Comprehensive Management Plan

Mississippi National River and Recreation Area

Mississippi River Coordinating Commission and National Park Service
United States Department of the Interior

SUMMARY

The Mississippi is one of the world's great rivers and part of one of the most complex ecosystems on the planet. It is a critical migration corridor for millions of birds and is essential to the ecological health of the North American continent. The river environment is home to an incredible array of fish, wildlife, and plants. In turn, millions of people use and enjoy these diverse resources. The Mississippi River lies at the heart of what is American and more than any other natural feature is an unmistakable symbol of this nation. The Mississippi is one of the most recognized historic transportation routes in our country, and it is a corridor rich in nationally significant cultural resources. It is of spiritual importance to Native Americans and provides recreational opportunities to millions of people every year. The Mississippi is also a working river. Commercial navigation is important to the economy of the Minneapolis/St. Paul metropolitan area and the entire upper Midwest. The Mississippi is a vital commercial transportation link to national and international markets, providing safe, low-cost movement of bulk commodities in river barges.

On November 18, 1988, Public Law 100-696 established the Mississippi National River and Recreation Area (MNRRA) as a unit of the national park system. The system is composed of over 370 areas administered by the National Park Service (NPS), an agency of the U.S. Department of the Interior. The Mississippi National River and Recreation Area was established by Congress to (1) protect, preserve, and enhance the significant values of the Mississippi River corridor through the Twin Cities metropolitan area, (2) encourage coordination of federal, state, and local programs, and (3) provide a management framework to assist the state of Minnesota and units of local government in the development and implementation of integrated resource management programs and to ensure orderly public and private development in the area.

The Mississippi National River and Recreation Area includes 72 miles of the Mississippi River and four miles of the Minnesota River and encompasses about 54,000 acres of public and private land and water in five Minnesota counties, stretching from the cities of Dayton and Ramsey to just south of Hastings. The segment of the Mississippi flowing through the Minneapolis/St. Paul metropolitan area has always been of major significance as a resource, a boundary, a transportation corridor, a source of sustenance and energy, a place for recreation, an artistic inspiration, and a tourist attraction. It has been a home and work place, a source of water, and a sometime sewer. Demands upon it have often been in conflict, and attempts to manage its resources have frequently challenged state agencies, local governments, organizations, and area citizens.

In 1988 Congress charged the secretary of the interior (through delegation to the National Park Service) with coordinating the efforts of the federal, state, and local governments to keep this 72-mile section of the Mississippi corridor in good condition and enhance its resources. Congress also mandated that a Mississippi River Coordinating Commission be appointed to assist the secretary in developing an integrated resource management plan for the national river and recreation area. The commission was appointed by the secretary in May of 1990 and has worked in partnership with the National Park Service and many other agencies and groups to develop a plan for managing the river corridor.
Congress directed the commission to assist the secretary, the state of Minnesota, and local units of government to develop policies and programs for

1. the preservation and enhancement of the environmental values of the area
2. enhanced public outdoor recreation opportunities in the area
3. the conservation and protection of the scenic, historical, cultural, natural, and scientific values of the area
4. the commercial use of the area and its natural resources, consistent with the protection of the values for which the area was established

The basic visions and concepts identified for the national river and recreation area promote extensive partnerships between the corridor's political entities and various constituencies to create the desired future and achieve the legislative purpose for the 72-mile-long corridor through the Twin Cities area. Natural areas will be preserved, appropriate treatment of cultural resources will be ensured, economic resources will be protected, and public use will be enhanced.

Major issues include land resource protection efforts, commercial navigation needs, park land and recreational facility opportunities, and the role of the National Park Service in preserving, interpreting, and managing the national river and recreation area corridor. The plan, as directed by the legislation, is a conceptual policy and program-level document concentrating on corridorwide issues. It provides basic visions, broad concepts, and general policies that could be used to preserve resources, provide for visitor use, and manage land and water use throughout the corridor. Except for proposed NPS facilities, it does not address site-specific issues.

After a great deal of study and consultation and after receiving and considering comments from a wide range of individuals and groups, the commission and the NPS study team developed a plan that provides a framework to balance and coordinate natural, cultural, and economic

resource protection, visitor use, and sustainable development activities. It will minimize adverse effects on the river corridor and conflicts between users while providing for a broad spectrum of land and water uses and managed growth. It will protect fish and wildlife resources and emphasize the importance of biological diversity in the corridor. Corridor management policies will be applied in a practical manner with individual communities retaining flexibility to respond to unusual situations in special ways providing that the resources identified in the MNRRA act are protected. The most significant visual resources will be protected and restored where practical, including historic structures and landscapes. The river corridor will have continuous public or private open space along the shoreline to the maximum extent practical, and it will be connected to the downtowns and neighborhoods by open space and trails. This continuous open space might be a combination of public parks, trail corridors, and private land along the river that is retained as, or restored to, green space. It will be as wide as some of the existing major regional parks along the river or could be as narrow as the 40-foot shoreline preservation setback area. Except in existing commercial and industrial developments, downtown areas, and historic districts, the riverfront and bluff area will appear mostly natural from the river and its shoreline areas (as observed from the opposite bank). In downtown areas and historic districts, development will be more visible but still complement the aesthetics of the river corridor, appealing to area residents and serving as an attraction to visitors to the metropolitan area. Where the natural appearance has been altered in other areas, design guidelines and programs will be established to encourage shoreline restoration to a more natural appearance.

This plan adopts and incorporates by reference the state critical area program, shorelands program, and other applicable state and regional land use management programs that implement the visions and concepts identified for the corridor. This plan does not create another layer of government, but rather stresses the use of existing authorities and agencies to accomplish the policies and actions developed for the area. Land use management consistent with the MNRRA plan will be encouraged through an emphasis on incentives, which will include a grant program authorized in the MNRRA act (if funded by Congress). Local government will retain local control of land use decisions in the corridor, consistent with applicable state and regional land use management programs. This plan will not prevent new development or expansion of existing development in the corridor that is consistent with state and regional land use management programs. It is not a regulatory document and does not mandate actions by non-NPS entities. The National Park Service and the commission do not have approval authority over local plans and ordinances, and they do not have authority to approve or deny project-specific land use decisions. The MNRRA legislation specifies that NPS regulatory authority in the Code of Federal Regulations, 36 CFR, only applies to lands that the National Park Service owns — envisioned in this plan to be

less than 50 acres.

Additional public and private open space is a critically important resource in the corridor that will be stressed in plan implementation. Such space will be provided through a continued local land and easement acquisition program. The goal will be to provide a continuous linear open space and trail along the riverfront in most of the corridor while protecting natural, cultural, and economic resources. Open space will include public and private land that will be retained as primarily undeveloped. This might include land devoted to active or passive recreational use or land retained for visual or natural resource protection purposes. Some undeveloped areas will be acquired by local governments on the upper river (above the I-694 bridge) for open space, although it is not feasible during the life of this plan to acquire a continuous public open space along the upper river due to extensive development. Where a riverfront trail is not practical, the trail will use available corridors such as nearby streets and utility easements. The potential for additional open space increases in the middle part of the Mississippi below the Minnesota River and is greatest in the lower river area (below the I-494 bridge). It is recognized that there are areas in all three portions of the corridor where a continuous public open space along both sides of the river is not practical. There will be an emphasis on working with local agencies to complete trail connections to provide a continuous trail system along or near the river and link with other areas outside the corridor.

This plan recognizes the importance of economic activities and provides for the commercial use of the corridor consistent with the MNRRA legislation. Economic activity has the ability to preserve nationally significant historic and economic resources, and this is encouraged by the plan. However, this document is not an economic development plan for the corridor.

Commercial navigation activities will be continued. Decisions about commercial navigation and facility activity will integrate the needs of the industry with the needs to protect natural, cultural, and economic resources in the corridor and provide for safe commercial and recreational traffic within the limits of river system capacity. River system capacity will include considerations of physical, biological, social, and safety limits. Local governments will continue to designate areas suitable for barge fleeting in corridor plans that are consistent with this plan. The U.S. Army Corps of Engineers (COE) and Minnesota Department of Natural Resources (DNR) will review these community plans for conformity with the commercial navigation policies in the MNRRA plan. The National Park Service will review permit applications for fleeting areas under its legislated review responsibility.

A wide range of visitor use (interpretation and recreation) activities will be encouraged that will emphasize selected areas. A variety of passive and active

resource-related recreational activities will be available to visitors in the corridor, including fishing, hunting, boating, canoeing, hiking, bicycling, jogging, cross country skiing, snowshoeing, picnicking, birding, taking photographs, and participating in interpretive and educational programs.

The Park Service will have a lead role in coordinating interpretation for the corridor. Because of the nature of the corridor and the management concept, NPS facilities will be limited to interpretive centers and administrative offices. With the partnership arrangement and the extent of local interpretation, these will be cooperative ventures with only one interpretive facility owned and operated by the National Park Service. Based on the audience, site analysis, functions of each facility, and the interpretive themes, a system of interpretive facilities is proposed. This proposal capitalizes on the excellent interpretive work already being done in the corridor and seeks to fill the interpretive gaps and offer overall coordination of activities.

There are two major interpretive facilities planned — a primary information and orientation center at Harriet Island opposite downtown St. Paul and a cooperative information and orientation center near downtown Minneapolis. The St. Paul/Harriet Island facility will be combined with the MNRRA administrative headquarters, strategically located to continue extensive interaction with the government agencies included in the MNRRA partnership.

Three smaller cooperative interpretive centers are also planned, one in the Hastings area, one at Fort Snelling State Park, and another at Coon Rapids Dam Regional Park. Each will have a different interpretive emphasis and potential visitor experience.

This final plan is the product of an extensive planning process that involved the preparation and comparison of a draft plan and three alternatives. Impacts of the proposed plan and the three alternatives were assessed in several drafts of this document. Both positive and negative impacts on natural and cultural resources, visitor use, and socioeconomic environments were analyzed. The series of draft documents was reviewed by the National Park Service, by the commission, and by the public before the plan was approved by the governor and sent on to the secretary of the interior.

Many individuals, organizations, and agencies have contributed to the planning process. Work groups made up of local technical experts assisted the commission and National Park Service team in developing visions, collecting data, and making recommendations for the plan. Public meetings and several newsletters have offered opportunities for public involvement. An extended public review occurred on the Draft Comprehensive Management Plan/Environmental Impact Statement, including a series of open houses and

public meetings in the summer of 1993. Hundreds of letters were submitted regarding the draft plan (see final environmental impact statement, volume 2, October 1994). Continued citizen participation will be critical to the successful implementation of the plan.

In a letter to the secretary of the interior dated September 14, 1994, Governor Arne Carlson recommended that the comprehensive management plan be approved.

PLAN SUMMARY BY ISSUE	
Issue	Action
General Concept	Balance and integrate sustainable use and resource preservation needs
Land use/landscape character	Preserve and restore natural appearance of shorelines and bluffs; protect habitat; protect historic areas; preserve economic resources; provide setbacks and screen new uses with vegetation
Riverfront area land use (within 300 feet of shore or the floodplain)	Emphasize river-related and river-enhancing uses; minimal change to existing development (i.e. some riverfront improvement)
Barge fleeting areas	Monitor effects; activity expansion will integrate the needs of industry with resource protection and river system capacity
Open space/trails	Provide a continuous linear open space and trail where practical; acquire sensitive areas and emphasize resource protection
Park landownership	Minimal NPS land; additional local park land
Resource management	Balance resource protection and use; increase pollution reduction efforts; preserve biological diversity; protect cultural and economic resources; facilitate and coordinate research
Visitor use	Provide broad range of activities in appropriate areas
Park Service development/cooperative interpretive facilities,	NPS interpretive/administrative facility in St. Paul and major cooperative interpretive center in Minneapolis; small cooperative centers at Coon Rapids Dam Regional Park, Ft. Snelling State Park, and Hastings area
General management strategy	Extensive partnerships
Land use management/monitoring option	Land use management/monitoring option, Emphasize incentives. Improve state and regional land use programs. NPS develops agreements with Metropolitan Council to review local plans and DNR to review local actions for conformance to MNRRA plan

INTRODUCTION

This document is the *Final Comprehensive Management Plan* (CMP) for the Mississippi National River and Recreation Area. The comprehensive management plan provides guidance for managing the corridor for the next 10-15 years. The plan provides a policy framework for coordinated efforts to protect and interpret the nationally significant resources of the corridor and for analyzing other federal, state, or local plans and individual actions in the area. Except for NPS development, the plan does not address site-specific issues. A final comprehensive management plan/environmental impact statement was released to the public in December 1994 and the secretary of the interior approved the plan and a record of decision was issued in 1995.

