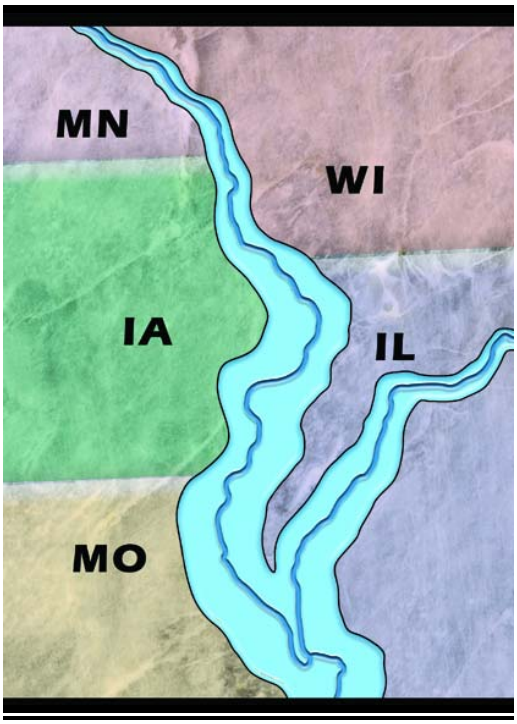
UPPER MISSISSIPPI RIVER COMPREHENSIVE PLAN



APPENDIX H
RECREATIONAL CONSIDERATIONS

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I. PROBLEMS AND NEEDS

Several flood damage reduction measures—levee construction, realignments, and changes to bridge approaches—have been considered for the Upper Mississippi River and Illinois Waterway. Of these, levee construction has the greatest potential for providing recreational benefits to the public.

Opportunities for public access to the Mississippi and Illinois Rivers are often limited due to private ownership of the shoreline, as well as intervening lands between the highways, railroad tracks, and the rivers. In addition, access to riparian lands is difficult in many areas due to the lack of a road system; patterns of public/private land ownership; remote locations; extensive levee systems; and road jurisdiction and maintenance problems. In a number of areas, the roads providing access to existing public use areas are currently substandard in design, construction and maintenance. Public safety concerns and environmental degradation at these sites have increased as a result. Various governmental entities—Federal, state, city, county or township—are responsible for which roads provide primary or secondary access to public lands. Varying ownership and levels of funding impact maintenance standards and continued public accessibility and safety.

Over the years, numerous unauthorized roads and illegal vehicle accesses have been developed on public lands throughout the Upper Mississippi River and Illinois Waterways areas mostly for recreational purposes. These developments often result in destruction of real property, dumping of trash, and a reduction in public safety. Efforts to resolve these problems will likely result in closing some of the unauthorized accesses while authorizing and maintaining legitimate accesses for public use.

Public islands, which are accessible only by boat, could be evaluated to determine public use patterns and needs. Equitable distribution of boating access is an issue. Seasonal high-water and flooding are factors which prohibit adequate access in some areas. Many boat ramps, parking areas, and land-based facilities such as camping and picnicking areas are not functional during floods. New and improved facilities are needed to protect natural resources and meet increasing public demand.

The various flood damage reduction plans considered could be used to address these problems and needs by providing consistent accessibility, reducing the impacts of unauthorized and illegal access, and improving public safety.

II. FLOOD DAMAGE REDUCTION ALTERNATIVES

Flood protection projects can provide recreational opportunities ranging from passive open space areas to developed recreation areas to trail systems providing linkages between parks, schools, shopping and residential areas and other trail systems. The alternative flood damage reduction plans considered fell

into three major categories: structural; non-structural; and protection of critical infrastructure. Each alternative offers potential recreation opportunities, particularly trail-related activities such as walking and bicycling.

