planned development can directly or indirectly threaten existing wetland and riparian areas.

• *Conversion to cropland and uncontrolled grazing.* Kansas is fortunate to have productive farm and range land. Kansas' farmers and ranchers are helping to feed the world. However, in trying to be more productive, some have converted valuable wetland and riparian areas into areas for agricultural production. In fact, conversion to agricultural production is the principal reason that so many of the wetland and riparian areas in Kansas have been lost. Although existing incentives and regulations may discourage additional conversion, it is possible that more areas will be converted to agricultural production in the future. However, not all farmers have converted their wetland and riparian areas into agricultural production. In fact, some have enhanced their wetland and riparian areas so that they can reap the benefits that these areas provide.

• *Flood control and channelization.* Flood control and channelization projects have been both helpful and destructive to society. While these projects have generally reduced flooding and increased the navigability of rivers, they have in some instances harmed wetland and riparian areas. Channelization has increased downstream flooding in some cases. By diverting water in a controlled manner, wetland and riparian areas are often bypassed. Consequently, they dry up and become upland habitat. Channel straightening is also very destructive to natural riparian areas.

• *Lack of Public Awareness.* Perhaps the single biggest threat to wetland and riparian areas is lack of public awareness of development impacts on wetlands and riparian areas. Many people do not recognize the value and importance of wetland and riparian areas. As a result, they may not be inclined to care for them. Regulations and incentives can help protect wetland and riparian areas, but without public understanding and concern, these areas may continue to be threatened.

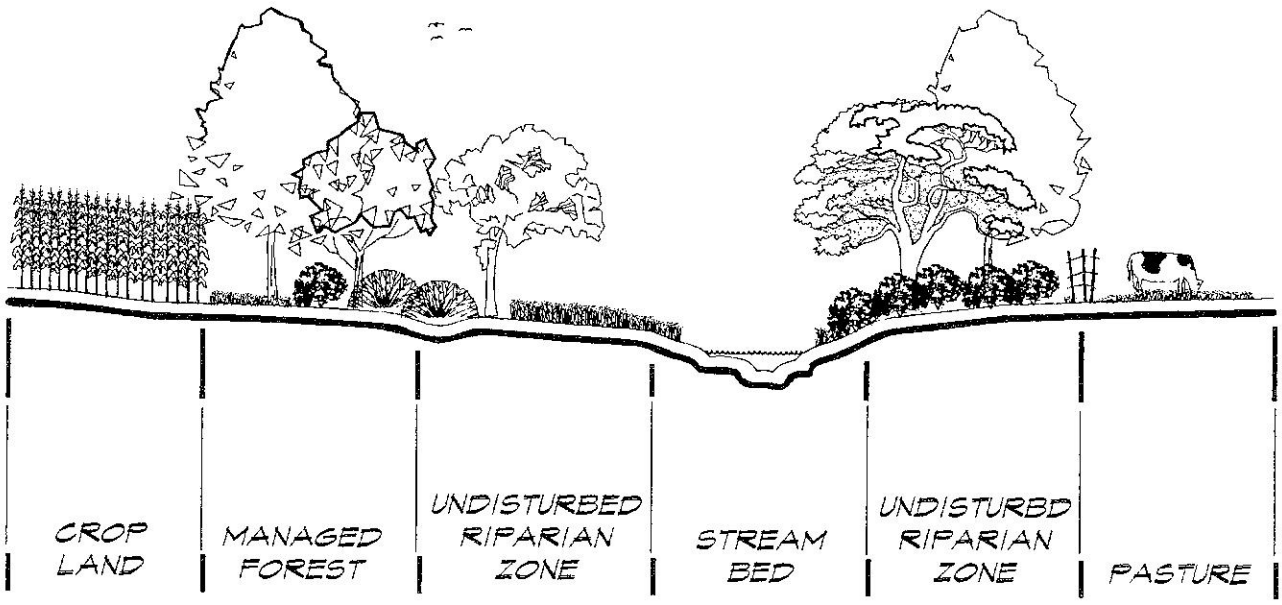

Figure 2.4. A cross section of a typical Kansas riparian zone. Areas may vary in their topography, vegetation and land use (after Welsch, 1991).

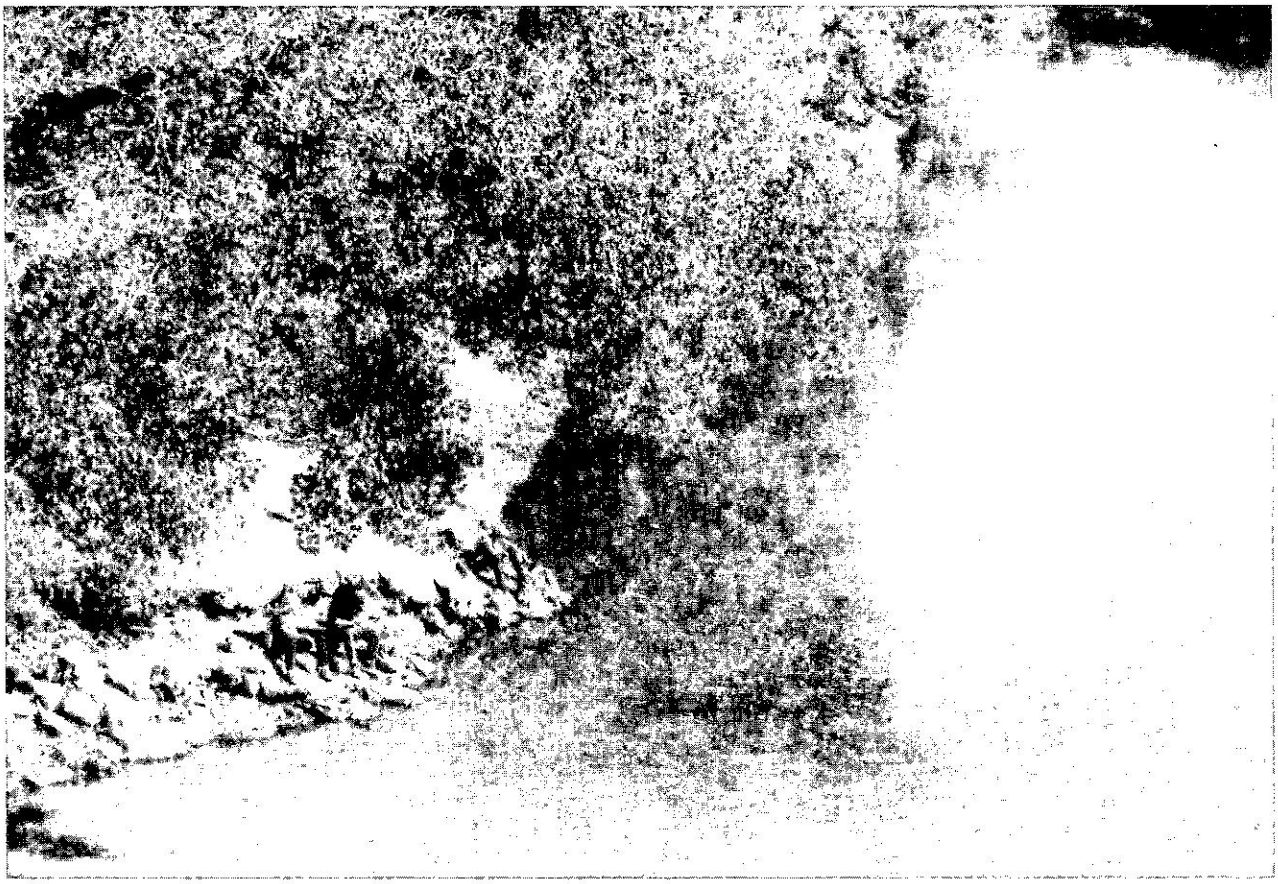

Figure 3.1: A couple of anglers participate in recreation in a healthy riparian area.

SECTION THREE:
PLANNING PROCESSES

Determining the values and uses of wetland and riparian areas as resources both for the individual and the public at large requires that communities, land-owners and managers consider a range of issues and how best to deal with them. This is perhaps best accomplished through the public planning process which is commonly employed at the local level in communities throughout the United States. This section presents an overview of the nature of planning and the local planning process, as practiced both in the private and public sectors. It also looks at ways by which wetland and riparian values can be integrated within this process.

In basic terms, planning is a process through which people work together to devise courses of action to attain their desired goals, to improve their quality of life. An effective planning process can be a way for people to achieve a consensus on community needs and to work toward meeting those demands through efficient and equitable means. Inasmuch as wetland and riparian areas can serve as valuable resources for individuals and communities to meet their present and future needs, those involved in local planning activities should carefully consider how wetland and riparian values can be integrated with actions taken by a community to enhance its well-being.

Communities today are not as self-sufficient as in frontier days; their livelihoods are linked with the economic conditions of the surrounding region, nation and world. Furthermore, communities find themselves in greater competition with each other in acquiring economic resources to achieve the "good life" for their residents. Therefore, in the 1990s, as perhaps never before, effective local planning may be the key for many communities to sustain themselves into the next century. It should be noted that local planning in Kansas is not fully operational in all 617 cities and 105 counties. A study in 1990 indicated that slightly less than 50% of cities (under 2,500 population) and counties had comprehensive plans. Just over 50% of cities (under 2,500 population) and counties had planning boards/commissions. Development review is the responsibility of these local planning boards/commissions with recommendations to the city/county commission for official action.

Types and Purposes of Planning. The planning function at the local level rests with the planning commission, a group of citizens which provides advice to the city or county commission on land use issues. One of the major functions of the planning commission is to oversee the preparation of the community's comprehensive plan. This is a document which sets the community's goals for development and identifies ways by which those goals can be carried out. It shows desired locations for private land development or redevelopment in the future, according to the types of uses such as residential, commercial, and industrial. It also identifies the public investment necessary to support this development, such as streets, sewer and water lines, schools, and parks.

In some communities, planning is not only conducted city-wide, but also in smaller areas such as neighborhoods. This approach is especially appropriate for those situations in which challenges are localized or may best be handled on a smaller scale. On the other hand, some issues affect more than one community, such as water supply and transportation. In these cases, communities have joined together to form regional planning commissions or councils of government to seek solutions beneficial to all.

Yet another form of planning that is gaining in popularity is strategic planning. Though it has been practiced in business and industry for a number of years, its application by local governments is a fairly recent phenomenon. Strategic planning is designed to look at major issues (such as economic development) and resolve these issues through formulation of action plans for implementation over a year or more.

The types of planning -- comprehensive, neighborhood, regional, strategic, and others -- may differ in scale and time and may focus on different types of issues (see Table 3.1). Actions resulting from the planning process may be carried out within a year or may require a commitment of several decades. They may require little public investment or might involve the commitment of millions of dollars. Nonetheless, the basic process for each is essentially the same. It is necessary to organize the process in a systematic, yet flexible, fashion that includes appropriate consideration of important issues while affording ample citizen participation in decision-making.

One of the keys to successful planning, especially at the local level, is citizen commitment to and support of the planning process. Decisions made as a result of planning can and do have an impact on the lives of individual citizens. Therefore, to ensure that these decisions reflect individual needs, it is necessary that the citizens of a community are involved in the planning process. The planning commission should take necessary steps to ensure that citizen ideas are actively sought and that citizen input in decision-making is guaranteed. This can be done through a variety of means, including public forums, "town-hall meetings" or the creation of citizen task forces to examine issues of interest.

TYPES OF PLANNING					
PLAN TYPE	**SCALE**	**TIME FRAME**	**FOCUS**	**MULTI-ISSUE?**	**FUNDING**
NEIGHBORHOOD	Local Neighborhood	Short-term	Social, Economic, or Land Use	Yes, possibly	Local, State and/or Federal
COMPREHENSIVE	Community- Wide City County	Long-term with Short-term updates	Multi-faceted	Yes	Local, State, and/or Federal
STRATEGIC	Variable	Variable	Social or Economic	No	Local and/or State
REGIONAL	Multi-county Multi-community	Long-term, but may be Short-term	Multi-faceted, but may focus on Social or Economic	Yes, generally	Local, State and/or Federal

Table 3.1: Types of Planning.

The Comprehensive Planning Process. The process of making decisions for a community should be systematic and open to public participation. Such a process is presented in Figure 3.2 on the following page. There are a number of similar approaches, and most can be effective if they help the decision-makers identify the issues and the alternatives, then make and implement appropriate choices with the participation of the public. The Local Planning Process diagram shows the decision-making process as a cycle, open to continued reassessment and evaluation. This process is especially appropriate in comprehensive planning or complex problem-solving, but it (or a simplified version) can be useful in any planning.

The process (as shown in Figure 3.2) begins with **identifying the goals and objectives** that the community has. In the case of wetland and riparian area stewardship, the goal is to protect and conserve wetland and riparian areas. Goals are broad and general statements that indicate what the people view as a desired outcome from specific actions taken as a result of the planning process. Objectives are more specific than goals and are measures of achieving the broader goals. A community goal, for example, might call for the stabilization of the community's population at a designated level, while an objective might be to attract a specific number of jobs targeted for those within a certain age range. Goals and objectives should be measurable; otherwise, the community will not be able to tell whether actions resulting from the planning process were achieved. In the first step, the stress is on "preliminary," as some of the issues may not yet be fully clarified and thus should be open to modification as the process proceeds. This preliminary goal-setting exercise is necessary, because it helps the participants to achieve an initial understanding of the tasks before them and to set the basic framework for subsequent steps in the planning process.