The MNRRA legislation specifies that the commission may modify the plan after it is finalized and approved, subject to review by the governor and approval by the secretary, if the commission determines that a modification is necessary. Because this plan is intended to provide a comprehensive policy framework and considering the extensive public involvement that occurred during the preparation of this document, it is expected that frequent amendments will not be needed. Any modification will be subject to all applicable state and federal open meeting laws and regulations. A copy of the legislation is included in appendix A.

Project History

The Mississippi National River and Recreation Area is one of the newer areas in the national park system. The 72-mile-long corridor was created by Congress in 1988 to (1) protect, preserve, and enhance nationally significant resources in the Mississippi River corridor through the Twin Cities metropolitan area, (2) coordinate government programs in the corridor, and (3) provide a management framework to assist the state of Minnesota and its units of local government in the development and implementation of integrated resource management programs for the corridor to ensure orderly public and private development in the area.

Also by congressional directive, the secretary of the interior has appointed the 22-member Mississippi River Coordinating Commission to assist federal, state, and local authorities in developing and implementing an integrated plan for the Mississippi National River and Recreation Area. Members of the commission represent local governments, state and federal agencies, commercial navigation, and the general public (representing a variety of interests).

Congress directed the commission as a coordinator and advisory organization to

assist the secretary, the state of Minnesota, and local units of government in developing policies and programs for:

1. the preservation and enhancement of the environmental values of the area
2. enhanced public outdoor recreation opportunities in the area
3. the conservation and protection of the scenic, historical, cultural, natural, and scientific values of the area
4. the commercial use of the area and its related natural resources, consistent with the protection of the values for which the area was established as the Mississippi National River and Recreation Area

The Park Service and the commission will coordinate with others to prepare more detailed strategies and work to implement the plan for the corridor. This will include a broad spectrum of partners, including state and regional agencies, local governments, interested organizations, and the private sector.
As the Mississippi River flows through the Twin Cities metropolitan area, it changes dramatically in character from natural areas to intense commercial and industrial use and back again. Travelers on the river see woodlands, parklands, factories, barges, residences, farms, historic buildings, bridges, wildlife habitat, and the skylines of two large cities. The extensive natural vegetated shoreline is unusual for an urban area. The historic resources are also very impressive considering the dynamic growth and development in the region. Located near the confluence of three major ecoregions (Great Plains, central hardwood forest, and northern pine forest), the river valley contains diverse flora and fauna, including many rare, threatened, and endangered species. In addition, the Mississippi flyway is a critical migration corridor for some 40% of the nation's migrating waterfowl.

For more than a century the Mississippi has been a working river. It is an important commercial artery and for many years has produced hydropower. The Twin Cities developed because of their proximity to the river. The many significant cultural resources in the corridor are a testament to the historic influence of the waterway. In 1892 Congress authorized maintenance of a four-foot-deep navigation channel, and since 1940 the federal government has maintained a nine-foot-deep channel through the cities. The working river is important to the economy of the entire upper Midwest.

The river corridor remains a remarkably natural retreat in the midst of a major metropolitan area, due largely to the efforts of committed citizens and local government efforts over the years. One of the first was that of Horace Cleveland, who planned an extensive, linked park system focusing on the river, streams, and lakes. This provided the framework that is still used today to provide open space along the river and to connect the streams and lakes to the river. In recent years the river has benefitted from a growing public recognition of the value of this resource. Open space, recreation, and entertainment improvements are drawing people back to its banks in greater numbers. For about 20 years the state of Minnesota has

required special efforts to regulate land use in the corridor and to protect its resources, and in 1988 Congress established the Mississippi National River and Recreation Area and directed a joint federal, state, and local program to coordinate efforts to preserve important natural, cultural, and economic values in the corridor and to guide growth and development.

Dramatic improvements have been made to the riverfront, and public open space has increased throughout the corridor. However, in spite of the excellent efforts of individual cities, there is a general lack of coordination in the corridor. Most cities are adequately protecting the most sensitive natural and cultural resources, but a few are not. Some, because of existing development and land use controls or financial constraints, are unable to protect sensitive resources. Recreational traffic on the river has increased significantly, fish have been contaminated, water quality does not meet standards, and corridor lands have been developed at a rapid pace. Some communities are promoting industrial development along the riverfront, while others are attempting to preserve the river corridor for parks and recreation. This lack of a common vision for the river and coordinated action is a long-standing problem that this plan seeks to correct.

Several major planning efforts tried to address these problems in the past. The first was the Mississippi River Critical Area program, authorized by state law and initiated by the governor's executive order in 1976. The program involved 20 cities, the University of Minnesota, and four townships along the river. Each community was required to complete and implement a plan to preserve the river's resources (such as riverbanks, bluffs, wetlands, and vegetation), address barge fleeting (parking areas for barges — see glossary), define land use, and provide for open space and trails. The plans and implementation efforts varied, ranging from aggressive land acquisition and trail construction to plans designed to meet the minimum requirements of the legislation. There were a number of problems, including lack of funding for coordination and monitoring, lack of implementation, the uneven quality of plans and implementation, and minimal enforcement. This comprehensive management plan borrows heavily from the best of these plans, while adding some new ideas to protect and restore resources.

In 1980, in response to continuing concern about the fate of the river, the Metropolitan River Corridors Study Commission was created by Congress to recommend ways to protect and manage the resource values of the three rivers in the metropolitan area. This study analyzed the management of the Mississippi River and found it lacking in both consistency and coordination. The 1986 study report provided the basis for many of the management policies in this plan. While the study commission found that much work, thought, and expense had already gone into preserving, protecting, and enhancing the river's resources, it also found that a more concerted effort was needed to provide an overall vision for the river and to protect it. As a result of the study commission's efforts and those of many dedicated citizens, Congress created the Mississippi National River and Recreation Area as a unit of the

national park system in 1988.

The 1988 legislation for the Mississippi National River and Recreation Area directs that a comprehensive management plan (CMP) be prepared for the corridor. Certain mandated elements are required to be in the plan (see appendix A). The NPS enabling legislation and NPS *Management Policies* require that a general management plan (GMP) be prepared for all units of the national park system. This comprehensive management plan will serve as the general management plan for the national river and recreation area. This document was prepared according to legislative directives, the Interior *Departmental Manual*, and NPS policies and guidelines. The procedures for developing and approving the plan were derived from all these sources.

The MNRRA legislation and management plan fit into an extensive array of existing federal, state, and local laws, regulations, and policies. These include federal law authorizing navigation improvements, federal and state regulations requiring permits for activities in the river, state critical area, shoreland, wetland, and floodplain protection requirements, and numerous local plans and zoning ordinances controlling land use in the corridor. Details on the extent of this framework and the consistency of this plan with other plans in the area are contained in the Plan Implementation section of this document and in appendix I.

Issues Addressed in this Plan

A number of issues were identified by the commission, the National Park Service, and the public during the scoping phase for this plan. Details of the scoping process are included in the Development of the Plan section. Most of the issues had been recognized for many years. This list covers only those problems that seem to be most appropriately addressed in a comprehensive plan, based on guidance provided by legislative direction and NPS policy. This is a brief introduction to the issues that are more thoroughly addressed in the body of the document.

- There is a need for a corridorwide vision for the river — one that all units of local government endorse and actively implement. The final plan should provide that vision, produced through a partnership of government agencies, the public, and the commission.
- There is a need for a consistent and comprehensive management strategy for the corridor. The legislation clearly establishes the concept of partnership management with additional coordination and using existing state and local programs, but it allows some leeway in implementation. The 1988 legislation also allows flexibility in the role of the National Park Service in managing the corridor. This was a major issue during the planning process. While there was general agreement that the Mississippi National River and Recreation Area is not a traditional unit of the national park system, there could be a stronger federal presence or management could rely more on existing authorities, state

agencies, and local governments.

- As use of the river and adjacent land in the corridor grows, there is increasing potential for conflicts between uses.
- Barge transportation and fleeting is a well-established traditional use recognized in the MNRRA legislation, the activities provide a major contribution to the metropolitan area economy, and adequate fleeting space is vital to the commercial navigation industry. Some people contend that the level of barge fleeting is excessive and that fleeting activities cause environmental impacts. Others contend that fleeting is not excessive and that greater environmental damage is caused by recreational watercraft. Barge fleeting has been a major issue identified by the public, and the MNRRA act requires that the plan include a program that provides for the management of barge fleeting consistent with the findings and purposes of the legislation. Maintaining navigation improvements, such as the 9-foot channel, is also recognized in the legislation because it is critical to the commercial navigation industry, but it requires periodic dredging and a need for material placement sites in the corridor.
- The corridor includes many outstanding vistas, areas of scenic beauty, and tranquil places in the midst of a great urban area. These scenic and aesthetic resources could be adversely affected by extensive development, incompatible design, high speed roads, and poor land use practices.
- Unrestricted development on the slopes or near the edge of bluffs causes soil erosion and diminishes the quality of the view from the river or opposing overlooks. Residences are often built near the bluff line to take advantage of river views. Bluffs have also traditionally been used for underground storage in the Twin Cities area, which has some unavoidable impacts on the bluff face.
- Degradation of the natural shoreline appearance can be caused by unregulated development, erosion, adjacent roads, and other land use activities. However, some development along the shoreline in urban waterfront areas is appropriate.
- Indigenous vegetation along the shoreline, in wetlands, and along the bluffs is important to the visual character of the corridor and support of natural systems. Unrestricted development can strip vegetation if established regulations and guidelines are not followed.
- Preservation of cultural resources, including historic and ethnographic resources and prehistoric sites, is supported by many agencies and groups; however, new development or disuse has resulted in the loss of many important resources. The potential impacts of land use policies on cultural resources is a concern of the historic preservation community.
- Significant improvements have been made in wastewater treatment in the Twin Cities area. However, water quality is still a major concern. Issues range from toxic wastes to sedimentation. Fish are contaminated with heavy metals, contact recreation is not advised, and nonpoint source pollution is a chronic problem, especially in the lower part of the river corridor. The primary

nonpoint source pollution input is from agricultural runoff outside the corridor into the Minnesota River, which enters the Mississippi at Fort Snelling State Park about 5 miles upstream from downtown St. Paul. The Minnesota Pollution Control Agency is attempting to address the nonpoint problems on the Minnesota River, but it is a very complex issue that will take extensive time and funds to correct.