A. Structural Alternatives. Structural measures considered included levees and floodwalls, with the alternative plans providing various combinations of urban and agricultural protection levels. In the northern portion of the study area, the alternatives were generally short segments of levees that protect urban areas, while in the southern portion long stretches of levees protect both agricultural and urban areas. As with the existing system of levees and floodwalls along the Mississippi River, the alternatives offer the potential for trail-related activities—including, walking, bicycling, wildlife observation, and access to hunting and fishing areas—along short segments of levees.

The levee segments along the river offer opportunities to develop links, bypasses, scenic routes, etc., for these systems.

B. Non Structural Alternatives. There were two plans considered under the non-structural alternative. Both called for the removal/relocation of flood impacted properties in the 500-year floodplain. The first alternative involves relocating urban properties from the floodplain. The second alternative would restrict urban development and remove all existing agricultural flood protection. Both alternatives had the potential to create large tracts of open space that could be used for recreation.

C. Critical Infrastructure. The alternatives in the protection of critical infrastructure category called for 500-year protection of critical infrastructure by either structural or non-structural means. The recreational potential of these plans would be similar to the measures discussed previously.

Important components of any of the alternatives are the potential habitat management options being proposed. The habitat management efforts in a particular could be an attractor that would increase potential use of a trail. Or, the management plans may call for avoidance of a particular area, which would mean no trails in the area.

III. ANALYSIS METHODOLOGY AND CRITERIA

The array of alternative plans considered consisted primarily of raising (or not) the current level of protection provided by urban flood protection projects and agricultural levees. Also, the alternatives may have included some level of environmental restoration/habitat management. Under a number of alternatives, levees for some of the agricultural levee districts would be allowed overtopped for hydrologic mitigation, and lands may have be acquired in fee. Subsequent use of these lands could include recreation-related activities.

Five criteria could be considered when evaluating the recreation potential of an alternative.

1. Ownership. Implementing recreation features requires ability to work within the footprint needed for the flood damage reduction measure or for the sponsor to acquire interest in additional lands.

2. Accessibility of the feature. The public needs to be able to get to the area.

3. Potential use of the feature. For example, a trail needs to provide access to a location desirable to the public, such as a park, the river, or a traffic corridor, or link to a larger recreational system.

4. Attractiveness of the area, i.e., a trail in a park-like setting versus a highly industrialized area

5. Relevance to overall recreational needs of the local area, the region, and the state

Most of the flood damage reduction measures considered in the various alternatives were levees. Should a levee show the potential to be considered for recreation-related development, several other factors must be considered. First of all, the levee's design/construction must be capable of accommodating the potential use. For example, a trail segment on a levee that would be heavily used by bicyclists would need, at a minimum, a paved 8-foot-wide treadway with 2-foot-wide shoulders.

All levees tie into higher ground. In order to develop a trail system through several levee districts, a means of crossing the streams/drainage ditches must be provided.

Under the non-structural alternatives, potentially large areas of public open space in the floodplain would be created. These areas could be developed for a number of floodplain compatible uses, such as recreation and wildlife management. These areas would need to be identified and further evaluated to determine the development potentials and interests. The basic assumption is that some of the areas that would be in the natural floodplain and currently protected by levees and/or in private ownership, would be acquired by a public agency. Some of these areas could be developed and managed for intensive recreational use (campgrounds, picnic areas, swimming beaches, etc.). Other areas would be managed as natural areas, and passive/dispersed recreational uses (hunting, nature study, trails, etc.) may be allowed.

A number of factors would be considered when developing alternatives. The primary factor will be the suitability of the resource. A second consideration is the relationship of the potential uses to other uses of the resource. For example, a major water access point would not considered for an area that is environmentally sensitive or is a highly congested area of the river.
For the Federal government to participate in any recreational development associated with the project, two criteria must be satisfied. First, the recreational benefits generated by the facilities must be greater than the costs to develop and maintain those facilities. Secondly, a local, non-Federal sponsor must agree to cost share (50-50) the development and to operate, maintain, and replace the facilities at 100 percent local costs over the life of the project. For a number of the smaller communities and levee districts within the study area, it is not clear whether there would be sufficient benefits (users) that exceeded costs. At this point in the study process there is insufficient existing data to make this determination.