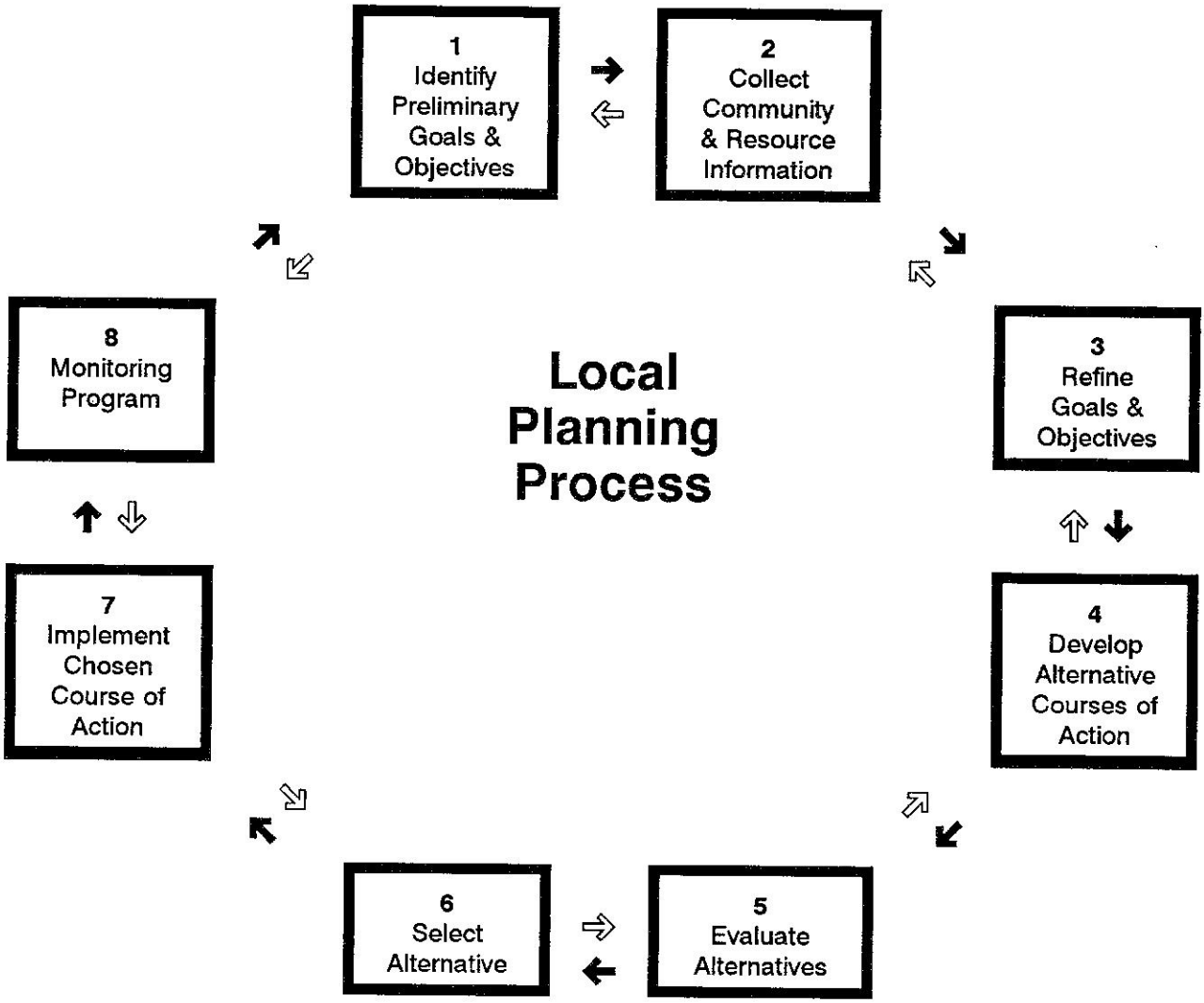

Figure 3.2: Diagram of the decision-making activities in a local planning process. The darker arrows indicate the direction of decision making tasks. Lighter arrows indicate information feedback during the process.

Wetland and riparian areas can be "useful" for communities in a variety of ways, depending upon the values people place on them. Some communities may view wetland and riparian areas as having definite economic value for development and thus may devise strategies for such a use. Others may believe that wetland and riparian resources hold an intrinsic value in their current state and thus will focus on means by which they can be preserved -- that is, maintained undeveloped for their natural value. Still, other communities may see that wetland and riparian areas may be valuable if managed in such a way as to maintain their benefits over time, say as a water filtering basin for quality improvement, a floodwater detention pool, an outdoor classroom, or a natural park. In all instances, a community may consider conservation options to ensure that wetland and riparian areas are sustained over time, providing continuing benefits into the future.

Community goal-setting process should rest with the people; residents should determine -- through democratic means and procedures -- the values the community places on wetland and riparian areas. Though some communities may opt only for development options within established programs and regulations, this planning guide is prepared for those communities that opt to pursue preservation or conservation objectives as well as development.

The second step in the Local Planning Process is **to collect community and resource information.** This includes the process of identifying the natural, cultural and social resources base of the community, especially as these resources are affected by the goal of conserving wetland and riparian areas. This may be accomplished by preparing an environmental baseline study that inventories the resources of the community. In this step, it is appropriate to consult with state and federal agencies, beginning with the local Conservation District and the local office of the Soil Conservation Service. These agencies can help a community determine what other agencies might need to be included in the study. An environmental baseline study includes gathering and assessing the ecological conditions of soil, water, vegetation, wildlife and other related resources of the area to be evaluated. Community information includes identifying local priorities, zoning and planning ordinances, and other economic, historical, social or legal factors.

In small communities, state and federal agencies may be the principal sources of technical information and advice. If the jurisdiction doing the planning (such as a community or county) has a professional staff with responsibility for planning or management of public works (such as a county planner or county engineer), those persons should be involved in the planning process. Some communities will choose to hire private consultants (such as planners, landscape architects, or engineers) to assist them with planning. In larger communities, most of the gathering and interpretation of technical information for planning may be done by professional staff employed by the city or county or by private consultants. In either case, it is still appropriate to seek assistance from state and federal agencies.

The third step **refines goals and objectives** based on findings of the community and resource information. When potential problems or opportunities are identified in the inventory stage, the refined goals should make special effort to address identified problems or opportunities. These refined goals and objectives should be as inclusive as possible to account for the wide range of issues faced by the community. The following Table 3.2, *Model for Goal Development*, shows the relationships between values, goals, and objectives and gives some examples of each.

In setting goals and objectives, it is important that alternative approaches be considered, because there may be a variety of actions which may be taken to achieve the established goals. For example, if the goal of the community is "to reduce flooding and flood damages, one way to achieve this goal is to channelize and pave the stream, which is costly and usually causes problems downstream. A more environmentally sound approach would be to establish a riparian buffer zone of 100 to 200 feet and a wetland to absorb runoff, reduce soil erosion and prevent damage to buildings.

The fourth step is **to consider and develop the appropriate alternative courses of action** that can be applied. In wetland and riparian area conservation, planners might consider the suitability of overlay zoning, special natural resource protection districts, planned unit development approaches, site development review procedures or other techniques.

MODEL FOR GOAL DEVELOPMENT		
CRITERIA	**DEFINITION**	**EXAMPLE**
VALUE	General characteristic or issue rated in terms of its usefulness, importance, or general worth	*"High Quality of Life"*
GOAL	An area, object, or mark toward which actions are to be directed	*"Reduce Flood Damage"*
OBJECTIVE	A measurable end to goal-oriented actions	*"Achieve Stormwater Retention of ZERO - RUNOFF," as measured by:* $\frac{(\text{Post-Development Runoff}) - (\text{Pre-Development Runoff})}{(\text{ZERO-RUNOFF})}$

Table 3.2: Model for Goal Development

Options formulated by the community to preserve or conserve wetland or riparian areas can vary widely. These may include (but are not limited to):

- encourage owners of wetland and riparian areas to dedicate land for open space, parks or floodways and to adopt "best management practices" on these areas;

- financial incentives, such as income tax credit for donated easement on wetland and riparian holdings, to encourage landowners to maintain the ecological integrity of these areas;

- enact zoning regulations that prohibit or limit development in wetland and riparian areas and, perhaps, adjacent properties;

- establish "performance standards" for management of wetland and riparian areas and adjacent properties so that activities on them do not adversely affect the integrity of the wetland or riparian area; and

- purchase of wetland and riparian areas by the government or a non-profit entity so that they can be preserved for use as a park.

In the fifth step, **the various alternatives or proposals are evaluated**. Here it is important in community planning to include public participation in review and decision-making. This leads to more understanding and support between the public and elected or appointed decision-makers. Though many may believe that least-cost options are the "best" or most "feasible," it may, in fact, be of greater importance to carefully evaluate an option on its capability to meet the stated objectives and the cost over the life span of the option. For example, a business park or tax incentives alone may not be sufficient to stimulate economic development in the community. It is thus important that community leaders consider all the "linkages" involved in improving the quality of life.

Selecting appropriate courses of action is the sixth step in this model. The alternative(s) selected might end up being compromises or hybrid versions of some of the original proposals. Decision-makers will be trying to balance issues of conservation and environmental quality with issues of sustained economic and social needs. Further, the implementation of some options may lead to some beneficial or detrimental "spin-off" effects. These possibilities also should be considered during the evaluation of alternative measures.

Once the approach is selected and adopted as local policy, the designated agencies, developers, landowners or other must **implement it.** This seventh step becomes an ongoing part of carrying out the recommendations of the planning process and endeavoring to achieve the goals identified earlier in the planning process. During this process, citizens are given an opportunity to review the plan document and provide their reactions and suggestions. Again, citizen involvement in this process is extremely important, because the eventual decisions made as a result of the plan can have a direct impact on the public.

The last step in this model is **monitoring** -- that is, periodic review of policies or planning tools implemented to determine how well they are working and whether or not the goals are being met. This step reinforces the philosophy that local community planning is a continuous and ongoing process. The diagram also shows feedback arrows at each step indicating that the process moves back and forth between the various steps as is necessary to facilitate the best possible decisions.

The entire planning process must be flexible enough to account for economic, social, environmental or other changes that may occur during or after the planning activity. Generally, the planning process results in a future land-use plan that is used as a guide for future development (see *Figure 3.5: Sample Community Development Plan.*). Some unforeseen events, within or beyond the "control" of the local community, may lead to different community needs or may require different strategies to deal with local challenges as they arise. Or, actions taken as a result of the planning process may lead to different situations that require new approaches to deal with them. It is thus necessary for the planning process to continue to accommodate and deal with new challenges when they occur.

The intent for local land-use planning is to ensure that actions of a private land-owner do not infringe on a neighbor's enjoyment of his or her property or the public's right to enjoy community resources. However, it is important to note that individual landowners hold considerable autonomy in making decisions regarding the use of their land, consistent with regulations. Farmers, for example, exert control over their production activities and land improvements needed to meet their production goals, while business owners and private residents can make similar decisions affecting the use of their property, consistent with regulations.

Likewise, the stewardship of land and water resources to ensure their continued productivity and enjoyment is not under the exclusive control of governmental agencies. Land operators can exercise a wide range of choice in determining how best to maintain or even enhance the productivity of their land.

A *Wetland and Riparian Areas Planning Checklist* has been developed to assist individual landowners or community planners and citizens with the process of gathering information and making decisions. The *Checklist* is organized to reflect the planning activities described in *Figure 3.2: The Local Planning Process.* Examples of the use the *Checklist* are shown in Section Five of this *Local Planning Guide*.

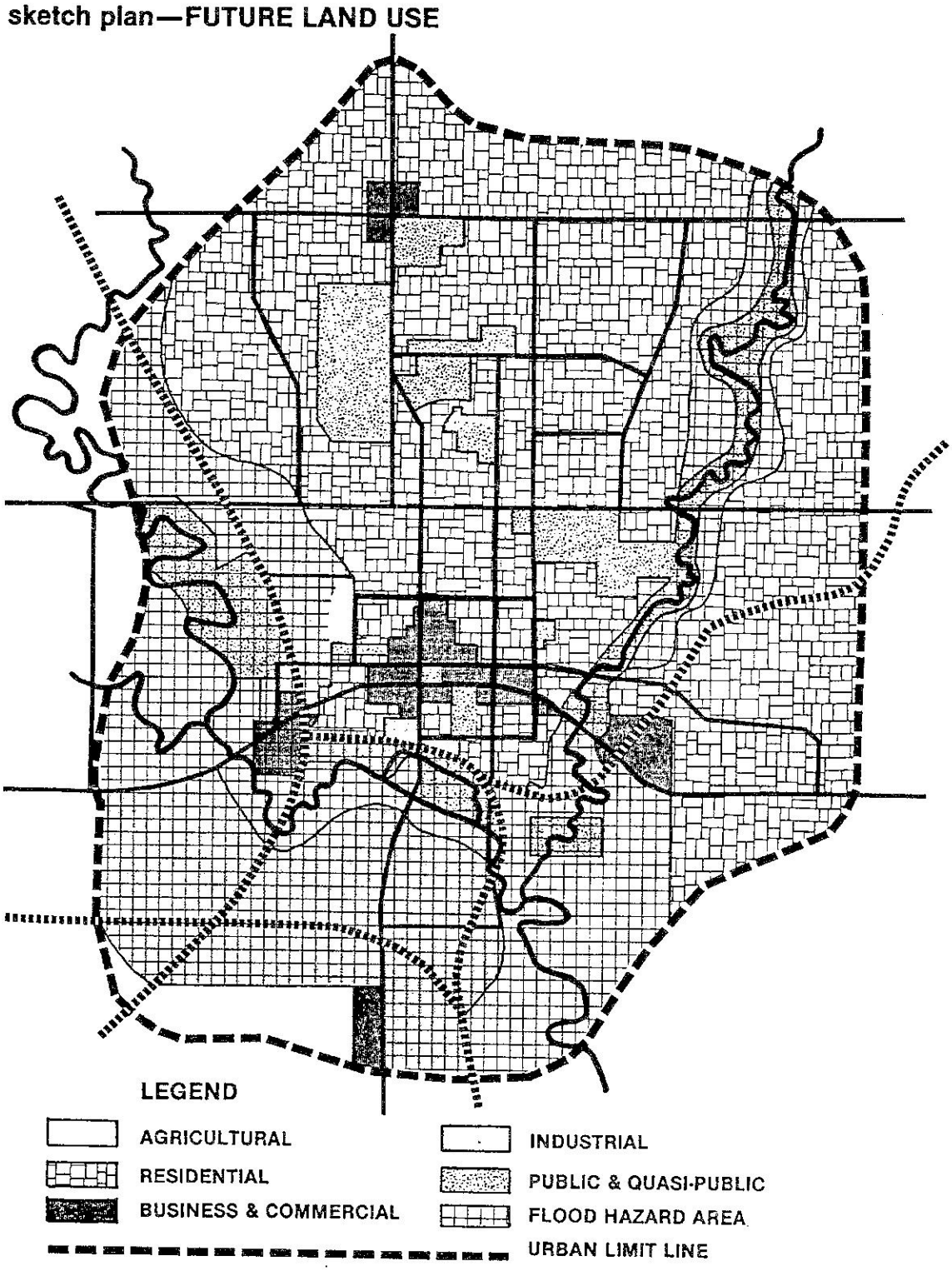

Figure 3.3. Sample Community Development Plan. (Reproduced with permission of Enron Corporation, Formerly Northern Natural Gas Company.)