- Direct loss of habitat, especially aquatic habitat, has occurred because of competing interests and uses such as recreation and commercial development. Direct and indirect loss of wetlands has been due to ground water depletion and water diversion from wet areas.
- Considerable public land already exists, but the amount and distribution of open space needed to protect the river's resources and to provide for the corridor's many uses continues to be a major issue. As water quality improves, recreational facilities and open space along the river will increase in importance. There is also a question regarding who should manage additional open space in the corridor. Local park plans contain proposals to acquire additional land along the river. The National Park Service currently administers about 43 acres of federal land on several small islands and one upland parcel. These holdings are scattered throughout the MNRRA corridor. There are no current efforts to actively manage these areas. The amount of additional NPS-managed land in the corridor is a resolved in this plan.
- The MNRRA legislation listed the importance of economic resources along with other more traditionally cited national park system resources, and the plan must "recognize existing economic activities in the area and provide for their management." "Nationally significant economic resources" are not defined in the legislation. The act charges the commission with developing "policies and programs for the commercial utilization of the corridor consistent with the values for which the area was established." New development competes with existing activities for scarce land and access to the river, and it might adversely affect the preservation of existing economic resources in the corridor. The amount of new economic development in the corridor, types of uses, and locations for new commercial and industrial activities are addressed in the plan. New development needs are weighed along with natural, cultural, and economic resource protection needs. The challenge is to find a way to define and achieve balance and sustainability among natural, cultural, and economic resource preservation, visitor use needs, and new development activities.
- The impact of land and water use policies and open space acquisition on economic activities in the corridor is a major concern of some communities and members of the metro area business community.
- The interpretive program emphasis, the need for additional facilities, coordination of interpretation and visitor services, gaps in existing interpretive and environmental education programs, and the most appropriate service providers must be determined for the area.

It is recognized that transportation planning issues are very important to the growth and development in the corridor and protection of its natural, cultural, and economic resources. This was identified by many who commented during the public review period on the *Draft Comprehensive Management Plan/Environmental Impact Statement*. It is beyond the scope of this plan to address major transportation questions such as the new airport issue or metropolitan area road improvement needs. However, the general visions, concepts, and policies could be used as a framework to analyze these issues, and the plan will serve as the basis for NPS review comments on transportation plans and proposals affecting the corridor.

Purposes and Visions for the Area

The following purpose and vision statements were developed early in the planning process to provide guidance for preparing the plan. They serve as a foundation for its implementation. They were developed by the Mississippi River Coordinating Commission with the assistance of work groups. These ideas form the basic goals and objectives on which the plan was based. They were subject to public review before conceptual alternatives and a draft proposal were developed. They were revised during the planning process to reflect public input and the direction provided by the commission. They are listed in the order that resources are listed in the act.

The purposes describe intent and are stated as broad goals to be accomplished. Visions are more specific objectives that describe how the corridor might appear if the purposes are achieved.

Purpose: Preserve, enhance, and interpret archeological, ethnographic, and historic resources.

Visions: (In the future we will see:)

The public has opportunities to learn about historic, ethnographic, and archeological resources in the corridor through interpretive and educational programs.
The significant historic, ethnographic, and archeological resources of the corridor are preserved and protected.
Archeological, ethnographic, and historic preservation and interpretation reflect the diversity of the people who have lived in the river corridor.
The MNRRA corridor is an exemplary role model for historic preservation and adaptive use of historic structures.
Preservation, enhancement, and interpretation actions respect the rights of private ownership and involve all parties (public and private) with responsibility for the resources.
All developments and programs are sensitive to the physical limitations of historic and archeological resources.

Purpose: Enhance opportunities for public outdoor recreation, education, and

scenic enjoyment.

Visions:
Additional opportunities for recreational and educational experiences, including scenic enjoyment and quiet contemplation, are provided throughout the MNRRA corridor.

The corridor offers a broad range of recreational and educational experiences closely tied to the character of the resource and complementing other recreational opportunities in the metropolitan area.

A full range of recreational boating is provided while providing for user safety and minimizing crowding and conflicts with other uses.

Public use areas are easily accessible and safe.

Residents and visitors are able to traverse the entire length of the corridor by foot and bicycle.
Public access is provided to a range of natural and cultural resources in ways that do not damage resources or violate the rights of private landowners.

Recreational and educational opportunities provided in the corridor reflect the cultural and ethnic diversity and varying physical and financial abilities of residents and visitors.
Special features are identified, developed, and promoted as tourist destinations consistent with the protection of cultural, natural, and economic resources.

The MNRRA corridor includes a system of park lands connected by the river with a system of linear parks and other elements that facilitate public access to the river.

Purpose: Preserve, enhance, and interpret natural resources.

Visions:
The public can learn about natural resources in the corridor through interpretive and educational programs.

Significant natural resources, such as native wildlife and plant diversity, in the corridor are preserved and enhanced.

All developments and programs are sensitive to the limitations of natural resources.
Significant natural resources that have been adversely impacted in the past are restored.

Preservation, enhancement, and interpretation respect the rights of private ownership and involve all parties, public and private, with responsibility for these resources.

The water quality in the river through the MNRRA corridor meets state and federal standards and moves toward the fishable and swimmable goals as defined in federal and state law. It is a long-term vision of this plan that water quality in the corridor is as clean when it leaves the metropolitan area as when it enters.

Air quality in the corridor meets state and federal standards.

The value of the river as a public water supply is protected.

The role of the Mississippi River as a nationally significant natural ecosystem and migratory corridor for wildlife in the heart of the midcontinent is recognized.

Purpose: Provide for continued economic activity and development.

Visions:
The corridor continues to include multiple uses consistent with wise land use management principles.

Opportunities are provided for observation and interpretation of the Mississippi's role in the regional and national economy.

The role of the Mississippi River as a working river and as the heart of midcontinent navigation is recognized.

Protection and enhancement of the river corridor's natural and cultural resources are seen as positive elements in economic development strategies.

Economic development activities that take advantage of the corridor's attributes are encouraged in a manner that preserves, protects, and enhances the natural and cultural resources in the corridor.

Commercial and recreational river traffic are conducted to minimize conflicts with each other and with other uses.

Barge fleeting, a vital function of commercial navigation, is a recognized traditional use on the river and is conducted in a manner consistent with the purposes for which MNRRA was established.

Purpose: Improve the public's understanding of the river and promote public

stewardship of its resources.

Visions:
Regional residents, local governments, businesses, and industries share a strong sense of stewardship for the well-being of the corridor.

Activities in the MNRRA corridor support the interests of local communities in improving the public awareness of river resources.

The public is aware through coordinated interpretive programs of the national significance and status of corridor resources and their stewardship.

The public has an understanding and appreciation of the multiple uses and purposes of the river.
Opportunities are provided to learn about and experience corridor resources.

Purpose: Recognize and strengthen people's relationships with the river as a dynamic part of our heritage, our quality of life, and our legacy for future generations.

Visions:
Metropolitan area citizens have a strong sense of identity with the three area rivers and their history.

The MNRRA corridor enriches the lives of metropolitan residents and visitors by enhancing regional, natural, cultural, and aesthetic resources and by contributing to regional socioeconomic growth.

The MNRRA corridor has an identity that connects it to the greater cultural, economic, political, and natural systems of the area.
The Mississippi is recognized as one of the world's largest river systems, as a significant historic and modern transportation corridor, and as a place that attracted human settlement.

Opportunities are provided for local residents and visitors to discover the Mississippi River and its stories.
Communities support the MNRRA plan and participate in the coordination of activities.

By identifying the most significant resources (using the list identified in the act), balancing and integrating the needs to protect those resources with other needs in the corridor, and using concepts and policies taken from the previous corridor plans, the goal is to bring management in all areas in the corridor to the same level of excellence. If this occurs, then the visions can be achieved.

THE COMPREHENSIVE MANAGEMENT PLAN

This comprehensive management plan (CMP) will serve as the general management plan for the Mississippi National River and Recreation Area. The following sections cover general concepts and corridorwide policies for land and water use, resource management (including natural, cultural, and economic resources), visitor use and interpretation, general development needs, park operations, and plan implementation strategies.

Public Law 100-696, establishing the corridor as a unit of the national park system, required in section 703(i) that the comprehensive management plan include a program for management of land and water use. The plan was prepared pursuant to this congressional direction and also complies with NPS guidelines for the preparation of general management plans. Additional plan contents required by the MNRRA legislation are covered in "Plan Implementation."

This is a conceptual, policy and program-level plan concentrating on corridorwide concerns. Except for proposed NPS facilities, it does not address site-specific issues. Site-specific issues are very important to the growth, development, commercial use, visitor use, and protection of the corridor. They will be addressed on a community level or case-by-case basis and will use the broad visions, general concepts, and corridorwide policies articulated in this document to determine consistency with the comprehensive management plan. Local governments have the flexibility to tailor the plan to their section of the river and address site-specific issues within the overall framework of the comprehensive management plan.

This is an integrated plan that covers the issues identified during the scoping process for the 54,000-acre MNRRA corridor. It recognizes that a lot of hard work has gone into existing plans for the corridor and it incorporates and builds on the approved plans for the area. The plan must be carefully coordinated with and strategically fit into the very extensive ongoing comprehensive planning processes in the Twin Cities Metropolitan Area.

General Concept

After a great deal of study and consultation and after receiving and considering comments from a wide range of individuals and groups, the commission and National Park Service study team developed a plan that provides a general framework to coordinate natural, cultural, and economic resource protection, visitor use, and development activities. It will minimize adverse effects on the river corridor and conflicts between users while providing for a broad spectrum of land and water uses and managed, sustainable growth.

This *Comprehensive Management Plan* recognizes the importance of

economic activities on and along the river, and it provides for the commercial use of the corridor consistent with the MNRRA legislation. Economic activity has the ability to preserve nationally significant historic and economic resources and in many cases is the major driving force behind historic preservation successes in the area. The working river is important to the economy of the metropolitan area and the entire upper Midwest. The Mississippi is a historic transportation route and a vital current transportation link to national and international markets, providing safe, low-cost movement of bulk commodities. This plan fosters protection of both the working river and the natural riverine system.

This comprehensive management plan recognizes the national significance of the Mississippi River as a natural riverine ecosystem. Fish and wildlife resources, including bottomland forests, bluff land, and riverine habitats will receive greater protection. The most significant visual resources will be protected and restored where practical.

The corridor is rich in cultural values. Archeological sites, historic structures and landscapes, shorelines, wetlands, steep slopes, and other sensitive resources will be preserved and enhanced. The river corridor will have continuous public and private open space along the shoreline area to the maximum extent practical, and it will be connected to the downtowns and neighborhoods by open space and trails. Local governments will be encouraged to update their plans for the corridor to conform with this plan.

Additional open space

and trails will be acquired and developed by local governments where consistent with local comprehensive plans adopted or amended pursuant to the MNRRA plan. The National Park Service will develop a major interpretive center and headquarters in St. Paul and will cooperate in establishing a major interpretive center in Minneapolis and smaller interpretive centers in the Hastings area, at Fort Snelling State Park, and at the Coon Rapids Dam Regional Park.

While it is important for communities to show strong support for the MNRRA plan and provide consistency in river corridor management, it is recognized that individual communities must retain flexibility to address unusual issues and special situations. Policies in this plan can be tailored to fit the different characteristics of specific reaches of the river, and they must be implemented in a practical manner considering the specific issues in particular cases. Practicality and feasibility are a part of all the policies and actions that follow. This does not, however, diminish the overall commitment to coordinated resource preservation, protection, and enhancement in the Mississippi River corridor.

The MNRRA legislation (section 705) requires the secretary of the interior (through delegation to the National Park Service) to "review all relevant local plans, laws, and ordinances to determine if they substantially conform" to the MNRRA plan. The MNRRA act also sets out a process for this review and stipulates that it be carried out under "agreements with the state or its political subdivisions." This review is a high priority and will be carried out in the first phase of plan implementation.

This plan adopts and incorporates by reference the state critical area program, shoreland program, and other applicable state and regional land use management programs that implement the visions identified above. This plan does not create another layer of government but rather stresses the use of existing authorities and agencies to accomplish the policies and actions developed for the corridor.