The final criteria is based on local reaction to a recreational use area, that is whether or not local residents want any recreational use in the area. In addition, although a levee may be publicly-owned, the levee district and/or adjacent landowners may be resistant to public access.

The above criteria will be used to evaluate the potential for the Corps' participation with a local sponsor in developing recreation facilities. Such an evaluation, however, would not preclude the local entity from developing its own facilities, in which case, the Corps involvement would be limited to reviewing and approving the local plans to ensure the integrity of the flood damage reduction measure.

Each of the existing/proposed individual flood damage reduction systems (levee districts, urban flood damage reduction projects, etc.), would be evaluated for its recreation potential under s feasibility study. The structural alternatives are based on the existing systems being raised in place to varying elevations, based on the alternative. Therefore, there is no significant difference in the recreation potentials of any single system under the various alternatives at this level of detail. The evaluation, based on professional judgment and experience, is a rough screening of the alternatives, to judge if they should be given further consideration in future study efforts.

IV. TRAILS

Trails are the most common recreational development associated with any of the flood damage reduction alternatives. The following sections detail design, security, and real estate considerations during the planning and design of trails on levees.

A. Design Considerations. Trails on levees are an acceptable secondary use for flood control levees. Mississippi River Valley levees are generally semi-compacted earthen embankments constructed with clay, silt, and/or sand. Levee crown widths, where the trails are to be located, range from 10 to 20 feet. Levees are typically 15 to 25 feet high with the side slopes ranging from 1 vertical (V) on 3 horizontal (H) to 1V to 6 horizontal (H), depending on the material types and compaction or density. The side slopes for all clay and silt levees are typically steeper, with 1V on 3H to 1V to 4H. Clay capped sand core levees generally range between 1V on 3H to 1V to 5H. All sand levees typically range between 1V on 4H to1V to 6H. The levee crowns should be graded to rapidly drain runoff from precipitation. Good grass turf should be established on clay and silt surfaces to control surface erosion and wavewash during flood events. Although levees should be mowed at least twice a year, typically late spring and early fall, it is preferred that they be moved more frequently.
Mowing controls the tree and woody growth on levee embankments and reduces burrowing animal activity and deep burrows. Deep expansive woody roots systems, tunnels, and burrows create interconnected conduits for flood waters to enter and seepage to rapidly flow through and saturate the levee embankments. If left unchecked, internal erosion (piping) can occur, destroying levees during flood events. The levee crown surfacing, where the trails are to be located, can be compacted ⅜-inch minus crushed stone material.

There should be no uneven surfaces or drop-offs on the crown surface. Access for emergency vehicles should be designed to reduce emergency response times. Uneven surfaces and drop-offs are unsafe for large emergency vehicles especially during night driving and poor weather conditions. Asphalt pavement surfacing is to be constructed so no uneven edges of pavement drop-offs are present.

B. Security Considerations. Unobstructed emergency vehicular access on the levee crown is to be maintained at all times except at road crossings and access ramps. At road crossings and access ramps, locked heavy duty gates are effective in controlling unauthorized vehicular traffic on the levee crown and trails. Unauthorized vehicles include automobiles, trucks, motorcycles, dirt bikes, and 3- and 4-wheel all terrain vehicles. The use of these unauthorized vehicles on the levee embankment damages the protective grass turf, creates ruts that hold unwanted drainage which softens levee materials, and degrades foot traffic safety.

C. Real Estate Considerations. The primary function of levees is for flood control. Permanent and temporary easements are to clearly state that the flood control operations and maintenance of the levees have superior rights and purpose over recreational trails which are beneficial secondary uses. All flood control design criteria and construction details are superior over recreational trail modifications. Flood emergency operations and activity response have superior rights over recreational trails and their appurtenant construction. All and any alterations and modifications to levees for any and all purposes are required to be approved by the appropriate U.S. Army Corps of Engineers District.