WETLAND AND RIPARIAN AREAS PLANNING CHECKLIST

Guidelines: The following provides planners, developers and landowners with a general checklist for wetland and riparian areas planning in Kansas. Refer to SECTION THREE of the *Local Planning Guide* for a more detailed description of the planning process and to SECTION FIVE for examples of private and public planning. This checklist may be used to assist planning by individual landowners or operators or by communities making decisions for larger areas. The numbers correspond to the numbers in the planning tasks of Figure 3.2.

Project name: _____

☐ Individual Parcel Planning ☐ Community Area Planning

1. IDENTIFY PROJECT GOALS AND OBJECTIVES

Following are typical planning goals for wetland and riparian areas. Rank each as either a major, moderate, or minor goal of the project. For public planning projects, give the public an opportunity to help identify the major goals.

_____ Protect or enhance water quality. _____ Protect or enhance water quantity.

_____ Reduce severity of flooding. _____ Protect or enhance plants or wildlife.

_____ Provide economic opportunities. _____ Provide social and aesthetic opportunities.

_____ Other (Describe): _____

2. COLLECT COMMUNITY OR SITE CONTEXT AND RESOURCE INFORMATION

☐ Identify and describe the boundaries of the study area _____

_____

_____

_____

☐ Contact appropriate agencies and organizations for planning assistance. The local office of the Soil Conservation Service or the local Conservation District Board is a good place to start. Also review a copy of *Wetland and Riparian Areas Program Directory Manual* (State of Kansas, 1992). This manual provides a list of agencies and organizations in Kansas that have regulatory control of wetland and riparian areas or that may be able to offer planning or financial assistance.

☐ Identify, map, and photograph existing wetland and riparian areas in the study area. Some maps may already exist -- check with appropriate agencies. If existing maps are not available, have resource professionals conduct site visits to determine where wetland and riparian areas exist.

☐ Determine ownership and the present and desired uses of the wetland and riparian areas and adjacent lands.

☐ Classify the existing wetland and riparian areas according to *Classification of Wetland and Riparian Areas in Kansas* (State of Kansas, 1992).

☐ Determine which regulations apply to the existing wetland and riparian areas.

☐ Identify and rank the values and functions of the wetland and riparian areas. These may relate to the goals described in Step 1.

- ☐ Following are typical threats to wetland and riparian areas. Rate each as either a major threat, moderate threat, or little or no threat to the wetland and riparian areas in the study area.

  _____ Conversion to cropland.

  _____ Uncontrolled grazing of livestock.

  _____ Flood control and channelization.

  _____ Urbanization.

  _____ Lack of public understanding.

  _____ Other_____

- ☐ For public projects, develop a forum to encourage public input in the planning process.

3. REFINE GOALS AND OBJECTIVES

   - ☐ Based on insights gained from the information analyzed, review and refine the goals and objectives identified in Step 1.
   - ☐ Clearly and succinctly describe in writing the major goals and objectives of the project.

4. DEVELOP ALTERNATIVE COURSES OF ACTION

   - ☐ Develop various alternatives courses of action to meet the goals and objectives of the project. Refer to the *Best Management Practices Manual*

5. EVALUATE ALTERNATIVES

   - ☐ Evaluate the advantages and disadvantages of each alternative.
   - ☐ For public projects, give the public an opportunity to comment on the various alternatives.

6. SELECT ALTERNATIVES

   - ☐ Based on the evaluation of the alternatives, choose the course(s) of action to implement.
   - ☐ Identify and describe the proposed management plan _____

   _____

   _____

7. IMPLEMENT CHOSEN COURSE(S) OF ACTION

8. MONITOR AND EVALUATE ACTION

   - ☐ Periodically monitor the chosen course of action to determine if it is meeting the goals of the project. Make adjustments as necessary.

Land resources provide one with a livelihood; the owner or manager is most concerned that land productivity is maintained -- even enhanced -- over time. To ensure the continuation of that livelihood, operators may wish to consider strategies within a framework very similar to the community planning process as outlined above. The USDA Soil Conservation Service County Office and the conservation district offices, among others, provide technical assistance to landowners and managers in determining possible courses of action. The Soil Conservation Service, for example, uses the following nine-step process for landowners seeking SCS assistance:

- Identify the problem
- Determine the objectives
- Inventory the resources
- Analyze the resource data
- Formulate alternative solutions
- Evaluate alternative solutions
- Client determines a course of action [makes a decision]
- Client implements the plan

A landowner may seek assistance from the conservation district and soil conservation office located in every county to implement a wide range of "alternative solutions" for the conservation or preservation of wetland resources or riparian areas, consistent with regulations. Other sources of local planning assistance include watershed districts. These could range from less intense cropping patterns on lands adjacent to wetland and riparian areas to fencing so as to prevent access by livestock. Collectively, these means are known as "best management practices" (BMPs), which owners can employ to conserve resource productivity. Examples of these BMPs are discussed in Section Five of this report.

Planning Issues. Planning and development challenges faced by Kansas communities are more diverse than the mere difference in size between small communities and larger cities. Many small communities have experienced population loss and a decline in their economic base for decades. Others, however, have managed to maintain their population levels and economies or have even grown. This growth can be attributed to a variety of reasons, ranging from securing new employers to the development of tourism resources. Still, other small towns are becoming attractive as "bedroom" communities within easy commuting distance to larger cities.

Planning issues in larger cities, like smaller towns, are diverse as well. For several years now, downtown business districts have experienced a loss of retail functions to suburban locations. Much of the population has followed. Older sections of urban areas thus are faced with the prospect of reversing the decline and maintaining infrastructure and other public services for those who remain. On the other hand, suburban areas are faced with the pressures of accommodating families and businesses which may wish to locate there.

Though development patterns and planning issues are indeed diverse throughout the state, they do comprise a common set of concerns that require the implementation of different planning strategies. Among these concerns are:

- Infrastructure: The need to maintain roadways and utilities in struggling small communities and aging central cities, while keeping up with the demand for these services in growing communities and suburban areas.
- Commerce and industry: The need to maintain the economic base in small towns and central cities while encouraging sound development in communities experiencing growth pressures.

- Housing: The need to preserve the existing stock in areas suffering from economic decline while accommodating affordable residential development in growing areas.

- Services for special populations: The need to provide or maintain access to health and social services for those with special demands, such as the elderly, disabled and minority ethnic groups.

- Environmental and natural resources: In many communities, quality of life may depend on the way in which the community deals with its natural resources. If there are significant wetland or riparian areas within the community or its growth path, decisions about their use and management may have great impact on the future quality and value of those resources.

Issues pertaining to natural resources conservation and development likewise are diverse, but, like other planning issues, provide the opportunity for considering how to deal with them. Perhaps the most critical natural resource issue facing Kansas is the need for an adequate supply of water of high quality to meet the various demands placed upon it. In rural areas, for example, the needs of irrigated agriculture require adequate water supplies from both surface sources (rivers and reservoirs) and aquifers. In some areas, though, supplies have been depleted to an extent that continued profitability of irrigated agriculture has been threatened. Likewise, depletions have threatened continued existence of wetlands, streams and other natural areas.

Wetland and riparian areas can be useful for a variety of needs. Streams and areas along watercourses provide habitat for fish and wildlife, afford scenic values and recreational opportunities, facilitate drainage, and provide access for water transportation. Wetlands also provide habitat resources, assist in groundwater recharge, act as a natural "cleanser" for water, and serve as resources for scientific study.

Wetlands and riparian areas also may be viewed as meeting other potential needs as well. In rural areas, they may be viewed as profitable for conversion to agricultural uses. In urban areas, they may be viewed as desirable sites for residential, commercial or industrial expansion. In many cases, development could reduce or eliminate the values wetland and riparian areas provide in their non-developed state, if this is not included for partial retention in development.

The dilemma in the planning process is how to resolve the competition among the several values that wetland and riparian areas may provide, in either their developed or undeveloped state. Laws at various levels of government restrict the types of development permissible in these areas. Development in flood plains, for example, is regulated or at least discouraged through federal, state, and local laws and insurance provisions.

The issue becomes a choice between the values provided through development versus those from maintaining wetland and riparian areas in their undeveloped state. There is no "simple" method of making such a choice. A benefit-cost analysis can be useful in comparing the development and no-development options, but only if benefits and costs of each can be estimated accurately and in common terms.

The construction costs of drainage, land conversion, and cultivation or construction can be determined with relative ease, as can the projected income generated by the new development. However, by comparison, the benefits provided by the wetlands and the costs relative to their loss cannot be as easily assessed in market terms. Placing a monetary price on the "value" of habitat preserved or the "cost" of its loss may be difficult to determine, for example. This is further complicated when considering that benefits as provided by wetland and riparian areas, and the costs of their conversion, may be felt far beyond the

immediate area (throughout the watershed or groundwater aquifer for example) and may extend far into the future.

Regardless, costs and benefits related to conservation of wetland and riparian areas cannot be ignored. In Kansas, the local unit of government can regulate the proposed development in accordance with Federal and State restrictions on filling wetlands and affecting streamflow, and consistent with the protection of public health, safety or welfare.

Resolution of these issues would seem to rest appropriately with the public's determination of its goals for development, to achieve its desired "quality of life." In this regard, it seems most appropriate that "the public" would include those citizens residing in areas served by the wetland or riparian areas in question, that is, in the immediate watershed or groundwater basin, as well as distant users downstream. At the same time, consideration should be given to another "public," future generations. When a natural system is lost to development, future generations lose the benefit of the original natural system.

Conflicts over values or goals placed on publicly owned or regulated wetland or riparian areas thus might best be resolved in the public arena by appropriate duly elected representatives. Values or goals for privately owned areas considered for development would be included if the public interest exists. Once consensus is reached on these goals, the means by which these goals can be reached may follow as a matter of course.

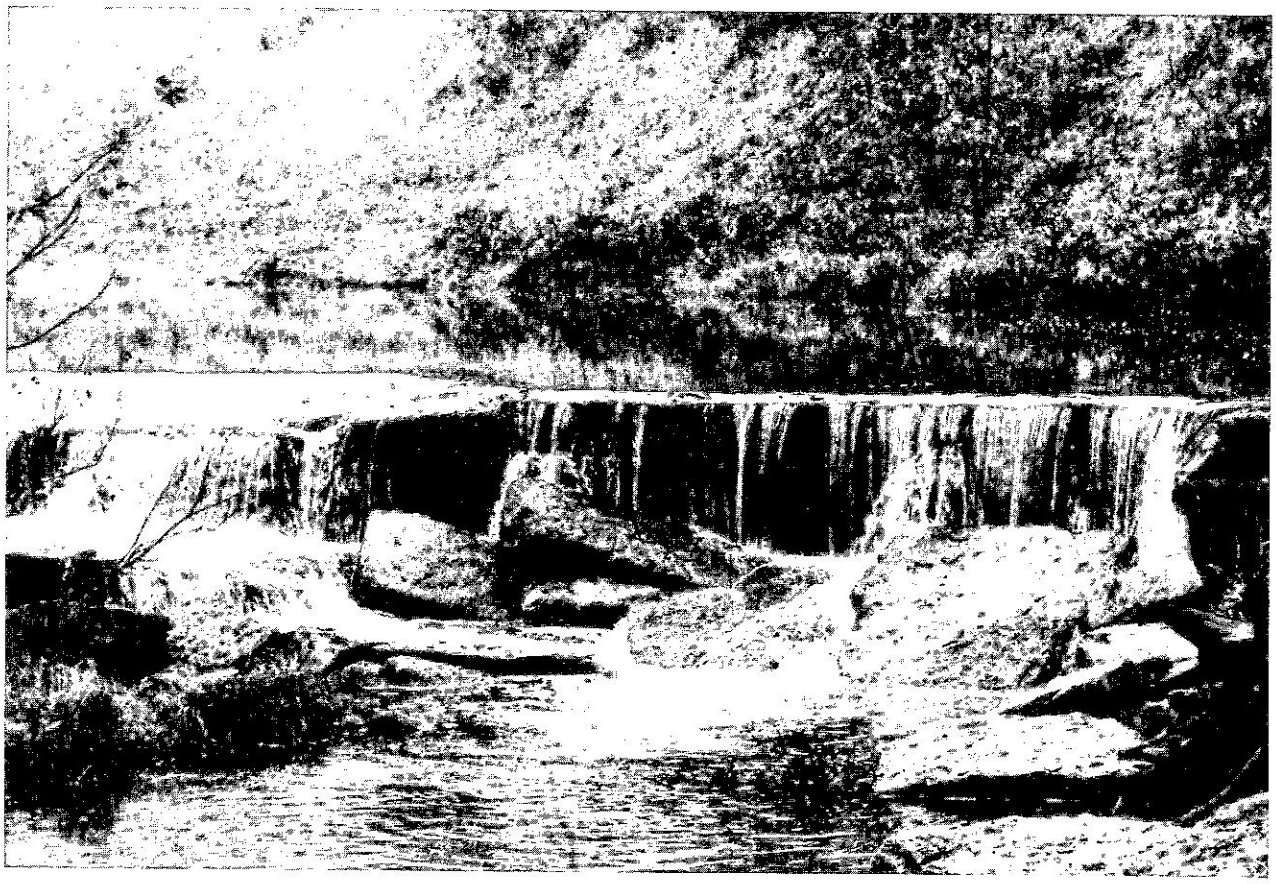

Figure 4.1: A Kansas riparian area.