The general concept for implementation prescribes a two tier approach to achieving MNRRA plan consistency through local government planning and management.

Tier 1 — The existing Mississippi River Critical Area Program and state shoreland management program will remain in place, and implementation of these programs will be improved. Critical area program oversight will be transferred from the Minnesota Environmental Quality Board (EQB) to the Minnesota Department of Natural Resources (DNR), and increased funding will be made available for program implementation in the MNRRA corridor. Local governments will be required to continue to administer a critical area and shoreland protection ordinance and to have a critical area plan in place. The purpose of the Mississippi River Critical Area Program is to "preserve and enhance its natural aesthetic, cultural, and historical value for the public use, and protect its environmentally sensitive areas," as the 1976 Critical Area Executive Order states. Local governments are already required to comply with these standards, and this will not change.

Tier 2 — Local governments could voluntarily move to a second tier of planning and management by updating their community plans and ordinances to incorporate the land use, resource protection, and open space policies described in this plan. Funding will be requested to assist local governments in updating their plans and ordinances to substantially conform to the new concepts and higher standards in the MNRRA plan, and technical assistance will be available from the Metropolitan Council for plan development and from the Minnesota Department of Natural Resources for ordinance development. Ordinance implementation will be overseen by the Department of Natural Resources in the same way it oversees the critical area and shoreland management programs.

Because many of the concepts and policies in this plan were borrowed from the best of existing plans and programs for the river corridor, reaching tier 1 and more effectively implementing existing state and regional programs will have many beneficial effects and achieve many of the MNRRA plan visions for the corridor. The long-term goal of the this plan, however, is to have all communities in the corridor reach tier 2 and fully implement the MNRRA plan and achieve all its visions. If funded by Congress, the 50% matching grant program for acquisition and development of lands and waters or interests therein as authorized in the MNRRA legislation will be used as an incentive to encourage communities to implement tier 2. In order to be eligible for this grant program local governments must adopt plans and ordinances consistent with the new concepts

and higher standards described in this plan that exceed existing state and regional requirements in the critical area, shoreland management, or other existing land use management programs for the metropolitan area.

It is not the intent of this plan to impose on any federal or state regulated industry, standards or requirements related to construction, operation, and maintenance that conflict with those enforced by existing federal or state agencies for the safe and environmentally sound conduct of business. It is also recognized, however, that additional standards or requirements that are necessary to protect the sensitive resources of the corridor and that do not conflict with these legal mandates can be enacted and enforced by the appropriate federal, state, or local agency in pursuit of the MNRRA plan. The National Park Service will not be a regulatory agency in the corridor but rather will work to coordinate the activities of others, to achieve the purposes of the MNRRA act, and to encourage implementation of the comprehensive management plan.

This document recognizes that continued public participation will be critical to successful plan implementation. Additional follow-up planning and implementation actions will be accomplished with public involvement.

LAND AND WATER USE

The MNRRA legislation specifies that the plan include a component for the "management of existing and future land and water use." Based on the project history and scoping process for the plan, this section concentrates on land use issues. It includes a subsection on commercial navigation and some land use policies that affect water use. Water quality and recreational boating issues were also identified as important during the scoping process and are covered in later sections of this document.

Planning Assumptions

The land and water protection strategy is based on the following planning assumptions or basic concepts, which were derived from the legislative history, analysis of the area data base, commission direction, purpose and vision statements, and public input:

- The metro area is growing and much of the land in the corridor is developed or will be developed in the next 1015 years. The focus of the plan should be on guiding this growth and development in the corridor and building partnerships with federal, state, and local entities.

- Due to the extensive amount of land already developed in the corridor and rapid growth in the metropolitan area, opportunities for new open space are limited.

- Economic development activities and resource protection measures can coexist. The area's economic vitality is dependent on its environmental health. Preservation and economic development are not mutually exclusive, and MNRRA presents a significant economic development opportunity for the metropolitan area. In many cases, such as historic preservation efforts, economic development could be a key to resource protection.

- A comprehensive and coordinated federal, state, and local planning system for the corridor will enable a proactive and balanced assessment of existing uses and improved decisions on proposed new uses that could affect resources, while

minimizing the adverse impacts of various uses on each other and on sensitive resources in the corridor.

- The National Park Service should own minimal land in the corridor.

- While improvement along the riverfront is desired, this plan should concentrate on new development in the corridor. Existing development is not expected to be substantially changed by this plan.

- There are many excellent land resource protection programs at the local level.

- New land uses should be substantially consistent with the resource and land protection policies articulated in this plan.

- Development compatible with resource protection can take place in the corridor using vegetative screening or excellence in building and landscape design.

- Land use regulation, including zoning and site plan approval, should continue to be primarily controlled at the local government level.

- Local and regional plans and ordinances should provide the basis for most concepts incorporated into this plan.

- This plan should not weaken any existing local policies, and it should exceed them when necessary to protect sensitive resources, take advantage of a coordination opportunity, or resolve a critical corridor wide management issue.

- Eminent domain should only be used as a last resort to protect corridor resources as specified in the MNRRA legislation after a secretarial finding of noncompliance with the plan has been made and all other procedures specified in the act have been fulfilled.

- The plan should not prescribe specific land use activities for specific locations in the corridor. It should deal with land use from a corridor wide policy perspective, using resource

protection concepts, land use location policies, and design guidelines.

- The Mississippi National River and Recreation Area is a historic transportation corridor. Commercial navigation, rail lines, and roads are well established and traditional uses in the corridor that will all continue. Airports, while having a shorter history in the corridor, preexisted the establishment of the Mississippi National River and Recreation Area and are generally recognized as a important contributor to the Twin Cities economy.

- The region owes much of its economic development and modern vitality to commerce along the river. Successful enterprises will be those that continue to recognize and fulfill their role in the economy while helping to preserve, protect, and enhance the diversity of values in the corridor.

- The intensity of the commercial navigation use in the corridor has and will continue to vary considerably over time in response to local, regional, national, and international needs and markets.

- Residential land use is a legitimate use in the river corridor and will continue to be predominant in many areas where it is well established. Such use will be developed in several other areas where it is planned, zoned, and platted.

- Nothing in this plan will usurp the authority of federal, state, regional, or local agencies to implement existing laws and regulations in the corridor.

- The Mississippi River floodplain ecosystem is important to the ecological health of North America. It is a vital migration corridor for wildlife and is essential to sustaining the biological diversity of the continent. The MNRRA corridor is an important link in this 2,400 mile long natural riverine system.

General Land and Water Resource Protection Concept

The general land and water resource protection concept is based on the purposes and visions listed above, the existing situation, a visual analysis, extensive public input, and the planning assumptions.

One of the guiding visions of the plan is that the corridor enriches the lives of metropolitan residents and visitors by enhancing natural, cultural, and aesthetic resources and by contributing to regional growth. Another vision states that protection of resources is a positive element in economic development strategies. This crucial balance among resource protection, visitor use, and sustainable development should be maintained. Natural, cultural, and economic resources will be protected, enhanced, and promoted to stimulate tourism, compatible visitor use, recreational activities, community livability, compatible residential uses, and high quality and sustainable development. Decisions about land use will balance and integrate economic, natural, and cultural resource protection considerations with development needs. The natural appearance and functions of the river corridor will be maintained and restored while protecting cultural and economic resources. The native plant and animal communities in the corridor will be preserved. Fish and wildlife habitat will be protected, and biodiversity safeguarded. The natural functions of the riverine ecosystem will be protected and enhanced.

The most significant visual resources will be protected and restored where practical, including historic structures and landscapes. The river corridor will have continuous public and private open space along the shoreline area to the maximum extent practical, and it will be connected to the downtowns and neighborhoods by open space and trails. Except in existing commercial and industrial developments, downtown areas, and historic districts, the riverfront and bluff area will appear mostly natural from the river and its shoreline areas (as observed from the opposite bank). In downtown areas and historic districts, development will be more visible but will still complement the aesthetics of the river corridor, appealing to area residents and serving as an attraction to visitors. Where the natural appearance has been altered outside downtowns and historic districts, design guidelines and rehabilitation programs will be established to encourage shoreline restoration to a more natural appearance.

The working river is important to the economy of the metropolitan area and the entire upper Midwest. This plan promotes the benefits of both the natural river system and the working river. This plan includes protection for all resources listed in the act, and it recognizes that most of the land in the corridor is and will remain privately owned. This plan respects the right of private property owners to determine appropriate uses of their land subject to community land use regulations. It is also understood that much of the corridor is developed and will not be restored to a natural state. This plan recognizes existing development and concentrates on managing new uses and, where practical, increasing the amount of vegetation and other landscape treatments along the riverbank in existing developed areas. Nothing in this plan will require communities to be so restrictive that they would deprive corridor landowners of the use and enjoyment of their land. Land use controls will still allow reasonable use of private property, although not necessarily the activities that generate the highest possible levels of income. Land use regulation will be consistent with recent state and federal court rulings. Local governments will continue to have primary land use planning and control responsibilities. Metropolitan Council staff will provide assistance to local governments on plan development and revision to achieve conformance with this plan. Similarly, DNR staff will provide technical advice and assistance to local governments in revising and administering zoning controls and will assist communities in realizing development projects that conform to this plan. (See Plan Implementation section for additional details.)

This plan includes protection of existing economic resources along with other existing resources listed in the act, and it proposes to manage new development consistent with resource protection mandates. Although economic development activity (promotion of new business and development) for the area is an important element of community growth and development strategies, it is not a major component of this plan and will continue to be the function of other local, regional, and state plans and programs for the area. This plan does encourage sustainable growth and redevelopment in the corridor that protects the nationally significant resources listed in the MNRRA act and enhances the appearance and livability of the river environs. Development will be compatible with surrounding land use and will conform to established community zoning regulations and design guidelines. This plan especially supports

economic development that preserves corridor resources (such as historic buildings) and provides opportunities for development of sustainable tourism related businesses in the corridor that will support the desired visitor experience and contribute to the local economy.

Land Use and Protection Policies

General Policy. Decisions about land use and development in the corridor will be based on area resource characteristics implemented through local plans. Land use location decisions for development proposals will be based on a balance between resource protection, visitor use, and development needs in the corridor. Resource protection (including existing natural, cultural, and economic resources) and sustainability will be the primary determining factor in case of a conflict. Except in existing commercial and industrial areas, downtowns, and historic districts, currently undeveloped land areas in the corridor will continue to appear open from the river and its shoreline areas (as observed from the opposite bank), although there may be intensive development away from the shoreline. This open appearance does not mean all undeveloped land must remain undeveloped. In most cases this general policy could be achieved through the setback, height limit, and vegetation screening policies and design guidelines while allowing for extensive use of the site. New developments will in most cases be clustered near similar developments in the most appropriate places in the corridor and will be consistent with local plans. Wherever practical, degraded shorelines will be restored to a more natural appearance. Shorelines in downtown areas and historic districts could be maintained with a less natural appearance to reflect their urban sense of place and historic character. The river corridor is characterized by a mosaic of urban development and natural areas. To ensure preservation of this unusual landscape, several of the policies below concentrate on protection of bluffs and riverfront areas (see section sketch).

This plan encourages business to make investments in the river corridor that will achieve the plan's visions, concepts, and policies for the corridor. Riverfront improvement is strongly encouraged by this plan. New uses should be located to improve the appearance of existing and expanded uses where practical. This plan does not

exceed existing local requirements that prevent structures subject to setbacks from being rebuilt if damaged by fire or natural disaster. The plan encourages wise use of floodplains, including relocation of structures that are damaged by flood; however, it does not go beyond existing federal, state, and local policies for enforcing floodplain management standards on private land. Nothing in this document will prevent structures in the corridor that do not meet setback and height standards in this plan from being rebuilt on the same footprint if destroyed by fire or natural disaster unless prohibited by existing federal, state, or local policies. The plan encourages relocation of "inconsistent" uses that are causing adverse effects on the corridor, it encourages shoreline cleanup and restoration, and it advocates more shoreline trails and open space. As areas are redeveloped, it is envisioned that further improvements could be made and there will be increased compatibility with the river and surrounding neighborhoods. The plan encourages improvement in the corridor over the long term and promotes sensitivity in design for expansion of facilities in existing developed areas.