V. RECREATION PLANNING WITHIN THE STUDY AREA

The rivers and riparian areas within the study area are major recreational resources for the people who live in the region. Virtually all recreation-related plans note the importance of the rivers and adjacent lands as significant recreational resources. The majority of outdoor recreation occurs within one-fourth of a mile from a shoreline. While there is no single comprehensive recreation plan addressing water- and land-based needs and opportunities, many area-specific plans have been developed by various Federal, state and local governments. The *Rivers Project Master Plan,* prepared by the U.S. Corps of Engineers, St. Louis District, states the following objectives, which are applicable to this study:

- to satisfy demand for improved public access for walking, hiking, biking, boating, hunting, fishing, wildlife viewing, etc
- to satisfy demand for traditional public recreation facilities (campsites, picnic facilities, overlooks, all types of trails, boat ramps, courtesy day harbors, interpretive signs/exhibits, and parking lots)
- to provide additional minimum public health and safety support facilities and services such as sanitary toilets, drinking water, trash collection, law enforcement, directional-regulatory signage and vehicle parking and turnarounds
- to provide barrier-free access and facilities required by law for disabled persons on public lands

The primary source of information on the recreational needs of an area is the State Comprehensive Outdoor Recreation Plan (SCORP). States are required to prepare SCORPs in order to be eligible for Federal Land and Water Conservation Fund (LAWCON) monies. The SCORPs are updated every five years. Because there is no standard for the development of the SCORP, the content and detail vary greatly among states. However, the stated purposes in the 2003–2008 Minnesota SCORP apply to all SCORPs:

- to establish outdoor recreation priorities that will help managers and administrators make decisions on issues
- to guide LAWCON investments by tying SCORP priorities to the funding criteria
- to provide outdoor recreation managers with a framework for more specific planning

Following is a brief discussion of the existing SCORPS in the study area:

The **Minnesota SCORP** is based on two guiding principles: encouraging an integrated and balanced outdoor system and connecting good health and outdoor recreation. It describes seven priorities including preserving and restoring the natural resource base; acquiring additional resources in key areas; and addressing the needs of a changing population. There are several recommendations for addressing each of the priorities. There are no area- or activity-specific recommendations.

The **2000 Wisconsin SCORP** provides participation rates for various activities. The SCORP discusses a number of recreational trends and important issues. It does not provide any area- or activity-specific recommendations.

The **2001 Iowa SCORP** contains an extensive inventory of outdoor recreational resources and facilities broken down into planning regions. It discusses participation in a number of recreational activities and describes the various recreational programs available in the state.. In addition, it describes the various Federal and state agencies that provide recreation opportunities. This SCORP does not make area- or activity-specific recommendations.

The **2002-2007 Missouri SCORP** developed a needs assessment for a number of recreation facilities. The assessment was developed by comparing the number of existing facilities to the number of residents desired to utilize each facility. The results showed that approximately 5,700 additional trail miles are needed throughout the state. That total includes 973 miles of bicycle trail, and 2,839 miles of other types of trails along the Mississippi River. Two of the top needs statewide, including the areas bordering the Mississippi River, are to acquire more parklands and to develop trail systems for hiking, bicycling and equestrian opportunities.

The **2003-2008 Illinois SCORP** included a discussion of the benefits of recreation on the quality of life, public health, the economy, and the environment. It also provided a table showing economic impacts of wildlife-related recreation. It summarized a number of public attitude surveys to indicate the importance of open space to Illinois residents. It described the state's natural resource base, the population trends and an inventory of recreational facilities by ownership (public and private). The participation rates shown are similar to those shown in the Wisconsin SCORP; the percent of the population that participates in a particular activity. The SCORP cited the following considerations for constructing new recreational facilities:

- accessibility and underserved populations
- water resources
- greenways and trails
- visitor information and conservation education
- acquisition of land
- natural areas
- wildlife habitat
- wetlands

In addition, the Illinois SCORP recognized the need to acquire, preserve and restore the natural resource land base to support the growing population. There are no area-specific recommendations.