SECTION FOUR:
INSTITUTIONAL FRAMEWORK

More than half of the Nation's original 215 million acres of wetlands have been converted to other uses. Of the 99 million acres remaining in the 1970s, an estimated 300,000 acres per year are currently being converted to other uses (Council on Environmental Quality, 1989).

Statutory and Regulatory Protection. A number of federal and state programs exist that provide protection to wetland and riparian areas. See Table 4.1 for program types available by agencies. The WRAP Program Directory Manual describes these programs in detail. The primary federal protection program is the Clean Water Act of 1972 (Section 404), administered jointly by the Corps of Engineers (Corps) and the Environmental Protection Agency (EPA). A permit review process is required for converting wetlands to some other use or condition. The Food Security Act of 1990 (FSA) includes a wetlands regulation, "Swampbuster;" if a farmer drains a wetland, he or she is ineligible for federal farm subsidies. This program is administered by the Agricultural Stabilization and Conservation Service (ASCS) and the Soil Conservation Service (SCS) of the U.S. Department of Agriculture (USDA) with the U.S. Fish and Wildlife Service (FWS) involved. The

Emergency Wetlands Resources Act of 1986 directs the FWS to develop a National Wetlands Priority Conservation Plan to identify and rank desired federal and state wetlands acquisitions and to conduct a National Wetlands Inventory to map wetlands. Although funds have not been appropriated to implement the provisions of this Act, some national wetlands inventories have been initiated.

Other federal agencies have environmental review responsibilities---permits, licenses, loans, and other subsidies---for wetlands conversions. The National Environmental Policy Act (NEPA) requires an environmental assessment or an environmental impact statement (EIS) subject to public notice and comment before proceeding with a federal action affecting the environment, including wetlands. The National Historic Preservation Act and the Preservation of Historical and Archeological Data Act require federal agencies to consider the effect of construction on historic and cultural sites, including wetlands. Executive Order 11990, Protection of Wetlands, and Executive Order 11988, Flood Plain Management, directs all federal agencies to protect wetland and floodplain resources.

Various state agencies also have regulatory responsibilities for providing protection to wetland and riparian areas. For example, the Kansas Corporation Commission regulates water and soil pollution associated with oil and gas production. The Kansas Department of Health and Environment regulates water quality standards and local sanitary codes, particularly non-point source pollution of water resources. The Kansas Department of Wildlife and Parks reviews public agency (state and federal) projects for environmental impact on threatened and endangered species. The Kansas State Board of Agriculture, Division of Water Resources, regulates floodplain development and management.

At local levels of government, there are a number of protection techniques available for wetland and riparian areas. A key consideration in both rural and urban communities is that regulations should be simple and based on local values and needs in a manner that fosters compliance with existing statutes. In the larger cities and in rural areas, a major issue is the balance between the pressures for private development and the concern for public interests.

The local comprehensive plan is the guide for community development and is based on an inventory of resources, including physical and natural, and an analysis of values, benefits and costs for all public actions, including wetland and riparian areas. The community planning process involves public officials, citizens, and professionals in public hearings on the comprehensive plan so that public and private interests are represented before the plan is adopted and implemented.

After the comprehensive plan is approved, there are two major regulatory tools for implementation that are based on the authority of government to protect the public health, safety, and welfare. Zoning is the division of the unit of local government into geographic districts for regulation of land use activities (such as residential, commercial, industrial, public, and agricultural uses). Local government regulates land uses, structures, and performance standards on private property. A variety of flexible zoning techniques include special permits, cluster zoning, critical areas zoning, performance based zoning, overlay zoning, and large lot zoning. These flexible zoning techniques are based on the negotiation of property development to allow multiple land uses, variable densities and other special considerations. Land use regulation is the most commonly used protection technique for wetland and riparian areas in the United States according to the American Planning Association (APA) (Burke, 1988). This APA report has a model ordinance for wetlands protection. The model ordinance describes several components that should be in any locally developed ordinance.

The APA model ordinance recommends that a basic local regulation should include the following components:

- a statement of protection goals,
- a definition of a wetland,
- a list of prohibited and permitted uses or performance standards, and,
- a statement on penalties.

Subdivision regulations are another protection technique for wetland and riparian areas. Subdivision regulations are the restrictions that control the conversion of vacant, unimproved land into building sites with consideration of topography, drainage, transportation, water supply, waste disposal, and utilities. Essentially, local government regulates the conversion of land for building sites to include consideration for physical layout, site improvements, including utilities, streets, sidewalks, vegetation, grading, drainage and lighting, and public areas dedication. A special technique widely used for large parcel land conversion is the planned unit development. A local government regulates Planned Unit Developments (PUD) through negotiation to allow improved site design and multiple land uses and variable densities. Generally, a homeowners association is formed to manage the common developed areas (such as open space and utilities). Another technique is the transfer of development rights. Local government awards development rights to each land parcel based on acreage, zoning or value. Individual property owners can then sell their development rights to others who wish to increase their development density. Generally, such regulations restrict development of areas in which soil, subsoil, or flooding conditions would create public health or safety hazards. The regulatory procedures of zoning and subdivision regulations are detailed in the 1991 Kansas Planning and Zoning Act (Chapter 56 of the 1991 Session Laws of the State of Kansas - 1991 Senate Bill Number 23), especially K.S.A. 24-126, construction of fills and levees.

Other Governmental Assistance for Protection. There are a number of federal, state, and local government assistance programs for wetland and riparian areas protection, including acquisition and leasing, financial incentives, technical assistance, inventory and monitoring, information and education, planning, and research. See Table 4.1 for program types available by agencies. The WRAP Program Directory Manual describes these programs in detail. Briefly, the federal assistance is summarized here. The USDA ASCS provides financial assistance on agricultural conservation and wetlands reserve activities. The USDA Farmers Home Administration (FHA) has resource conservation and development loans and technical assistance and training grants available. The Corps of Engineers has financial and technical assistance for emergency streambank and shoreline protection works for public property and planning assistance to states. The Corps also leases federal lands to the Kansas Department of Wildlife and Parks. The U.S. Bureau of Reclamation has financial and technical assistance for wetland and riparian habitat. The SCS has financial and technical assistance available for conservation operations, watershed planning and operations, resource conservation and development and soil surveys. The U.S. Environmental Protection Agency provides assistance on clean lakes, nonpoint source pollution and wetlands protection. The U.S. Fish and Wildlife Service provides assistance for restoration, enhancement, or creation of wetland and riparian areas; inventory and monitoring of wetland and riparian fish and wildlife species; National Wetland Inventory maps for portions of the state; and information and education on functions, values, management and conservation of wetland and riparian areas.

A summary of state and local assistance in Kansas for wetland and riparian areas protection is listed in the WRAP Program Directory Manual. The Kansas Biological Survey conducts research on aquatic ecotoxicology, natural and scientific areas, water quality, and freshwater biology. The Kansas Department of Wildlife and Parks has programs available for private property

conservation easement; private, organizational and corporate donations; and land and water conservation. The Kansas Department of Health and Environment provides assistance on local governmental protection; nonpoint source pollution and water quality; and, planning for local governmental protection. The Kansas Board of Agriculture, Division of Water Resources, provides assistance on watershed districts and water use. The Kansas State University Cooperative Extension Service has programs on wildlife range and pasture management. Kansas State and Extension Forestry helps on land and forest stewardship and the management, restoration, and conservation of riparian forests. The Kansas Water Office conducts inventory and monitoring of federal reservoir pool level and minimum desirable streamflow, and the planning of state water resources and federal reservoir pool level management. The Kansas Water Resources Research Institute (University of Kansas and Kansas State University) conducts research on water resources. The State Conservation Commission has programs for high priority cost-share on conservation projects, watershed dam construction, and watershed planning; wetland and riparian areas protection; and nonpoint source pollution control.

Other local government techniques for the protection of wetland and riparian areas include public acquisition, easements, tax incentives, capital improvement programs, and public education. Local governments can purchase property with public funds in order to exercise all legal rights to the parcel's use (fee simple). Local government can also acquire a conservation easement on property in order to exercise the public interest in prohibition of undesirable development (less-than-fee interest). Another useful technique is preferential tax assessment on property where local government assesses tax based on the income producing capacity or use value of the existing land, rather than the market value for development. Capital improvement programming by local government can control location, timing and level of public facilities (such as streets, sewer collection, or water supply) in order to limit or discourage development in areas with natural resource value.

	Regulatory	Acquisition and Leasing	Financial Assistance	Technical Assistance	Inventory and Monitoring	Information and Education	Planning	Research
Federal Agencies								
Agricultural Stablization & Conservation Service			x					
Farmers Home Administration			x					
US Army Corps of Engineers	x	x	x	x	x	x	x	
US Bureau of Reclamation			x	x				
USDA Soil Conservation Service			x	x	x	x		
US Environmental Protection Agency	x		x	x	x	x		
US Fish and Wildlife Service	x		x	x	x	x		
State of Kansas Agencies								
Ks Biological Survey						x		x
Ks Corporation Commission	x							x
Ks Dept of Health & Environment	x		x	x	x		x	
Ks Department of Wildlife & Parks	x	x	x	x	x	x	x	
Ks Geological Survey					x			
Ks State Board of Agriculture, Water Resources	x							
KSU Cooperative Extension Service						x		
KSU State & Extension forestry			x	x		x	x	
Ks Conservation Commission		x	x	x	x	x	x	
Ks Water Office	x				x	x	x	
Ks Water Resources Research Institute								x
Private Non-Governmental Organizations								
Baker University					x	x		x
Ducks Unlimited			x	x		x		
Kansas Land Trust		x			x	x		
Kansas Wildlife Federation						x		
Kansas Wildscape Foundation		x	x					
Nature Conservancy		x			x			
Pheasants Forever			x					
Quail Unlimited			x					

Table 4.1: Program Types Available by Agencies. (See Wetland and Riparian Areas Program Manual for details of specific Program in each agency.)

Voluntary Private Organization Protection. Private-sector and non-profit organization programs for wetland and riparian areas protection are available for communities and property owners or operators. A sourcebook was prepared in 1989 by the National Trust for Historic Preservation (NTHP) titled, *Saving America's Countryside: A Guide to Rural Conservation* which describes a number of programs. These programs include notification and recognition to property owners of historic places; voluntary and binding agreements by property owners to conserve, preserve, and protect sites; tax incentives for property conservation; acquisition of conservation easements by government or non-profit organizations; and, voluntary property protection through land trusts.

The WRAP Program Directory Manual summarizes a variety of private organization programs. The organizations mentioned are not an exhaustive list. Baker University has a program for inventory, monitoring, information, and education at three natural areas that contain wetland and riparian areas. Ducks Unlimited includes 90 active chapters in Kansas that support financial assistance, technical assistance, and information and education for wetlands habitat conservation. The Kansas Land Trust has programs for acquisition, leasing, inventorying, monitoring, information and education. The Kansas Wildlife Federation has information and education on wetlands enhancement and protection. The Kansas Wildscape Foundation provides acquisition, leasing and financial assistance to enhance Kansas' natural resources. The Nature Conservancy program includes acquisition, leasing, inventorying, and monitoring of lands and waters for protection. Pheasants Forever provides financial assistance for landowners to plant vegetation and to fence off riparian areas to support and protect pheasants and other wildlife. Quail Unlimited has financial assistance for landowners to plant trees and shrubs and to fence off riparian areas.

Community Education. The various "education" programs available from governmental and private organizations were discussed in the preceding section. The process and elements of "education" at the community level will be described here. Community-wide education about wetland and riparian areas protection and conservation is essential in developing understanding and support for the governmental and private organizations involved in local and area programs. The community education process can include formal and informal efforts, ranging from fair exhibits to media releases. The specific elements or activities of a comprehensive community education process would include:

- media releases (newspapers, radio, and television);
- public agency and private organization newsletters and brochures;
- community programs (workshops, field trips, leadership training); and,
- special events and facilities (public building exhibits, natural resource area tours, community service recognition/award).

It is very important that community residents appreciate the significance of wetland and riparian areas in order to give needed support to community decision-makers on conservation and protection programs. A successful community education program can be instrumental in formulating and implementing a local wetland or riparian areas project.