New land use and development in the riverfront area (the first 300 feet back from the river or the 100year floodplain if wider) will include those activities relating to or requiring a location next to the river, activities preserving historic structures located along the river, activities designed to be compatible with the riverfront area, or activities enhancing the riverfront. A variety of high quality, river related, sustainable, and nonpolluting uses can exist near the river. These include recreational, educational, residential, commercial, transportation, and industrial uses. Sensitive areas (including shorelines, floodplains, wetlands, endangered species habitat, steep slopes, bluff lines, and significant historic and archeological sites) will be buffered from other land uses. These sensitive areas will be identified in community critical area plans and mapped in greater detail by project proponents for specific development actions. A narrow natural area along the shoreline will be protected, and cultural resources will be preserved. The shoreline area adjacent to the downtown sections will be more structured, including public plazas and more formal landscape designs consistent with an urban setting. Shoreline treatments in historic districts will preserve cultural resources and enhance their interpretation. Existing riverfront improvement programs will be continued. The riverfront area will be more accessible from the downtown areas of the Twin

Cities and will be more heavily used with the addition of recreational and retail uses such as restaurants, cultural facilities, and special events. People will be able to walk along the river, and views of the river will be available from areas away from the shoreline.

Detailed Policies. Following are more detailed land use policies for the corridor. The location policies are intended for new development in the corridor, while site development policies are intended for both new development and substantial expansion or redevelopment. Most existing residential, commercial, and industrial development in the corridor will not be significantly changed by this plan. The plan will not discourage existing land uses in the corridor from expanding existing facilities if the expansion is consistent with resource protection policies contained in the Resources Management section of this plan and site development policies in this section. Expansion standards will continue to be established by local government. Expansion, in general, will be acceptable as long as it does not create or increase nonconformity with the MNRRA plan (same use, setback, height, etc.). Additional development should attempt to meet the visions and concepts of the MNRRA plan. In cases where the existing use is nonconforming, expansion should attempt to substantially conform. In all cases, the expansion should meet visual screening and shoreline setback guidelines contained in approved critical area plans. The expansion policy could be tailored to reflect local conditions.

It is the intent of this plan that communities in the corridor that elect to move to the second tier of planning and management will incorporate the general visions and concepts and the more detailed policies in this document when updating their plans. Encouraging corridor communities to update their plans to substantially conform to the MNRRA plan will be a high priority for plan implementation. The MNRRA plan provides a basic framework that will guide use and development in the corridor. Specific dimensions are provided to give the policies better definition. As long as the MNRRA plan's visions and concepts are achieved and resources identified in the act are protected, communities could tailor detailed policies to the specific resources in their section of the river. Most of the policies listed below were taken from one or more of the local critical area plans. Local zoning ordinances will be updated as needed to comply

with the second tier of land use management described in this plan if local governments elect to participate. There will be a standard variance procedure included in local ordinances.

Riverfront Location Policies —

(1) Give special emphasis to a relatively narrow zone of land along the river. This is because of its proximity to the river, its concentration of significant natural, cultural, and economic resources, its greater recreation use potential, and the potential for serious adverse effects if it is not properly managed. This area is consistent with the state regulated shoreland area along rivers in Minnesota.

New development in the riverfront area (defined as the first 300 feet back from the river's ordinary high water level or the floodplain, whichever is greater) should have a relationship to the river, a need for a river location, or the capability to enhance the river environment. This policy will protect many values referenced in the MNRRA act, including existing economic resources. Uses that replace inconsistent activities (incompatible uses causing adverse effects on the corridor) and enhance resources identified in the act are encouraged in the corridor.

- General criteria for compatible riverfront uses include:
- river related (an economic or operational need for a river location or a connection to the river)
- meets or exceeds federal, state, or local environmental standards
- cleans up polluted areas
- removes blighting influences
- provides high quality building and landscape design
- compatible with the riverfront environment
- compatible with surrounding uses (particularly the neighborhoods)
- sustains economic vitality of riverfront improvements
- offers public access to and along the river
- provides visual open space
- maintains views of the river
- exceeds minimum landscaping requirements
- retains or restores natural shoreline appearance

- contributes to natural, cultural, or economic resource appreciation, protection, and enhancement

These are not listed in priority order. Although it is desirable to meet as many of these criteria as possible, uses do not have to meet all of them to make a positive contribution to the riverfront. Riverfront activities could include a wide variety of uses, such as park land, institutional, residential, transportation, commercial, and industrial development.

New activities that do not meet these criteria, such as activities that do not relate to the river, that do not need a river location, that do not contribute to the riverfront environment, or that would cause some environmental degradation or have some other detrimental effects on corridor resources, should be located outside the riverfront area. These activities could be located in the corridor but should be outside the riverfront area subject to local zoning. These uses should still comply with other location policies, site development policies, and resource protection policies contained in this comprehensive management plan. The requirement that all new activities comply with existing federal, state, and local land use and environmental standards is not diminished by this plan. Existing "inconsistent" uses (those that do not meet the compatibility criteria listed above) will be encouraged to relocate outside the riverfront area; however, wholesale redevelopment of the riverfront area is not envisioned.

(2) Develop incentives to encourage polluting industries that no longer rely on the river for transportation or other needs to relocate out of the riverfront area.

(3) Convert inconsistent riverfront land uses that are causing adverse effects on the river corridor to consistent uses if the owners move away. If the land within 300 feet of the river meets criteria for open space, encourage owners to leave the space open; otherwise, appropriate private redevelopment should occur. Nothing in this plan will prevent owners of inconsistent land uses from selling or leasing their property for the same or similar land uses if consistent with local plans or ordinances.

Corridor wide Location Policies —

(1) Cluster new uses near similar ones or replace existing uses rather than develop isolated, unrelated sites that promote sprawl and reduce open space in the corridor. New land uses should be located in areas that are compatible with adjacent land uses. For instance, intense uses should be located in existing areas of intense use, rather than in undeveloped areas. This policy recognizes that some land uses, such as marinas, are exceptions and will not normally be clustered.

(2) Emphasize residential and open space land uses in the upper river corridor (above the I694 bridge at Fridley).

(3) Encourage a greater variety of land use activities with additional open space in the lower river corridor (below the I494 bridge at the city of South St. Paul).

(4) Continue a wide variety of land uses in the middle portion of the corridor (between I694 and I494). Encourage high quality and sustainable open space, public plazas, historic landscapes, interpretive facilities, and residential, commercial, and industrial development in the corridor subject to location policies and local land use plan objectives.

(5) Locate urban density development where metropolitan and urban services are available or planned.

(6) Comply with federal, state, and local requirements to avoid floodplain and wetland development. (Note that protecting these resources will be emphasized in implementing the state critical area program. Minnesota has a strong state law protecting wetlands. Federal agencies are required to protect these areas under existing presidential executive orders on floodplain and wetland management.)

(7) Comply with federal, state, and local requirements to protect endangered, threatened, and rare species (including state listed species) and their habitats.

(8) Support the regional transportation planning process, including the inter modal transportation goals identified in Inter modal Surface Transportation Efficiency Act, especially the use of mass transportation and bicycle/pedestrian trail linkages. These

plans include the Major River Crossing Study completed by Metropolitan Council.

(9) Discourage development in areas containing significant wildlife habitat.

Site Development Policies —

Except where specifically noted below, the following site development policies apply to the entire MNRRA corridor. Specific dimensions, such as setback and height limits, are illustrative and could be tailored by individual communities for local conditions (except if they are the same as minimum standards required by existing state programs). Communities could go beyond the minimum state requirements or MNRRA plan recommendations if they so choose for their segment of the river. None of the site development policies are intended to prohibit the construction, reconstruction, or maintenance of bridges crossing the river and their associated approach roads, rails, or trails (see policy 11 for more specific guidance on bridges).

(1) Provide uninterrupted vegetated shorelines where practical along the Mississippi and its tributary streams and ravines to preserve a natural look from the river and the opposite shore and to provide connections to adjacent natural areas. Downtown areas will be identified in critical area plans and are a recognized exception to this policy. Existing commercial and industrial areas outside downtowns are also excepted. However, new developments should appear as natural as possible when viewed from the river using setbacks, landscape treatments, and vegetative screening, and shoreline restoration is encouraged in existing commercial and industrial areas.

(2) Coordinate land development policies to protect natural resources using a system of preservation areas

- Preserve a narrow zone along the shoreline (using the state definition for shoreline) with an undisturbed area 40 feet back from the river (ordinary high water mark) or restore natural vegetation where practical along the shoreline. When expanding existing uses located in this area, locate

expansions as far back from the shoreline as practical and consistent with existing uses.

- Allow minimal disturbance (selective grading and tree removal) in an additional 60foot setback adjacent to the shoreline area for a total shoreline preservation area setback of 100 feet.

- Prohibit land disturbance along the bluff face (slopes in excess of 12%). Development of underground space in these areas could be appropriate if the surface of the bluff face and top are mostly undisturbed and development is not visible from the river or shoreline area as observed from the opposite bank.

- Preserve the bluff impact area (40 feet back from the bluff line) in a natural state or restore natural vegetation in order to screen development.

- Provide additional setbacks in an additional 60foot area (for structures over 30 feet tall outside downtown areas) for a total bluff preservation area of 100 feet from the bluff line.

- Reduce visual impacts and protect views of the river and from the river and its shoreline areas by establishing maximum building heights for the bluff line and riverfront preservation areas:
  within 100 feet of the bluff line — 30 feet
  within 200 feet of river — 30 feet
  within 300 feet of river — 45 feet
  beyond the areas above — no restrictions except those in local zoning codes

It is understood that building height limits will be set by local governments in their critical area plans and ordinances, and they will be higher in downtown areas. It is also understood that certain structures, such as railroad signal masts, could exceed these maximum building heights for reasons of safety. Architecturally significant institutional structures might also be considered for exemption from height restrictions.

(3) Minimize the cumulative impacts on natural, cultural, and economic resources that result from many individual land

development projects being implemented over time. Techniques will be developed to measure cumulative impacts and respond to significant undesirable effects.

(4) Increase the effectiveness and reduce the inconsistency of development regulation enforcement in the corridor.

(5) Coordinate the preparation and improvement of site development design guidelines and regulations to achieve the visions articulated in the plan.

A set of sample design guidelines are contained in appendix C. The guidelines are included only to provide examples of how the policies could achieve the intent of this plan. While the use of the design guidelines (or some variation) is desired for consistency purposes, compliance with the guidelines (or some future version of them), is not considered necessary to achieve substantial conformance with this comprehensive plan. The National Park Service, Metropolitan Council, and Department of Natural Resources will work with communities in the corridor to improve the guidelines and apply them to local conditions. The Minnesota Department of Natural Resources and the National Park Service will also provide technical assistance to communities wishing to apply the guidelines on a site-specific basis.

(6) Encourage shoreline area preservation and restoration.

- preserve native vegetation, particularly remnant natural communities identified by the Minnesota County Biological Survey as significant, or encourage revegetation

- use native and other compatible floodplain vegetation in redevelopment projects

- develop a cooperative program for revegetating existing denuded areas along the shoreline

- use extensive native vegetation, including native trees and shrubs, in the more formal landscape treatments appropriate in the downtown areas

- support a comprehensive metropolitan area riverbank cleanup program

- develop and improve design guidelines for shoreline areas

- use native or naturallooking materials to stop bank erosion to the maximum extent possible; provide technical assistance on desired bank stabilization techniques

(7) Provide pedestrian/bicycle paths to connect the river to the downtowns, neighborhood areas, and parks and open spaces.