Although the SCORPS differ in scope and effect, they all recognize these common themes:

- the diversity of needs across demographics
- changing recreational activities

- the need to acquire additional resources
- sustain/restore the resources and facilities already in the system
- the effect of outdoor recreation opportunities on quality of life and the economy

Likewise, there is no commonly-accepted methodology among the SCORPS to calculate the need for specific outdoor recreation facilities. The Illinois SCORP describes a simple process that 1) identifies the relative demand for a particular outdoor recreation activity, compared to other activities; 2) identifies the relative supply of outdoor recreation land and facilities for a given area, compared to other areas of the state; and 3) compares demand and supply to identify the relative need for land and facilities in a given area. However, all SCORPS have similar processes when prioritizing recreational needs:

- Determining whether the demand for a particular activity is *high* or *low,* based on statewide participation rate
- Determining whether the current supply of facilities needed for an activity is *high* or *low,* depending on per capita supply
- Comparing demand and supply results, then determining the need for additional land or facilities, if any.

While this process is simple, it helps target funding towards land and facilities for relatively more popular activities in relatively under-supplied areas of the state. The process is also flexible enough to accommodate local conditions that are significantly different from statewide averages.

In those cases where multiple facilities for multiple activities are proposed, the primary facility will be used to determine outdoor recreation need. In those cases where both demand and supply information are not available or comparable, outdoor recreation need will be determined using only supply information. If neither demand nor supply information is available, for example for a new activity, then outdoor recreation need will be determined by other means.

VI. DETERMINING AND SATISFYING THE RECREATIONAL NEEDS OF THE REGION

If the comprehensive plan were to proceed to a system-wide feasibility and implementation level, detailed recreation planning would be undertaken. The process would be driven by estimating system-wide demands, comparing to supply, and deriving the unmet needs.

Research has shown that the public seeks not only to participate in a recreational activity, but also seeks a specific recreation setting in order to enjoy a desired experience and subsequent benefits. These four components-- activity, setting, experience and benefit—constitute a recreational opportunity.

Thus, the feasibility planning process would begin with determining what experiences are being sought by consumers. Then available resources would be evaluated to determine if sites are available to provide those experiences. After establishing the physical, social, and managerial attributes of a site, it could be determined if the demand for particular experiences can be satisfied.

Demand data come from various sources, including existing use or visitation data. Projections of the annual participation rates (the number of times per year an individual participates in a particular activity), for the various recreational activities are needed. These projections were usually calculated

in the State Comprehensive Outdoor Recreation Plans (SCORPs). However, the requirements for the SCORP (historically, the main source for participation rates) have been changing since the 1980s, and in recent years, the SCORPs have not calculated annual participation rates. Some nationwide and multi-state research efforts do contain participation rates for some activities.

A third component is current and future population estimates. Annual participation rates and population will be used to derive estimates of the number of people seeking a particular recreational activity (Demand) within the region (for example, say, 100,000 residents X 0.25 picnic occasions/resident/year = 25,000 picnic occasions/year = Demand for picnic sites).

Supply data is the inventory of existing facilities, in terms of campsites, launching lanes, trails, hunting areas, etc. Using standard capacity rates, it can be determined how much recreation use can be satisfied (from the example above, one picnic site can satisfy 250 picnicking occasions per year, therefore 100 picnic sites would satisfy the demand for 25,000 occasions).

By comparing the demand to the supply, a rough estimate can be made of which recreational activities have enough facilities to satisfy the demand, and for which activities the facilities are in short supply. The demand is for particular experiences and benefits, however, cannot be determined

As alternatives are developed, resources could be evaluated to determine whether or not they are suitable to support various recreational opportunities. Since resources are scarce and cannot provide for all the recreational activities demanded, the existing inventory of recreational opportunities would be used to allocate resources. This would result in a variety of recreational opportunities, while addressing all demands to the extent possible.