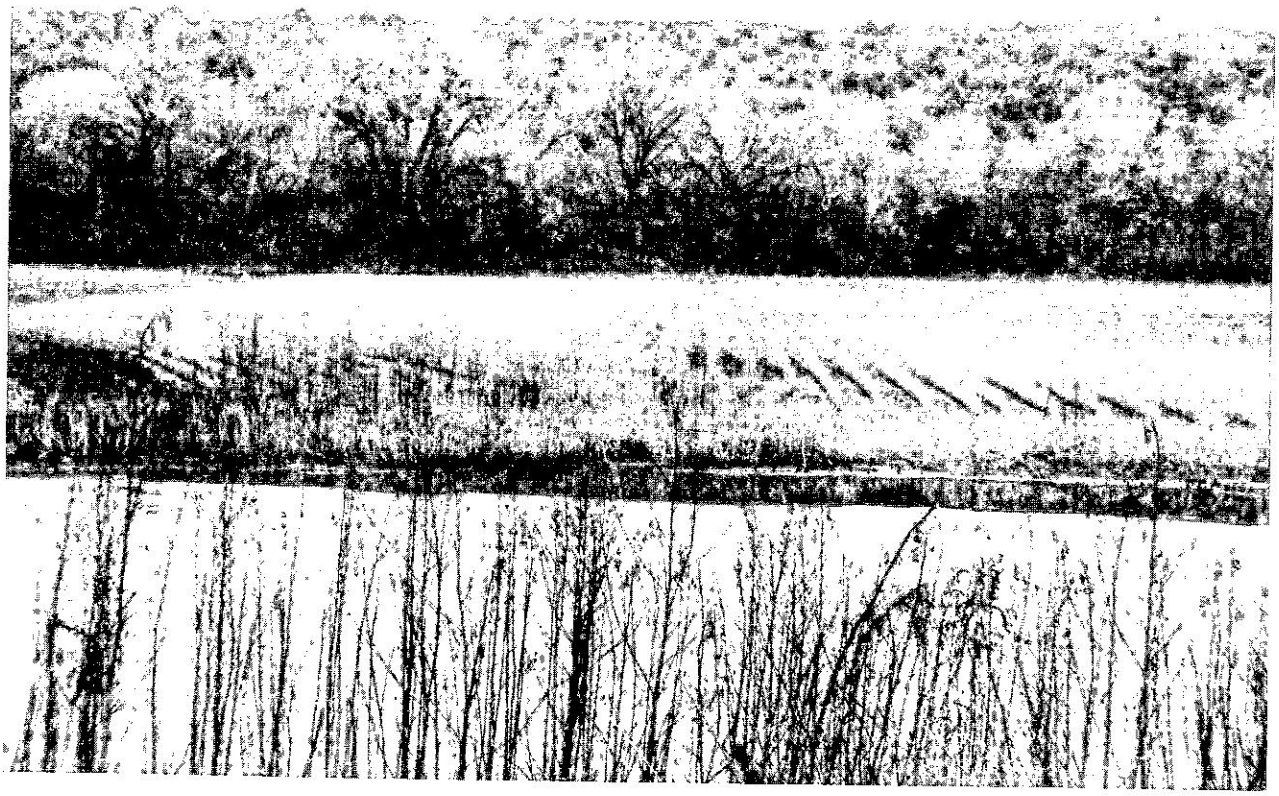

Figure 5.1: Many wetlands and agricultural production areas are adjacent to each other, requiring careful planning.

SECTION FIVE:

PLANNING APPLICATIONS FOR WETLAND AND RIPARIAN AREAS

Successful protection of wetland and riparian areas is a process of careful planning, design and management. This section describes the processes and procedures that individual landowners, developers, communities, counties and others can use to protect and conserve wetland and riparian areas. It is intended to assist landowners, planners, decision-makers and technical professionals in developing and implementing conservation programs.

Planning legislation within Kansas allows and encourages communities and counties to consider natural resources within the process of comprehensive planning. Conservation and stewardship of riparian and wetland areas will not automatically be given high priority unless explicitly addressed by decision-makers during the process of making planning decisions. Although federal and state regulations mandate protection of some wetland and riparian areas, it is important to conscientiously consider them in any comprehensive resource management

planning if conservation and stewardship are to be effective. Such considerations will be important in both public decision-making for communities and in the resource management planning done by private landowners and operators in their operations.

Wetland and Riparian Resources in Local Public Decision-Making. Communities and counties can incorporate wetland and riparian area conservation into their regular planning activities. Although most development of residential and commercial property takes place on private land, most communities have established local ordinances and planning approaches that require public participation in the decision-making process. Within urban and suburban areas, conservation and good stewardship increase the attractiveness of the community, protect air and water quality and decrease the threats of such problems as flooding and erosion. Considering the proper stewardship of wetland and riparian areas should be a standard procedure within the normal process of making the public planning decisions that are typically a part of preparing local land-use plans, zoning or subdivision ordinances. This type of planning is characterized by its comprehensiveness and its long view of the future. Most communities do not prepare comprehensive or land-use plans or write new zoning or subdivision ordinances very often. This means that it is important to incorporate wetland and riparian stewardship and similar natural resource conservation issues if and when such plans or ordinances are reviewed and updated. The American Planning Association has developed and published a model ordinance for wetland protection that can be adapted by local governments (Burke *et al.* 1988). The components of the model ordinance are discussed in Section Four.

For communities or counties that already have comprehensive plans, land-use plans, zoning ordinances or subdivision ordinances, it may be important to consider an addendum or revision to the plan or ordinance. It may be easier to deal with issues of protection of wetland and riparian areas through the development of an overlay zone or a community policy or ordinance on conservation than through revising or rewriting the comprehensive plan or zoning ordinance currently in place.

Many communities will find it easier to adopt a conservation ordinance that requires land-owners and local agencies to protect wetland and riparian areas when property is being developed or redeveloped. Such ordinances can define wetland and riparian areas and describe permitted uses of such areas. Quite often they are enforced or protection is negotiated through site plan reviews that are a typical part of the local approval of development proposals.

Site plan review usually requires that the developer present copies of the proposed development plan to the local planning and zoning review board to be evaluated for compliance with local planning and zoning standards. Sometimes the technical review is done by the city or county planner or a staff member of such an agency. Site plan review is usually a rigorous step when a developer proposes a planned unit development and less rigorous for conventional developments. Adopting a local site development review process which includes an assessment of wetland and riparian conservation impacts would be an effective way of implementing and monitoring a policy on wetland and riparian conservation.

Another good strategy to encourage conservation is to promote the use of planned unit developments (PUDs) for local development projects. A PUD usually allows a developer to propose a design that wouldn't be acceptable under the local planning and zoning policies, and while doing so, creating amenities or circumstances that bring even greater value, utility or attractiveness to the project than might have been possible under conventional development standards. For instance, a developer might propose a PUD with smaller lots than might be required under the zoning

ordinance but then include an area of streamside open space that becomes a recreation and visual amenity to the project and allows for riparian conservation at the same time. Such conservation and amenities might not be possible under conventional development.

When protection of wetland and riparian areas is a part of public policy and implemented through local land-use plans or zoning ordinances, most of the technical review and approval of development plans will be done by a local municipal or county planning or community development department. These agencies may seek assistance from the local Conservation District and the local Soil Conservation Service Office. The Conservation District can also aid with seeking additional specialized assistance (depending on the circumstances) from other state and federal agencies. In addition, developers should use the services of licensed or certified professional architects, engineers, landscape architects or planners familiar with sound wetland and riparian area conservation practices to prepare the plans, specifications and contract documents for such developments.

Managing Private Land and Conserving Wetland and Riparian Areas. Stewardship of the land and its natural components is a conservation ethic that is promoted and respected among landowners and managers. Long-term productivity of farm and ranch operations is dependent upon managing the land and its natural resources well.

Good conservation is a matter of identifying the natural resources that are a part of the land and then using good management practices that will maintain and enhance the long-term health of the resource. Sustained productivity is dependent upon a healthy, well-managed environment. When the land is being used for agriculture, there needs to be an appropriate balance between the management strategies that directly support production and the management strategies that maintain the long-term health of natural systems. Good balance should help reduce environmental impacts -- including development that disturbs such natural systems of drainage and air and water quality, and disturbances by natural systems and processes within the built environment, such as flooding, erosion and air and water degradation.

In recent years, public concern for air and water quality and conservation of natural resources has lead to the passage or proposal of laws and regulations that require land-owners and managers to protect wetland and riparian areas. Regulations may be administered by any of several federal or state agencies. Land-owners or managers can and should consult with representatives of the local Conservation District or the Soil Conservation Service for technical and planning assistance. These agencies can assist the land-owner or operator in determining if technical assistance from other local, state or federal agencies is needed or desirable. The publication, *Wetland and Riparian Areas Program Directory Manual* (Monda *et al.*, 1992), describes the conservation programs of state and federal agencies and is available in Conservation District and Soil Conservation Service offices. There may be some non-governmental organizations, representing the diverse perspectives of agriculture, conservation, hunters, home-builders and others that have interests in the policies and practices of wetland and riparian area conservation. These organizations or individuals may also be able to provide some technical or other assistance to operators and communities. Some management practices may require the operator to apply for a permit to implement the practice. It is important to consult the lead agencies to determine whether or not a permit is required before changing the management practice.

Many rural areas away from metropolitan development have no publicly developed comprehensive plan, land-use plan, zoning ordinance or development guidelines. In such areas, where no change in land use is anticipated, planning and management decisions are usually made by the land-owner or operator

with consultation or assistance from the Conservation District or the Soil Conservation Service. Although some types of conservation may be required by regulation, the owner or operator may choose to apply some voluntary management practices in order to enhance some conservation goals. Some voluntary enhancements may be accomplished with cost-sharing from state-supported conservation programs. Some conservation improvements may lead to enhanced wildlife resources and perhaps to access leases from sport hunting organizations.

While most conservation practices are selected and implemented on a single parcel of land by the land-owner or operator, some conservation strategies may require planning, design and implementation on several contiguous parcels or throughout a watershed. These projects will require more collaborative work with neighbors and assistance from technical agencies than those confined to a single farm. Multi-parcel projects have the potential to make a significant contribution to water quality or resource enhancement on a larger scale. They may lead to watershed improvements that could benefit not only the agricultural operations in the project area but also provide a base for resource improvement and economic development for the region.

Using Best Management Practices to Protect Wetland and Riparian Areas. Land or resource management techniques that attempt simultaneously to protect or enhance the resource and to promote wise use of the land are referred to as *best management practices [BMPs]*. Best management practices may include such commonly known techniques as contour terracing and stubble mulching to reduce erosion. Many conservationists and land managers tend to think of physical conservation improvements made on the land as potential best management practices; however, the philosophy can be extended to such issues as timing of use of the resource or special construction techniques. Most are familiar with the timing practice of crop rotation with fallowing (or no-till resting) to promote conservation and enhance productivity. Timing might be a part of a best management practice strategy in determining when and how long to place animals in an area for grazing to receive the greatest benefit with the least potential damage to the resource.

A best management practices philosophy should also be used in planning any construction activities. Some areas may be more sensitive to disturbance at some times of the year than others. Care should be taken to perform construction activities at a time when the resource is less sensitive to disruption by construction. Construction activities should be performed to protect the resource from the increase in soil, water and construction waste runoff that might occur when land is open and disturbed. It is important that technical experts be consulted in selecting and implementing best management practices. Best management practice techniques that might be used during construction might include the following:

- timing the work to avoid a rainy season,
- using temporary mulches (organic or inorganic) to protect opened land or stockpiled soil from being eroded by wind or water,
- safely collecting and properly disposing of petroleum or other construction wastes, and
- protecting the existing vegetation (including the root zone environment) from injury, soil compaction or runoff of waste products.

In rural areas the Conservation District and the Soil Conservation Service are available to assist landowners and managers in finding technical information, support and (at times) financial assistance in planning and developing best management practices for the land and water resources. If the management goals include wildlife or forestry enhancement, these

agencies can help assist the owner in making contact with other state and federal agencies, such as Kansas Wildlife and Parks, State and Extension Forestry or the U.S. Fish and Wildlife Service, for technical assistance. As a part of the Wetland and Riparian Areas Project, several state agencies have collaborated to develop a technical publication titled *Management Practices for Wetland and Riparian Areas* (Miller *et al.*, 1993) advising landowners and operators and public decision-makers about best management practices.

In urban areas, private developers and city or county commissioners should also use a best management practices approach to the planning, design, construction and maintenance of projects. This can help promote wise use of urban land that still affords protection of critical natural resources within the urban area. As an example, consider the development of a commercial area of about 10 acres of open land with several abutting stores and a large paved parking area. The development will lead to a considerable increase in stormwater runoff, which can have a large impact on the storm sewer system of the city and on its riparian resources. As a design goal, the developer and the municipality could agree on an approach for slow and safe release of storm water, which, in turn, reduces the capacity needed in the sewer system, lowering its costs and reducing some of the potential environmental damage to natural drainage-ways. Having made this a design goal, the developer's engineer and landscape architect can design paved or natural detention areas within the project that will concentrate water during a rainstorm and release it more slowly. If it is released from detention areas by percolation, pollutants from parking lot runoff can be filtered to reduce the potential contamination of drainage-ways. For the construction of the project, the developer and the contractor can schedule the building activities to occur at a time when anticipated seasonal weather has favorable conditions that limit the threats of runoff, pollution or unwanted compaction. Once built, the management of the commercial area can continue to monitor the project and its potential to have environmental effects on the surrounding or nearby natural areas, especially drainage-ways. On the community scale, wetland or riparian areas could be used to retain storm runoff.