(8) Protect views as seen from designated overlooks in the corridor. Develop new overlooks at strategic locations offering significant views of the river corridor.

(9) Remove vacant, non-historic structures that are not needed for consistent uses.

(10) Rehabilitate and adaptively reuse historic structures where practical.

(11) If it becomes necessary to increase river crossing capacity, the order of preference will be first to expand the capacity of an existing bridge, second to add a parallel structure, and third to establish a new corridor. Development of a new crossing corridor will occur only when no feasible and prudent alternative (including consideration for a greater reliance on interposal transportation) exists and only if the crossing is included in approved regional transportation plans. This includes the Major River Crossing Study prepared by the Metropolitan Council.

(12) Protect existing wetlands and, where practical, restore degraded wetlands. Enforce the DNR floodplain encroachment ceiling so that small increments in development do not gradually degrade the floodplains.

(13) Work to increase and restore wildlife habitat and biological diversity in development projects. Protect bottomland forests, bluff prairies, woodlands, and riverine habitats. To ensure that there is adequate nesting habitat for peregrine falcons,

development should be adequately set back in areas near cliffs that are considered potential nesting sites.

(14) Apply setback and height restrictions and encourage careful site design to maintain the ability to view the river from existing open space and developed areas. Avoid significantly obstructing river views with development.

(15) Screen development wherever practical to minimize its visibility from the river or the opposite shoreline.

(16) Maintain existing public access to the river and increase access in redevelopment and new development projects if practical.

(17) Incorporate scenic road design concepts and architectural treatments into road construction, reconstruction, or capital improvement projects in the corridor, with primary emphasis on parallel roads in the riverfront area and bridges over the river (see appendix C for design guidelines).

(18) Protect endangered, threatened, and rare plant and animal species (including state listed species) and their habitats in site development projects.

(19) Encourage consultation with Native American groups when site development will affect any Native American cultural site.

(20) Where practical encourage placing utilities underground in new development projects and replacing existing utilities underground in existing development.

(21) Encourage local governments to adopt sustainable building practices, such as energy efficiency and water conservation practices, in their municipal codes for new construction and renovation work.

Variance Policy —

Variance procedures for local government ordinances adopted to implement policies in this plan will be established by communities in consultation with the Minnesota Department of Natural

Resources. The variance procedures will be in accord with state statutes.

Variance requests will be handled though the established local procedures. This will include opportunities for public input. Variance proposals will be reviewed by the Minnesota Department of Natural Resources in a manner similar to the existing state critical area and shoreland management procedures. The Department of Natural Resources does not have the power to veto a local variance decision under current state authority and a court action is the Department of Natural Resources' only recourse. Nothing in this plan will expand existing state legal authorities.

Open Space and Trails

Extensive open space exists in the corridor, particularly along the river and its tributaries. Of the nearly 54,000 acres of land and water in the corridor, there are currently about 8,500 acres of public land. Of that, about 4,600 acres are public parklands. In addition, there are about 2,000 acres proposed for acquisition by local governments in existing local and regional park and recreation plans. The parkland along the river in Minneapolis is almost continuous. Continuous public open space is planned in St. Paul, although it is not yet completed. St. Paul has some very large parks in the corridor, some of which are a major natural enclave in the heart of the city. Some of the smaller cities, such as Hastings, have made great progress in linking open space along the river and its tributaries. There are areas, however, on the river's left descending bank in the south end of the corridor where there is no open space or trails, and none are planned. There are also long stretches in the north where the development pattern precludes open space continuity along the river in many places. It is desirable to coordinate the trail development work in the corridor and locate trails away from the river where necessary to provide a continuous trail — one of the important visions of this plan.

The Twin Cities metropolitan area has one of the most extensive urban trail systems in the country. It links the river, its tributary streams, and the many lakes in the region. Plans to extend the system the length of the corridor have existed for many years. With the exception of the northern stretch of the river, it should be possible to provide a continuous trail along or near the river,

building on the existing system. Much of the south end of the corridor still lacks continuous trails, but Dakota County and many of the cities on the right descending bank of the river have plans to complete a trail to connect to trails in St. Paul. On the left descending bank of the river there are no local government plans to provide a trail near the river. The MNRRA plan will be coordinated with the comprehensive regional trail plan that is currently being prepared by the Metropolitan Council. Encouraging and coordinating the completion of missing links in the trail system will be a high priority for MNRRA plan implementation. Wildlife habitat protection will be a key consideration in trail alignment.

The safety of recreational users will be a major consideration in trail development. This plan recognizes that some portions of the riverfront have industrial activities or transportation facilities that could be hazardous to recreational users. However, it is often possible to route the trail around these areas, using nearby streets, existing trails, or utility corridors. It is also possible to make a riverfront corridor safe by adequately fencing the trail. These alignment and construction techniques ensure that the vision of a corridor long trail is achieved without compromising user safety.

Open Space and Trails Concept. Open space is a critical resource in the corridor and its protection and enhancement is stressed in this plan. The open space and trail concept is based on the visions articulated above that promote a system of linear parks connected by the river and a continuous trail system allowing travel along the entire length of the corridor. The concept shown on the Open Space Opportunities map is built on the plans of local governments with additional land recommended to achieve continuity where practical. The areas identified on the map as potential open space opportunities are based on an analysis of the character of vacant land near the river done in consultation with local governments. Preserving open space will provide opportunities for active and passive recreation and protect sensitive resources such as valuable wildlife habitat and biological diversity. While open space in urban settings frequently means mowed lawns, trimmed trees, exotic vegetation, removal of aquatic vegetation, and an influx of people and their pets, open space of that type is of little or no value to wildlife habitat and biological diversity. In some parts of the corridor open space should be set aside that is relatively free of human disturbance and is dedicated to habitat protection and

biological diversity. The Open Space Opportunities map is conceptual in nature, the scale of the drawing does not permit display of small areas, and all trail corridors are approximate. The map does not show proposed land acquisition but only potential open space opportunities. The actual amount of open space will probably be considerably less, depending on local initiative and federal, state, and local funding limitations.

The proposal is to provide up to 50% matching grants to state and local governments to acquire land as authorized in the MNRRA legislation. This program will be a high priority in plan implementation but is contingent on congressional funding. Initial meetings have been held with local governments to discuss the feasibility of the proposal and more coordination will be necessary to further develop the open space and trails concept. This funding program will complement and be coordinated with other grant programs in the metropolitan area to ensure that available land acquisition and development funds are used in the most efficient and effective manner. The Grey Cloud Island area is an example of a large parcel in the lower river that has been proposed by local government for park land that would potentially be eligible for the NPS grant program. Key trail connections will be emphasized in the open space program. The National Park Service will work closely with local governments in the corridor to achieve the open space and trail development vision and policies identified in this plan. Additional work with local communities will identify needed open space and critical trail links.

Additional public and private open space will be provided through a continued local land and easement acquisition program. The goal is to provide a continuous linear open space and trail along the riverfront in most of the corridor while protecting natural, cultural, and economic resources. Open space will include public and private land that remains primarily undeveloped. This could include land devoted to active or passive recreational use or land retained for visual or natural resource protection purposes. Some undeveloped areas will be acquired on the upper river (above the I694 bridge) for open space purposes, although it is not feasible during the life of this plan to acquire a continuous public open space along the upper river due to extensive residential development. However, a continuous trail system using available corridors such as nearby streets and utility easements is an important component of this

plan (see Trail Routing Concept sketch). The potential for additional open space increases in the middle part of the Mississippi National River and Recreation Area below the Minnesota River and is greatest in the lower river area (below the I494 bridge). It is recognized, however, that there are areas in all three portions of the corridor where a continuous public open space along both sides of the river is not practical. There would be an emphasis on working with local agencies to complete open space and trail connections to provide a continuous open space and trail system along or near the river and link with other areas outside the corridor.

The formation of a nonprofit land trust or a partnership with an existing land trust will be encouraged. This will provide another technique to raise funds, seek land donations, and increase the public and private open space and provide additional trail opportunities in the corridor. Land acquisition could include fee simple purchase or donation and scenic and trail easement purchase or donation.

Public Land Ownership. Most proposed and existing public land, including associated historic structures, will be acquired or maintained by local units of government or the state. Proposals for additional public land will be developed cooperatively with these units of government, and land will be acquired as funds became available. National Park Service land acquisition will be limited to (1) acquiring land needed for an NPS interpretive facility as identified below, (2) using the authorized condemnation authority though procedures specified in the MNRRA act only when important sensitive areas are severely threatened by irretrievable loss and no other alternative for resource protection is available, or (3) selected parcels that a unit of government donates to the National Park Service if that unit of government and the Park Service, based on the advice of the commission, determine the land would be best owned by the Park Service. The National Park Service does not intend to use its general land acquisition or condemnation authority to acquire open space in the corridor. If any land is acquired by the National Park Service, the procedures specified in all applicable federal land acquisition laws, including those in the MNRRA legislation, will be followed. The Park Service and the commission will work with other agencies to monitor potential open space opportunities and encourage acquisition by others of most proposed public land in the corridor. This will be done under

existing state and local open space land acquisition authorities. Local parks will remain in existing ownership. The Park Service will be a minor public land manager in the area, having direct responsibility only for managing a small parcel of land immediately surrounding an NPS interpretive facility.

The Park Service will transfer management of its island land to other public entities. The islands will be managed as natural areas stressing habitat protection and biological diversity by the managing agency. Recreation will be secondary to the natural area emphasis.

Policies and Actions —

(1) The following criteria will be used for funding open space acquisition grants to state and local agencies. Priority will be given to proposals that meet one or more of the following criteria (not listed in priority order):

- protects a resource that cannot be protected by other means
- contributes to a continuous vegetated shoreline
- connects existing open space and trails
- provides open space near the river, connects to a site along
- the shoreline, or provides an overlook of the river
- contains a threatened sensitive resource
- protects valuable wildlife habitat and biological diversity
- relocates an inconsistent land use
- takes advantage of an abandoned right-of-way
- provides passive open space
- implements the regional open space plan
- contributes to a continuous open space

The unit of government receiving the grant should also be implementing the other elements of the MNRRA plan. If the program is funded by Congress, up to 50% matching grants for acquisition and development will be made available to communities that have adopted the second tier of planning and management and whose plans and ordinances, and their enforcement of the same, substantially conform with the MNRRA plan. Matching grants for projects proposed by a park district, county, regional, or state government will be made available only if the community has plans and ordinances that conform to the second tier of planning and

management described in this document or the project is fully within the boundaries of an existing recreation area or historic facility not managed by the subject community.

Exceptions to this requirement could be made if the action proposed by a park district, county, regional, or state government would protect sensitive resources identified in the MNRRA plan.

(2) Provide easements for future trail corridors in new developments.

(3) When developing parks and open space in natural areas, design the sites to preserve most of the land in a natural state. Large tracts of open space that are currently undeveloped should stress passive recreation, fish and wildlife resources, plant communities, and biological diversity.

(4) Coordinate with communities to develop links from neighborhoods to the corridor.

(5) Require new major private developments and all public facilities to provide appropriate public trails and river access.

(6) Provide pedestrian and bicycle paths to the greatest extent practical, developing separate alignments in heavily used areas to reduce conflicts. Ensure access across all new and rebuilt public bridges. These crossings must be feasible based on engineering and safety considerations.

(7) Use abandoned railroad right-of-way when available, and monitor potentially abandoned railroad property as shown on system maps kept by the Minnesota Department of Transportation for possible trail development or other open space needs.

(8) Locate trails as close to the river as practical and provide strategic connections to other trails in the area.

(9) Use existing authorities to avoid, minimize, or mitigate actions that would convert land acquired with federal recreation grant assistance to uses other than public outdoor recreation and open space.

(10) Encourage the formation of a nonprofit land trust or partnerships with existing land trusts to acquire open space lands and interests in lands along the river to supplement the capability of public agencies.

Commercial Navigation

Existing Barge Terminals and Fleeting Areas Commercial navigation provides an economical, safe, and energy efficient form of transportation for millions of tons of freight each year. It provides the Twin Cities region and the upper Midwest with a vital link from the nation's agricultural heartland to domestic and international markets. Commercial navigation is an integral part of a larger inter modal system, including truck and rail transport. Its impact on the economy is local, regional, and national in scope. The terminals in the region are a focal point for shippers that serve a large part of the upper Midwest. River terminals in the Twin Cities region annually handle 15 to 20 million tons of commodities (see Existing Barge Terminals and Fleeting Areas map). The river system provides transportation to and from the region, including:

* grain and mill products shipped to processors throughout the nation's heartland and to export terminals at the mouth of the river near the Gulf of Mexico
* other major long haul southbound shipments including coal, potassic fertilizer, scrap iron, and petroleum coke
* inbound shipments of coal, phosphatic and nitrogen fertilizer, salt, petroleum products, chemicals, cement, steel, and pipe
* large local movement of sand, gravel, and petroleum products

The Upper Mississippi River–Illinois Waterway Navigation Feasibility Study, begun in 1993 by the Corps of Engineers and scheduled to take six years, focuses on the potential need to expand the river navigation system. Projections of future barge traffic levels are very important for the study. Since the opening of the navigation system, total barge traffic has steadily increased at annual rates averaging between two and three percent. The Corps of Engineers has contracted with independent experts that are projecting future commodity specific barge traffic demands. These experts will be

asked to identify the critical economic assumptions in their analyses and the uncertainties inherent in their projected demands. This information will be used by the study team to compile a "most likely future" set of barge traffic projections. In addition, other less likely sets of traffic projections will be developed to measure the risk and uncertainty of anticipated traffic demands. These sets of traffic projections will be important to identifying future opportunities and needs of the upper Mississippi–Illinois navigation system.

General Concept. The working river is important to the economy of the metropolitan area and the entire upper Midwest. The need to continue the commercial navigation transportation system in the corridor, particularly for agricultural, construction, and energy commodities, is recognized in this plan. This plan stresses the need to recognize the Mississippi as a working river, continue barge-fleeting areas, and balance the needs of commercial and recreational river traffic. Commercial surface water use activities will be continued. Decisions about commercial navigation and facility activity will integrate the needs of the industry with the need to protect natural, cultural, and economic resources in the corridor and provide for safe commercial and recreational traffic within the limits of river system capacity. River system capacity will include considerations of physical, biological, social, and safety limits. Nothing in this plan is intended to automatically preclude the consideration of new fleeting sites if corridor resources can be protected and an acceptable level of safety can be maintained. The use and expansion of commercial navigation, as an element of interstate commerce, is largely controlled by market demand and mode competition with consideration of environmental protection and safety. Local governments will continue to designate areas suitable for barge fleeting in their corridor plans consistent with this plan. The Corps of Engineers and Minnesota Department of Natural Resources will review these community plans for substantial conformity with the commercial navigation policies in the MNRRA plan. Specific fleeting area proposals will continue to require permit approval by the Corps of Engineers and the Minnesota Department of Natural Resources. The National Park Service will review all specific proposals for conformance with the MNRRA plan. A general review will be done periodically by the Mississippi River Coordinating Commission and the National Park Service to confirm that the cumulative activities are consistent with the findings and purposes of the MNRRA act and that the plan is being implemented.

Local governments have the authority under Minnesota land use control law to regulate barge fleeting within their boundaries. The National Park Service will work with other federal agencies, state agencies, and local governments to encourage a coordinated approach to fleeting issues.

Surface Water Use Plan. A surface water use management plan will be prepared and will be a priority for MNRRA plan implementation. Among other features, the plan will provide guidance on:

- suitable locations for additional barge fleeting and mooring areas

- evaluating the potential for bottom disturbance, sediment resuspension, and shoreline disturbance from barge activities and recreational boating

- suitable locations for dredge material disposal sites

- the economic impact of surface water use

- potential regulatory use controls and other measures for minimizing conflicts between commercial navigation and recreational boating use and among recreational uses

- monitoring and evaluating river system surface use capacity, including considerations of physical, biological, social, and safety limits, and investigating the potential for different use zones along the river

- developing alternatives to expanding existing or creating additional commercial fleeting areas, barge mooring areas, and recreational boating facilities

- The plan will be developed with active public involvement, including representatives from all interested organizations, agencies, and the general public. It will be reviewed by the Mississippi River Coordinating Commission prior to approval.

- Local governments, the Department of Natural Resources, and the Corps of Engineers will have the lead in implementing the following policies.

Policies and Actions —

(1) Consistent with the purposes for the Mississippi National River and Recreation Area as stated in the MNRRA legislation, continue the use of the river for commercial navigation, including barge fleeting activities, while protecting natural, cultural, and economic resources in the corridor. Set up monitoring programs to evaluate potential needs and impacts and allow for adjustments to existing fleeting areas or the establishment of new areas if needed to accommodate additional growth. Evaluate management alternatives to expanding existing areas or creating additional commercial fleeting areas. The benefits and impacts of commercial navigation on the local, state, and regional economies will also be considered when evaluating all plans and actions relating to commercial navigation system elements. The public will be involved in developing plans and policies affecting commercial navigation.

(2) To the extent possible, locate barge fleeting areas at least 200 feet from any marina and next to commercial or industrial areas. Fleeting area locations will be based on physical needs for effective operations subject to local, state, and federal environmental and safety regulations.

(3) Evaluate the potential for bottom disturbance and sediment *re-suspension* from prop wash and bank erosion caused by towboat wakes before making decisions to locate new (or relocate existing) barge fleeting areas. The impacts of recreational craft from prop wash and boat wakes are addressed under Visitor Use Management below.

(4) Evaluate potential noise and visual impacts before making decisions to expand or locate barge operations.

(5) Interpret commercial navigation activities to corridor visitors and residents to create a broader understanding of the history of river traffic and the importance of the towing industry to the regional economy.

(6) Prohibit temporary casual mooring in the corridor except in emergencies.

(7) Continue maintenance of the navigation channel through periodic dredging by the Corps of Engineers. This includes the use of existing dredge material placement areas, most of which have adequate capacity to maintain the 9foot channel in the river corridor during the life of this plan. Selection of new permanent placement sites is the responsibility of the interagency Mississippi River Resources Forum, which includes the Corps of Engineers, the U.S. Fish and Wildlife Service, the U.S. Environmental Protection Agency, the National Park Service, and the states of Minnesota, Wisconsin, and Iowa. Dredged material should be placed where it could be reused for beneficial purposes. New material placement sites in the corridor will be designated in a manner consistent with the visions and policies contained in this plan. See appendix E for information on existing channel maintenance activities.

(8) The impacts on local, state, and regional economies, with particular reference to agriculture, will be assessed and considered as part of the established federal, state, and local review process in connection with all plans and projects that could affect the commercial navigation system in the corridor.

These policies will be applied during local government planning activities and the Department of Natural Resources and Corps of Engineers permit processes, which include an assessment of the anticipated environmental impacts of proposed fleeting areas. The permitting process includes review by the National Park Service under the MNRRA act and opportunities for public input, including members of the barge industry.

There is a misconception held by some people that barge fleeting is not regulated. Local governments have the authority to identify and regulate the locations of permanent barge fleeting areas through community plans and ordinances. All specific proposals for barge fleeting areas are reviewed by the Minnesota Department of Natural Resources under state law, by the Corps of Engineers pursuant to section 10 of the Rivers and Harbors Act of 1899, and coordinated with the U.S. Coast Guard. Moored barges must not present an

impediment to navigation (either commercial or recreational) and must not damage the integrity of the river.

Craft that tie off in undesignated areas (casual mooring) for a short period of time (generally less than a week) are currently not regulated. Temporary use of trees as mooring structures is not subject to permitting by the Corps of Engineers unless the trees are on government property. However, the practice is discouraged due to its adverse environmental impacts. In contrast, permanently moored vessels do require Corps of Engineers permits. The Corps of Engineers and the Department of Natural Resources will require permits to ensure compliance with the plan, prohibit casual mooring, and achieve existing legal requirements.

The Corps of Engineers will have the lead in the commercial navigation management portions of this plan, working closely with the U.S. Coast Guard, National Park Service, Minnesota Department of Natural Resources, Minnesota Department of Transportation, and affected local governments. This will include taking the lead in facilitating the surface water use management plan. The National Park Service will coordinate with the Corps of Engineers to implement this plan and the monitoring program and will assist in securing funds for these efforts.

Management Zoning

Of the approximately 54,000 acres in the corridor, it is expected that less than 50 acres will be owned by the National Park Service. It is beyond the legislative mandate for this plan to cover all 54,000 acres in the corridor with an NPS management zoning scheme. The Harriet Island site (about five acres) will be classified as a park development zone (see discussion below regarding interpretive facilities). The 10 islands and one small upland parcel currently administered by the Park Service (totaling about 43 acres) will be managed as natural zones stressing wildlife habitat needs and biological diversity through a cooperative approach.

RESOURCES MANAGEMENT

This section discusses the general strategy for addressing resources management in the Mississippi National River and Recreation Area. Following completion of this comprehensive management plan, the National Park Service will work with other partners having a major interest in resource management in the corridor to prepare a more detailed resources management plan for the area. The resources management plan is an implementation plan prepared to detail research needs and proposals for managing resources in the corridor. It will summarize the resource values and purposes of the Mississippi National River and Recreation Area. The primary function of the resources management plan is to analyze and set priorities for resource management needs and problems. This priority list is used to determine specific actions and research projects necessary to effectively deal with resource issues. Many of these needs will require the preparation of action plans to further define and determine a course of action for specific resource issues, such as surface water use and pollution prevention. The resources management plan will be prepared with public input. While the National Park Service will take the lead in preparing this plan, action plans might be facilitated by another more appropriate lead agency such as the Corps of Engineers or the Minnesota Pollution Control Agency.

The general resource management role of the National Park Service will be to monitor corridor related resource issues and coordinate scientific research, data gathering, and habitat management actions as detailed in the subsequent resources management plan. A coordinated effort will be made by all partners to protect and manage sensitive and unusual habitat areas in the corridor. Research to support corridor interpretive programs and resource management objectives will also be encouraged. Research and resource management actions will primarily be the responsibility of existing federal, state, regional, and local entities. The Park Service will coordinate these efforts by others and provide historic preservation technical assistance, maintain the geographic information system (GIS) developed for the area, and serve as a central clearinghouse for information about the MNRRA corridor. Grants, cooperative agreements, and other sources of funding or

technical assistance will be sought to assist partners in achieving the resource management policies for the Mississippi National River and Recreation Area.

Natural Resource Management

The natural resources of the area are considered to be the assets or values related to the natural world, such as plants, animals, water, air, soils, geologic features, fossils, scenic vistas, etc. Natural resources are those elements of the environment not created by humans. The most important natural resource in the corridor is the Mississippi River itself. It is a globally significant riverine ecosystem that must be protected and restored because it serves, in part, as a migratory corridor for wildlife, because it is essential to sustaining the biological diversity of the continent and the natural functions of the numerous aquatic and terrestrial communities of which it is composed, and because it supports the quality of life for the citizens who live and work and play on and near it.