Mitigating Effects on Wetland and Riparian Areas. Mitigation is a process of reducing or eliminating the adverse effects on natural resources. As such, conservation and stewardship use a strategy of mitigation to lessen the impacts of land use activities or to enhance the vitality or productivity of the resource. Many best management practices are selected and used as part of a strategy of mitigation of the impacts of the uses being made of the land. Some owners or managers will wish to enhance a wetland or riparian area by making improvements to that system as a resource whether or not such improvements are related to other mitigation efforts. In some cases, there may be a mitigation strategy of replacement -- creating a new wetland or riparian area or enhancing or enlarging an existing one. This strategy may be required under some regulatory programs as a way of replacing damaged or lost wetland or riparian areas. The local Conservation District or Soil Conservation Service offices can be consulted to provide technical assistance. These agencies can also direct planners and landowners to other agencies that may administer mitigation programs.

Case Studies of Wetland and Riparian Area Conservation. Several case studies are provided here to demonstrate some of the planning approaches and best management practices that can enhance a wetland or riparian area. The three examples represent realistic situations which may be found in urban or rural areas. The first example describes civic planning in a small community, the second studies the use of a PUD to protect a riparian corridor, and the third discusses the farm and ranch improvements for a crop and animal production operation in a rural area.

Defining Community Goals: A Proactive Step to Protect a Resource. In the first case study, the fictitious small community of Biggs Center, Kansas, had been approached by various real estate companies interested in developing some land above a public water supply lake. In addition, several large feedlot operations were thriving in the watershed above the lake (Figure 5.2). Concerned about the quality of their water supply, community officials contacted their local District Conservation Board (DCB).

The DCB, in concert with the city planning office, scheduled a meeting with state and local officials, including the local parks director, state biologist, extension forester, city and county public works officials, landowners, and local business people. A sample checklist (see Section Three) is provided for the case study.

The DCB presented an inventory of the streams within the area, including information concerning their overall biological value and sensitivity to development. From this data, the group targeted the desired streams for protection. Related conservation goals were discussed, such as streambank stabilization, woodland preservation, and wildlife habitat enhancement.

From these decisions, the DCB was able to provide the following information to city and county officials: potential best management practices, sources of funding and non-financial incentive programs, and a list of benefits to be incorporated into an education program prepared by the Parks Department for private landowners along these streams.

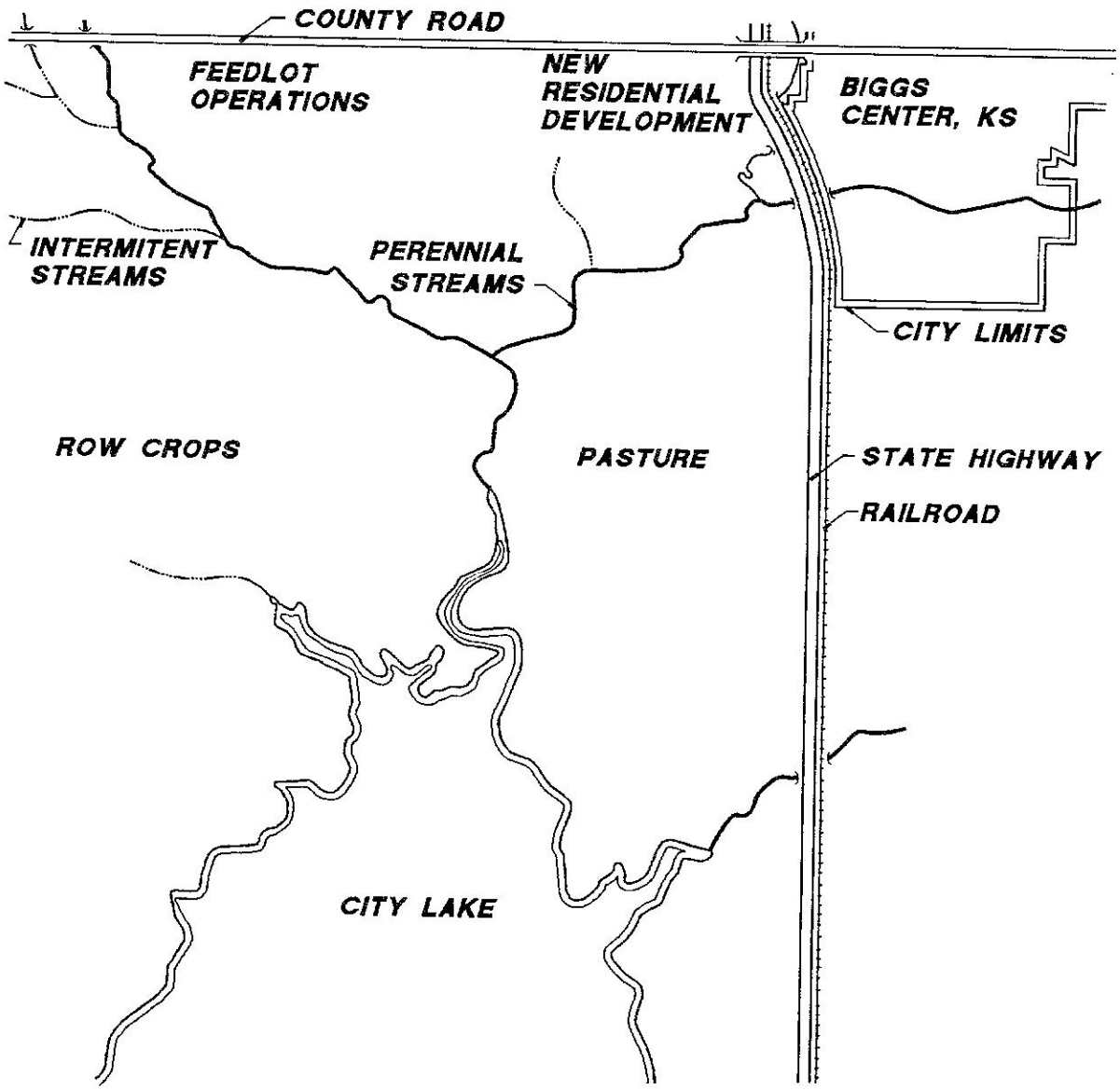

Figure 5.2: Case Study 1: Wetland and Riparian Area Planning for Biggs Center, Kansas.

WETLAND AND RIPARIAN AREAS PLANNING CHECKLIST

Guidelines: The following provides planners, developers and landowners with a general checklist for wetland and riparian areas planning in Kansas. Refer to SECTION THREE of the *Local Planning Guide* for a more detailed description of the planning process and to SECTION FIVE for examples of private and public planning. This checklist may be used to assist planning by individual landowners or operators or by communities making decisions for larger areas. The numbers correspond to the numbers in the planning tasks of Figure 3.2.

Project name: CITY OF BIGGS CENTER, KANSAS

☐ Individual Parcel Planning ☒ Community Area Planning

1. IDENTIFY PROJECT GOALS AND OBJECTIVES

Following are typical planning goals for wetland and riparian areas. Rank each as either a major, moderate, or minor goal of the project. For public planning projects, give the public an opportunity to help identify the major goals.

HIGH — CITY LAKE, PUB. WATER SUPPLY Protect or enhance water quality.

____ Protect or enhance water quantity.

____ Reduce severity of flooding.

HIGH — -FISH, SHORE BIRDS Protect or enhance plants or wildlife.

HIGH Provide economic opportunities.

____ Provide social and aesthetic opportunities.

X Other (Describe): CITY/COUNTY OFFICIALS DESIRE A WATER QUALIFY STRATEGY THAT PERMITS RESPONSIBLE DEVELOPMENT AND FARMING IN THE WATERSHED

2. COLLECT COMMUNITY OR SITE CONTEXT AND RESOURCE INFORMATION

☒ Identify and describe the boundaries of the study area BIGGS CENTER, THE COMBINED WATERSHEDS OF CHOTEAU, BOW AND CANOE CREEKS

☒ Contact appropriate agencies and organizations for planning assistance. The local office of the Soil Conservation Service or the local Conservation District Board is a good place to start. Also review a copy of *Wetland and Riparian Areas Program Directory Manual* (State of Kansas, 1992). This manual provides a list of agencies and organizations in Kansas that have regulatory control of wetland and riparian areas or that may be able to offer planning or financial assistance.

☒ Identify, map, and photograph existing wetland and riparian areas in the study area. Some maps may already exist -- check with appropriate agencies. If existing maps are not available, have resource professionals conduct site visits to determine where wetland and riparian areas exist.

☒ Determine ownership and the present and desired uses of the wetland and riparian areas and adjacent lands.

☒ Classify the existing wetland and riparian areas according to *Classification of Wetland and Riparian Areas in Kansas* (State of Kansas, 1992).

☒ Determine which regulations apply to the existing wetland and riparian areas.

☒ Identify and rank the values and functions of the wetland and riparian areas. These may relate to the goals described in Step 1.

☒ Following are typical threats to wetland and riparian areas. Rate each as either a major threat, moderate threat, or little or no threat to the wetland and riparian areas in the study area.

HIGH Conversion to cropland. EROSION, CHEMICAL RUNOFF

MOD. Uncontrolled grazing of livestock.

LOW Flood control and channelization. LITTLE CHANNELIZATION PLANNED FOR ENTIRE REGION

HIGH Urbanization.

MOD. Lack of public understanding.

HIGH Other FEEDLOT RUNOFF

☒ For public projects, develop a forum to encourage public input in the planning process. PLANNING BOARD MEETING IN FEBRUARY

3. REFINE GOALS AND OBJECTIVES

☒ Based on insights gained from the information analyzed, review and refine the goals and objectives identified in Step 1.

☒ Clearly and succinctly describe in writing the major goals and objectives of the project.

4. DEVELOP ALTERNATIVE COURSES OF ACTION

☒ Develop various alternatives courses of action to meet the goals and objectives of the project. Refer to the *Best Management Practices Manual*

5. EVALUATE ALTERNATIVES

☒ Evaluate the advantages and disadvantages of each alternative.

☒ For public projects, give the public an opportunity to comment on the various alternatives.

6. SELECT ALTERNATIVES

☒ Based on the evaluation of the alternatives, choose the course(s) of action to implement.

☒ Identify and describe the proposed management plan _____

_____

_____

7. IMPLEMENT CHOSEN COURSE(S) OF ACTION

8. MONITOR AND EVALUATE ACTION

☐ Periodically monitor the chosen course of action to determine if it is meeting the goals of the project. Make adjustments as necessary.

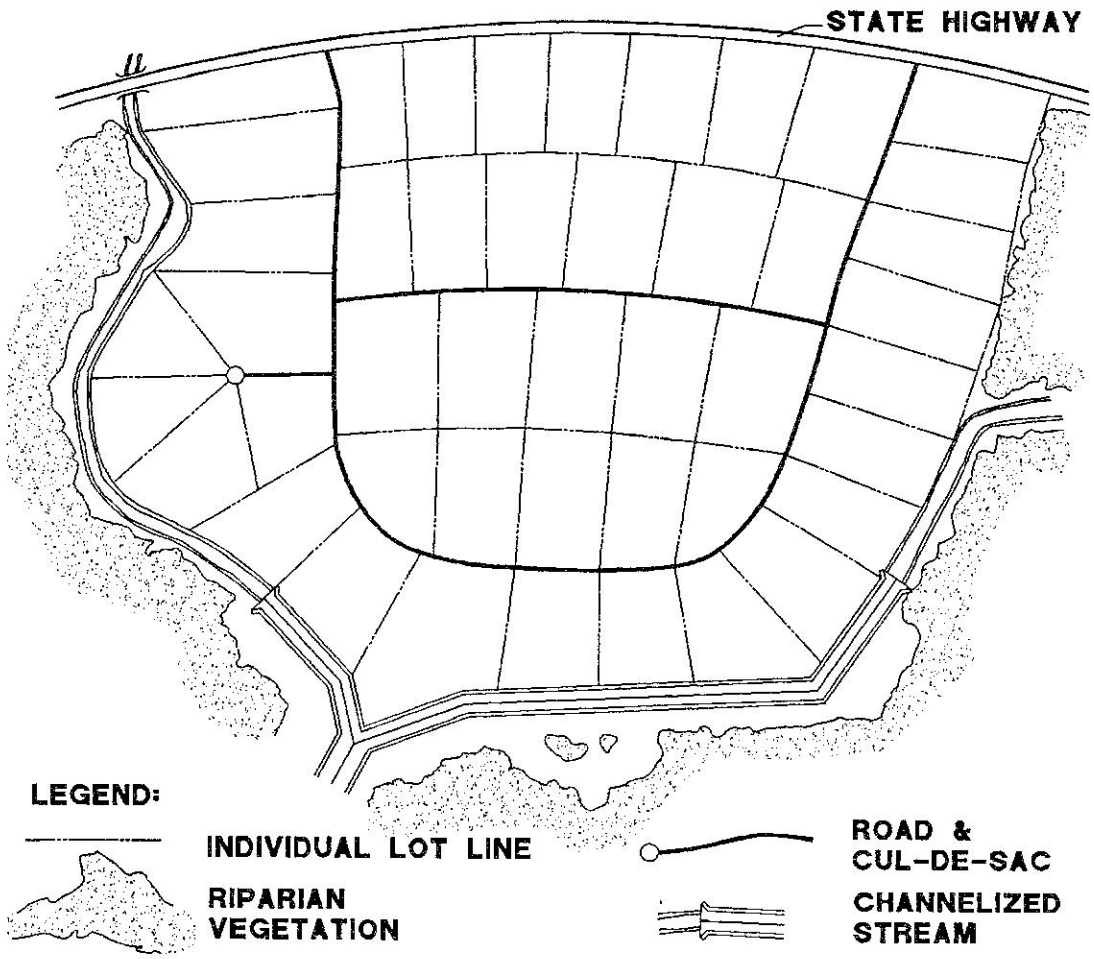

Figure 5.3: Case Study 2: Bow Creek Estates as a traditional development.

Case Study 2: A Residential Development Along a Riparian Corridor. The community's approach was two-fold. First, it sought to reduce negative environmental impacts upon the streams feeding into the lake. Second, it desired to utilize the existing streams and their riparian forests as streamside open space which could connect other park amenities. To fund such land acquisitions and improvements, new subdivisions were assessed a park impact fee for each dwelling. However, the subdivision review board agreed to waive this fee for developers who donated to the city land within the 500-year floodplain along those streams targeted for the open space and resource protection program. In addition, the subdivision review board would grant a higher density to the developer. Lately, the community has found success with transfer of development rights, especially where land is in high demand. With this strategy, the owner retains ownership of the actual acreage, which allows a higher density on the remaining buildable land. Meanwhile, the city obtains the right to develop the open space in the riparian area. In addition, the city does not reduce its property tax base. In conjunction with the open space improvements, the city will undertake various measures to reduce erosion, identify and preserve old-growth forest areas, and plant bottomland hardwood trees recommended by their district forester.

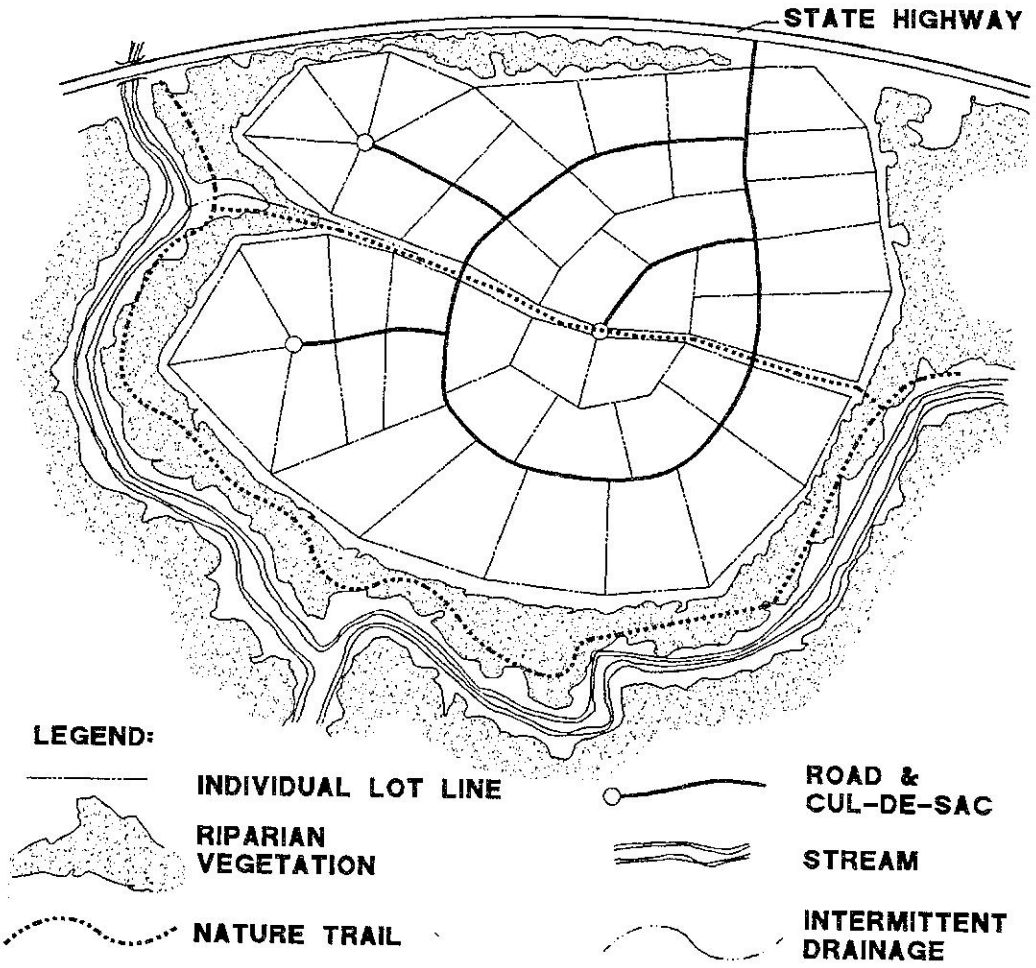

Figure 5.4: Case Study 2: Bow Creek Estates as a planned unit development (PUD) that conserves a riparian area.

The illustrations demonstrate the benefits of a PUD strategy to the developer and the natural resource. One scenario (Figure 5.3) shows a more traditional subdivision approach, resulting in 46 lots that average 22,000 square feet apiece. In the first scenario, the developer must lay 2,800 feet of road, clear-cut most of the riparian forest between the two creeks, channelize the steams to control streambank erosion upon several of the lots, and eliminate a small intermittent drainage that extends well into the site. In the PUD scenario (Figure 5.4), the developer establishes 46 lots averaging 11,000 square feet apiece, lays only 2,400 feet of road, leaves in place the riparian woodland within the floodplain, and avoids the expense of channelization and regrading the smaller drainage. The remaining trees filter and absorb runoff into the stream. The community also gains the streamside open space which connects to other park areas.

WETLAND AND RIPARIAN AREAS PLANNING CHECKLIST

Guidelines: The following provides planners, developers and landowners with a general checklist for wetland and riparian areas planning in Kansas. Refer to SECTION THREE of the *Local Planning Guide* for a more detailed description of the planning process and to SECTION FIVE for examples of private and public planning. This checklist may be used to assist planning by individual landowners or operators or by communities making decisions for larger areas. The numbers correspond to the numbers in the planning tasks of Figure 3.2.

Project name: BOW CREEK ESTATES (PLANNED UNIT DEVELOPMENT)

☒ Individual Parcel Planning ☐ Community Area Planning

1. IDENTIFY PROJECT GOALS AND OBJECTIVES

Following are typical planning goals for wetland and riparian areas. Rank each as either a major, moderate, or minor goal of the project. For public planning projects, give the public an opportunity to help identify the major goals.

MAJOR
___ Protect or enhance water quality. CITY WATER SUPPLY DOWNSTREAM

X Protect or enhance water quantity.

___ Reduce severity of flooding.

MAJOR Protect or enhance plants or wildlife. PROTECT EXISTING RIPARIAN VEGETATION

___ Provide economic opportunities.

X Provide social and aesthetic opportunities.

X Other (Describe): USE TRAIL TO LINK PUD TO CITY PARK GRADE SCHOOL

2. COLLECT COMMUNITY OR SITE CONTEXT AND RESOURCE INFORMATION

☒ Identify and describe the boundaries of the study area FUTURE SUBDIVISION BORDERED BY HIGHWAY, CHOTEAU CREEK & BOW CREEK. IMMEDIATELY WEST OF BIGGS CENTER. ANNEXATION UNDERWAY

☒ Contact appropriate agencies and organizations for planning assistance. The local office of the Soil Conservation Service or the local Conservation District Board is a good place to start. Also review a copy of *Wetland and Riparian Areas Program Directory Manual* (State of Kansas, 1992). This manual provides a list of agencies and organizations in Kansas that have regulatory control of wetland and riparian areas or that may be able to offer planning or financial assistance.

☒ Identify, map, and photograph existing wetland and riparian areas in the study area. Some maps may already exist -- check with appropriate agencies. If existing maps are not available, have resource professionals conduct site visits to determine where wetland and riparian areas exist.

☒ Determine ownership and the present and desired uses of the wetland and riparian areas and adjacent lands.

☒ Classify the existing wetland and riparian areas according to *Classification of Wetland and Riparian Areas in Kansas* (State of Kansas, 1992).

☒ Determine which regulations apply to the existing wetland and riparian areas.

☒ Identify and rank the values and functions of the wetland and riparian areas. These may relate to the goals described in Step 1.

☒ Following are typical threats to wetland and riparian areas. Rate each as either a major threat, moderate threat, or little or no threat to the wetland and riparian areas in the study area.

LOW Conversion to cropland. CROPLAND & RIPARIAN AREA TO BE DEVELOPED

NO Uncontrolled grazing of livestock.

HIGH Flood control and channelization.

HIGH Urbanization.

MOD. Lack of public understanding.

HIGH Other LOSS OF RIPARIAN BUFFER, INCREASED SEDIMENTATION POSSIBLE DAMAGE FROM FERTILIZER RUNOFF

☒ For public projects, develop a forum to encourage public input in the planning process.
PUD APPROVAL NEEDS REVIEW BEFORE PLANNING BOARD

3. REFINE GOALS AND OBJECTIVES

☒ Based on insights gained from the information analyzed, review and refine the goals and objectives identified in Step 1. COST SAVINGS & MARKET IMPACT OF AMENITIES MAKE PUD ATTRACTIVE

☒ Clearly and succinctly describe in writing the major goals and objectives of the project.

4. DEVELOP ALTERNATIVE COURSES OF ACTION

☒ Develop various alternatives courses of action to meet the goals and objectives of the project. Refer to the *Best Management Practices Manual*

5. EVALUATE ALTERNATIVES

☒ Evaluate the advantages and disadvantages of each alternative.

☒ For public projects, give the public an opportunity to comment on the various alternatives.

6. SELECT ALTERNATIVES

☒ Based on the evaluation of the alternatives, choose the course(s) of action to implement.

☒ Identify and describe the proposed management plan
PUD DEVELOPMENT USED TO REDUCE IMPACT AND CREATE ATTRACTIVE AMENITIES

7. IMPLEMENT CHOSEN COURSE(S) OF ACTION

8. MONITOR AND EVALUATE ACTION

☐ Periodically monitor the chosen course of action to determine if it is meeting the goals of the project. Make adjustments as necessary.

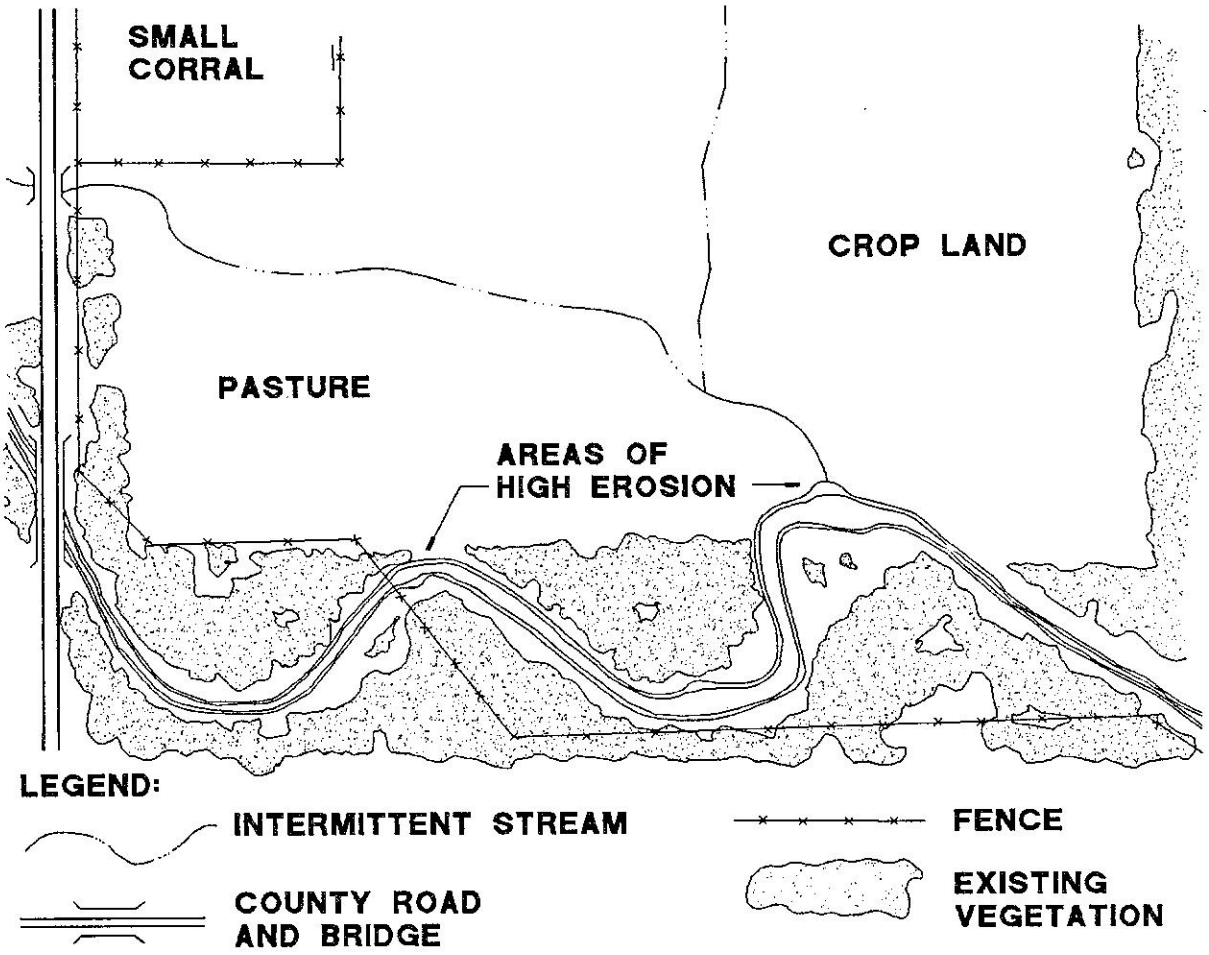

Figure 5.5: Case Study 3: W.E. Lasker Farm existing use and condition.

Case Study 3: Farm and Ranch Improvements in a Rural Area. W. E. Lasker, a private landowner desired to improve the riparian forest along a small creek on his land in order to increase the white-tail deer population. The small creek had been targeted for protection by the combined city-county plan to guarantee water quality in the downstream water supply lake. The District Conservationist visited the site and found three major problems. First, an earlier owner had planted crops too close to the streambank in one area, thinning the woodland buffer and increasing agricultural runoff into the stream. Second, a nearby feedlot was compounding the runoff problem. Finally, there were no barriers to separate the livestock from the creek, increasing streambank erosion.

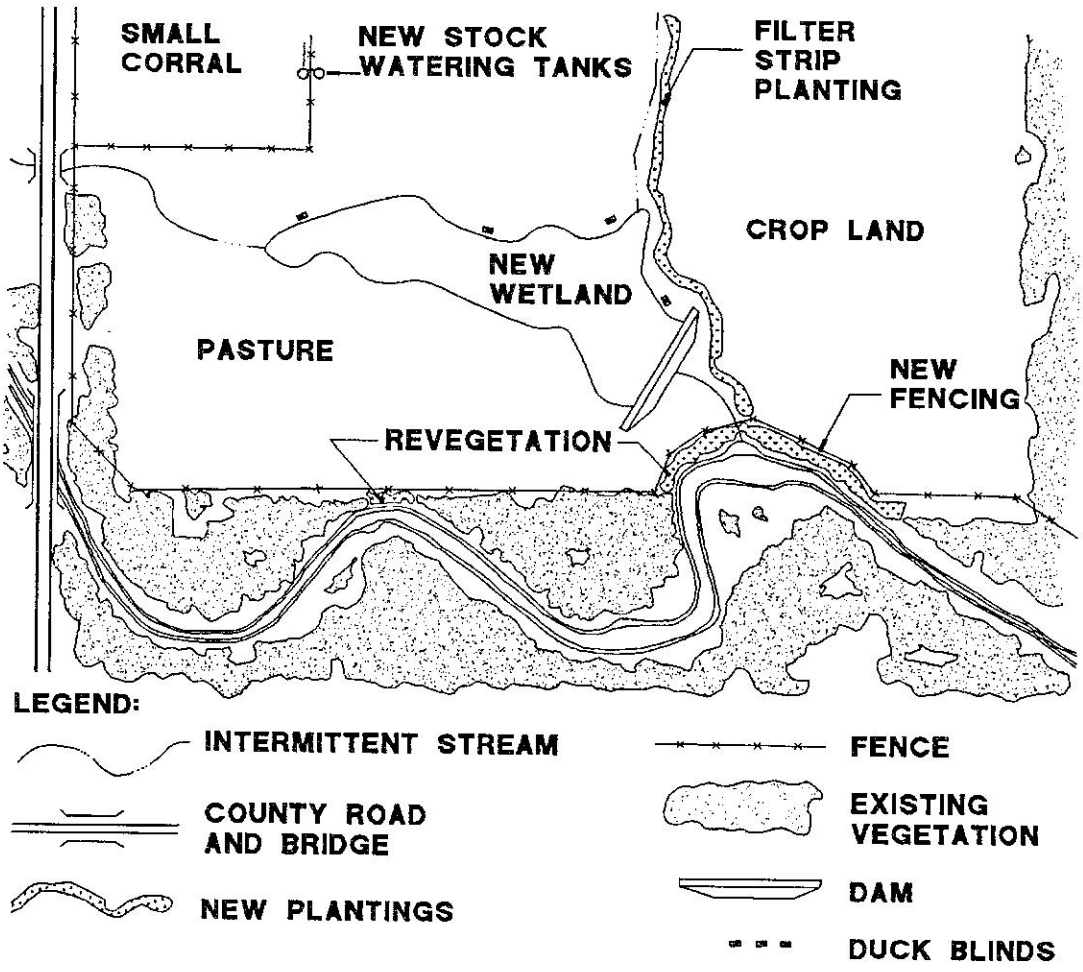

Figure 5.6: Case Study 3: W.E. Lasker Farm proposed best management practices.

The District Conservationist successfully persuaded the landowner to expand his conservation plan to address the runoff problem. To reconcile the thin woodland buffers, several bundles of bare-root seedlings were provided at no cost for installation by the owner. To protect the seedlings and to reduce stream erosion, a livestock exclusion fence was erected by the landowner for which the landowner paid ten percent of the materials cost. In a second phase, the state provided the technical expertise and the funding to construct a runoff retention pond between the feedlot and the creek. The landowner paid ten percent of the construction and materials cost. In addition, the landowner constructed duckblinds on the edge of the pond that would be rented during hunting season.

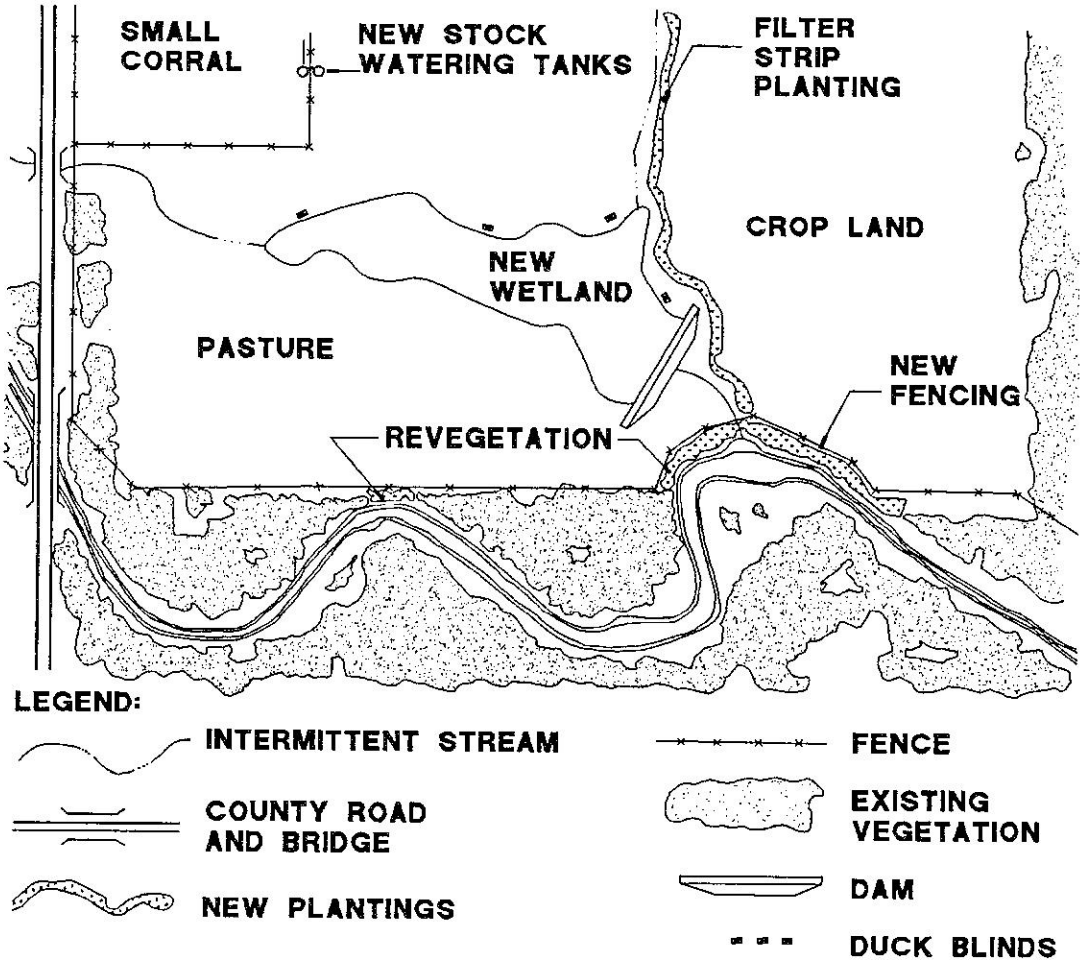

Figure 5.6: Case Study 3: W.E. Lasker Farm proposed best management practices.

The District Conservationist successfully persuaded the landowner to expand his conservation plan to address the runoff problem. To reconcile the thin woodland buffers, several bundles of bare-root seedlings were provided at no cost for installation by the owner. To protect the seedlings and to reduce stream erosion, a livestock exclusion fence was erected by the landowner for which the landowner paid ten percent of the materials cost. In a second phase, the state provided the technical expertise and the funding to construct a runoff retention pond between the feedlot and the creek. The landowner paid ten percent of the construction and materials cost. In addition, the landowner constructed duckblinds on the edge of the pond that would be rented during hunting season.

WETLAND AND RIPARIAN AREAS PLANNING CHECKLIST

Guidelines: The following provides planners, developers and landowners with a general checklist for wetland and riparian areas planning in Kansas. Refer to SECTION THREE of the *Local Planning Guide* for a more detailed description of the planning process and to SECTION FIVE for examples of private and public planning. This checklist may be used to assist planning by individual landowners or operators or by communities making decisions for larger areas. The numbers correspond to the numbers in the planning tasks of Figure 3.2.

Project name: W. E. LASKER FARM / CO. RD. 901 / BIGGS CO., KS

☒ Individual Parcel Planning ☐ Community Area Planning

1. IDENTIFY PROJECT GOALS AND OBJECTIVES

Following are typical planning goals for wetland and riparian areas. Rank each as either a major, moderate, or minor goal of the project. For public planning projects, give the public an opportunity to help identify the major goals.

MAJOR Protect or enhance water quality. X Protect or enhance water quantity.

____ Reduce severity of flooding. ____ Protect or enhance plants or wildlife.

MOD. Provide economic opportunities. ____ Provide social and aesthetic opportunities.

X Other (Describe): DUCK BLINDS, HABITAT REPLANT RIPARIAN VEGETATION WHERE THIN & ERODED RUNOFF FROM PASTURE & CORRAL CAN REACH CANOE CR.

2. COLLECT COMMUNITY OR SITE CONTEXT AND RESOURCE INFORMATION

☒ Identify and describe the boundaries of the study area IMMEDIATELY WEST OF CANOE CREEK ON SOUTH SIDE OF BIGGS COUNTY ROAD 901

☒ Contact appropriate agencies and organizations for planning assistance. The local office of the Soil Conservation Service or the local Conservation District Board is a good place to start. Also review a copy of *Wetland and Riparian Areas Program Directory Manual* (State of Kansas, 1992). This manual provides a list of agencies and organizations in Kansas that have regulatory control of wetland and riparian areas or that may be able to offer planning or financial assistance.

☒ Identify, map, and photograph existing wetland and riparian areas in the study area. Some maps may already exist -- check with appropriate agencies. If existing maps are not available, have resource professionals conduct site visits to determine where wetland and riparian areas exist.

☒ Determine ownership and the present and desired uses of the wetland and riparian areas and adjacent lands.

☒ Classify the existing wetland and riparian areas according to *Classification of Wetland and Riparian Areas in Kansas* (State of Kansas, 1992).

☒ Determine which regulations apply to the existing wetland and riparian areas.

☒ Identify and rank the values and functions of the wetland and riparian areas. These may relate to the goals described in Step 1.

☒ Following are typical threats to wetland and riparian areas. Rate each as either a major threat, moderate threat, or little or no threat to the wetland and riparian areas in the study area.

HIGH Conversion to cropland. PREVIOUS OWNER REMOVED SEVERAL TREES TO PLANT MORE ACREAGE

HIGH Uncontrolled grazing of livestock. EXCLUDE STOCK FROM STREAM

NO Flood control and channelization.

NO Urbanization.

MOD. Lack of public understanding.

HIGH Other RUNOFF FROM CORRAL & PASTURE FLOWS UNCHECKED INTO CANOE CREEK.

☐ For public projects, develop a forum to encourage public input in the planning process.

3. REFINE GOALS AND OBJECTIVES

☒ Based on insights gained from the information analyzed, review and refine the goals and objectives identified in Step 1.

☒ Clearly and succinctly describe in writing the major goals and objectives of the project.

4. DEVELOP ALTERNATIVE COURSES OF ACTION

☒ Develop various alternatives courses of action to meet the goals and objectives of the project. Refer to the *Best Management Practices Manual*

5. EVALUATE ALTERNATIVES

☒ Evaluate the advantages and disadvantages of each alternative.

☒ For public projects, give the public an opportunity to comment on the various alternatives.

6. SELECT ALTERNATIVES

☒ Based on the evaluation of the alternatives, choose the course(s) of action to implement.

☒ Identify and describe the proposed management plan FENCING, REVEGETATION, RETENTION POND, FILTER STRIPS CAN ALSO SERVE AS HABITAT & COVER

7. IMPLEMENT CHOSEN COURSE(S) OF ACTION

8. MONITOR AND EVALUATE ACTION

☐ Periodically monitor the chosen course of action to determine if it is meeting the goals of the project. Make adjustments as necessary.

Conclusions

The Wetland and Riparian Area Project (WRAP) was undertaken for several purposes. Simply, these purposes included promoting wetland and riparian conservation and coordination of conservation activities among local, state and federal agencies. The mission statement developed by the WRAP project is:

> "To maintain and enhance wetlands and riparian areas and their contributions to our society and the environment in harmony with socio-economic consideration."
>
> WRAP, 1992

Wetland and riparian areas make many valuable contributions to the quality of water, soil, plant and animal environments. They may also contribute to recreation, economic and aesthetic resources. There are numerous threats that could have considerable impact on the health and vitality of wetland and riparian areas. There can be conflicts between wetland or riparian areas and other land uses. When these conflicts arise, it is important to evaluate the alternatives of land uses and management practices to promote a balanced, healthy strategy that acknowledges ecologic and economic considerations.

The publications that have been produced as a part of the WRAP project include:

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