The Mississippi River in the MNRRA corridor once offered good fishing for walleye, bass, pike, and even sturgeon. Schools of minnows and smaller fish, arthropods, worms, mollusks, protozoans, and the algae and vascular plants needed to support the trophic pyramid were found in the river. The growth of the metropolitan area was not good for native fish. Recent efforts by government, industry, and the public have helped native fish and other river life.

Air and Water. Pollution, especially water pollution, was identified as an important issue for the corridor during the scoping phase for this document. This plan has a vision that existing air and water quality pollution control standards will be met throughout the corridor, and the river should be swim able and fishable through the entire 72mile length. Improved water quality is a high priority for plan implementation, and fish caught in the river should be safe to eat. This plan encourages an emphasis on air and water pollution prevention and increased efforts for control and cleanup where necessary to address existing problems as outlined in the policies listed below. Improved monitoring and enforcement will be provided by agencies currently responsible for managing air and water quality in the corridor. Programs will be supported to improve enforcement of point and non point source pollution standards.

Pollution prevention and control policies should emphasize non point sources because of the relatively greater impact such sources now have on the river. However, all sources of pollution will be given due consideration. Active cleanup efforts will also be undertaken to clear away waste and debris along the shoreline and efforts for spill prevention will be strongly encouraged. Existing federal, state, and local agencies that are currently responsible for implementing the federal Clean Water Act and the Safe Drinking Water Act and all other entities with an interest in water in the corridor will be asked to implement the policies below that are specific to water quality.

The Environmental Protection Agency and Minnesota Pollution Control Agency have the primary regulatory authority to address pollution problems in the MNRRA corridor. The NPS role will stress education and the legislatively mandated review of water quality plans and projects requiring federal permits. The National Park Service will concentrate on providing advice from the perspective of an agency seeking to balance competing uses of the corridor under the visions, concepts, and policies in the MNRRA plan. This plan clearly recognizes the authorities of the Minnesota Pollution Control Agency or other existing agencies in establishing and implementing pollution control goals within the corridor. The Minnesota Pollution Control Agency will have the lead role in implementing most of the policies and actions that follow. The Minnesota Department of Agriculture (MDA) has regulatory authority in preventing and cleaning up groundwater contamination from agricultural chemicals, including pesticides and fertilizers.

It is beyond the scope of this comprehensive management plan to thoroughly address all of the issues of pollution prevention and control in the area. Additional detail will be provided in a follow-up resources management plan and in related air and water quality management plans developed by the Minnesota Pollution Control Agency and other agencies with the assigned authority. The MNRRA plan encourages these and similar efforts for the entire Mississippi watershed that affects the MNRRA corridor.

Existing authorities are addressing pollution in the corridor so major new legal tools or regulatory programs are not proposed. Many existing programs are effectively reducing pollution in the corridor. The basic concept in the MNRRA plan is to stress pollution

prevention and reduction efforts for the corridor using existing state and federal authorities, regulatory standards, and pollution prevention programs. Efforts to protect sensitive resources from pollution will be led by state and local governments under existing state law and existing (and updated) critical area plans and ordinances. Where latitude is allowed under state law, the MNRRA plan supports voluntary efforts. The plan encourages a somewhat greater emphasis than might have been given before the area was established as a unit of the national park system, but it recognizes that many factors, including impacts on natural, cultural, and economic resources, will be considered in the cleanup process. The plan supports new programs that are consistent with the intent and purposes of the MNRRA plan. The plan further encourages the effective implementation of existing programs with added emphasis and coordination to ensure protection for resources identified in the MNRRA act. It is envisioned that additional cleanup could be accomplished through incentives and voluntary efforts. The overall concept is that better implementation, consistency, and coordination will lead to sustainable development projects and higher environmental quality in the corridor.

Policies and Actions —

(1) Encourage compliance with existing air and water quality standards and provide incentives for reducing emissions and loadings beyond required levels. Potential new sources of pollution will be rigorously reviewed to maximize pollution prevention opportunities and to further reduce the effect of pollutant loadings on the quality of the fishery, the quality of drinking water supplies, or air quality in the corridor.

(2) Reduce runoff through coordinated efforts of state and local agencies to update development and enforcement standards for major new construction and redevelopment projects and by promoting increased storm water retention in new construction and redevelopment projects. Support existing educational, planning, and regulatory efforts by the Minnesota Pollution Control Agency, Metropolitan Council, and cities in the corridor.

(3) Develop educational programs to inform private landowners, public agencies, businesses, and industries about practices that

prevent pollution and help protect the Mississippi River watershed.

(4) Ensure strict enforcement of existing pollution control regulations. Increase cooperative ventures with industry to prevent or minimize pollution at the source through incentives and voluntary standards. Cooperate with other agencies to facilitate implementation of pollution prevention programs. Provide incentives to promote voluntary and innovative pollution prevention actions and to increase awareness of pollution related issues in the MNRRA corridor.

(5) Encourage pollution prevention and increased pollution control in selected areas to protect sensitive resources in the corridor.

(6) Reduce the use of chemicals for fertilizer and pest control in agricultural and residential areas and on public lands, which would support sustainable land treatment activities and integrated pest management practices.

(7) Encourage ongoing efforts to clean up corridor lands that are adversely affecting or could adversely affect the river environment, such as landfill sites that are leaking, sites that could present a hazard to public safety, or sites that could delay recreational or other desired uses of the corridor.

(8) Evaluate noise issues, including noise from commercial and recreational boat traffic on the river and traffic on parallel roads and bridge crossings. Improve standards, education, mitigation, and enforcement if they are determined inadequate.

(9) Reduce the use of salt on area roads by encouraging greater use of alternative materials and increased efficiencies in winter maintenance, considering the needs of public safety.

(10) Increase the use of devices such as skimmers on small tributary creeks to capture and reduce the amount of floating debris carried into the river.

(11) Advocate an accelerated conversion to double hull barges (including those under 5,000 gross tons) and encourage efforts

to reduce the potential for spills from rail cars and tanker trucks carrying hazardous cargo through the MNRRA corridor. It is recognized that there are relatively few single hull barges operating in the corridor (less than 3%). However, it is desirable to provide the additional protection of double hull barges for all commercial traffic carrying hazardous substances through this congressionally established area.

(12) Complete the cleanup of contaminated sites more quickly by encouraging a higher priority rating for state and federal Superfund sites in the corridor. The intent of this policy is to recognize that the cleanup sites are now in a congressionally established unit of the national park system, and therefore deserve updated consideration regarding the site's impact on the environment. Care will be taken to ensure that sites outside the corridor that pose a significant risk to human health are not diminished in priority relative to sites of lower risk inside the corridor. Generally, other things being equal, preference will be given to a site in the corridor.

(13) Encourage a comprehensive program of activities to pursue swim able and fishable goals and achieve state and federal water quality standards throughout the corridor. These include a broad range of educational, interpretive, incentive, and enforcement activities.

(14) Encourage alternatives to lawns in the shoreline area to reduce fertilizer and pesticide runoff into the river.

(15) Encourage efforts to develop and implement spill prevention and response plans for the river. This should include all potential sources, such as point sources and pipelines, railroads, barge traffic, and other transportation modes.

(16) Support regional pollution prevention and control plans for the metropolitan area.

(17) Cooperate with the Minnesota Pollution Control Agency, the Minnesota Department of Agriculture, and others in establishing ongoing water quality monitoring programs to determine the types, loadings, and sources of pollutants being discharged to tributaries of the Mississippi River in the corridor (such as the

Minnesota River), and work with watershed management organizations to incorporate monitoring results during revisions of local water plans.

(18) Support the Department of Natural Resources in developing a program to require all new marinas to have dumping stations to help prevent the discharge of human waste into the river. Encourage existing marinas to install and maintain dumping stations.

(19) Protect stream banks and water quality from the negative impacts of recreation activities.

(20) Review federal regional air quality permit applications to assist in preventing further deterioration of the corridor's air quality.

(21) Encourage rigorous enforcement of federal, state, and local floodplain and wetland protection policies and restore degraded wetlands to maintain and improve their natural cleansing abilities and protect water quality in the corridor.

(22) Support programs to better manage and decrease the volume of toxic wastes in the river corridor. Encourage programs to prevent and minimize the adverse impacts from toxic material use, moving toward a goal of less toxic materials used in the corridor. Encourage regulatory and pollution prevention efforts that would control toxic emissions into the corridor from new and existing sources.

(23) Work with the Minnesota Pollution Control Agency, the Minnesota Department of Agriculture, and other involved organizations to identify ways to encourage and supplement efforts to prevent and control sources of pollution, especially phosphorus loading, to the Minnesota River, which directly affects the quality of water in the MNRRA corridor.

(24) Encourage timely completion of the metropolitan combined sewer overflow separation project.

(25) Address the issue of contaminated river bottom sediments in the resources management plan, particularly in response to

potential increases in river traffic. Strategies might include working with the River Resources Forum to continue management of dredging activity to reduce adverse impacts, restricting the placement of dredged material, establishing a coordinated toxics monitoring program, monitoring the effect of river traffic on the *re-suspension* of sediment, developing biological criteria to more effectively assess the biological integrity of the corridor, and reviewing loadings and standards applied to toxic pollutants.

(26) Encourage efforts to reduce the effects of two cycle boat engines on water quality in the river.

Native Flora and Fauna, Natural Communities, and Biodiversity. The Mississippi River in the corridor passes through the eastern deciduous forest and the tall grass prairie biomes. Historically, land in the corridor was covered mainly by oak, woodlands, and brush. Other vegetation types included floodplain forest, upland prairie, and maple basswood forest. The Minnesota Natural Heritage Program has identified nine additional natural community types in the corridor. Land cover data derived from 1988 satellite imagery for the corridor identified 28% as developed. The area contains a variety of wildlife habitats. About 50 species of mammals, 270 species of birds, and 150 species of fish reside in or travel through the corridor. Research has shown that a 300footwide natural corridor adjacent to the shoreline is desirable for wildlife movement along the river.

Protecting natural plant communities and native wildlife and plant diversity is a priority of the plan. The natural functions of the riverine ecosystem will be protected and enhanced.

Policies and Actions —

(1) Protect wildlife habitat and biological diversity.

(2) Work to increase and restore wildlife habitat and biological diversity in development projects. Protect bottomland forests and riverine habitats.

(3) Encourage uninterrupted vegetated shorelines that exceed the minimum 40foot dimension (as discussed in site development

policy number 2 in the land and water use section above) to facilitate wildlife movement along the corridor.

(4) Coordinate land development policies to protect natural resources using a system of preservation areas (as described in site development policy number 2 in the land and water use section above).

(5) Preserve native vegetation or encourage revegetation; use native and other compatible floodplain vegetation in redevelopment projects; develop a cooperative program for revegetating existing denuded areas along the shoreline; and use extensive native vegetation, including native trees and shrubs, in the more formal landscape treatments appropriate to downtown areas.

Threatened and Endangered Species. In accordance with the Endangered Species Act, endangered and threatened species will continue to be protected in all areas under direct NPS jurisdiction. The National Park Service has consulted with the U.S. Fish and Wildlife Service and will continue to consult with them on the management of listed species. A coordinated effort will be undertaken to preserve and protect threatened and endangered species in the national river and recreation area corridor. Endangered species are listed as a sensitive resource in this plan and their protection will be a high priority throughout the corridor through a partnership approach. This plan emphasizes the need for endangered species habitat efforts, including those aimed at state listed species, while recognizing that implementation will depend primarily on the commitment of other agencies and the private sector. The National Park Service will coordinate with the U.S. Fish and Wildlife Service and the Minnesota Department of Natural Resources to further identify and protect federally and state listed species and their habitats. This plan also supports efforts to control the spread of nuisance exotic species in the corridor, which often compete with threatened and endangered species for habitat. The Department of Natural Resources will have the lead in further developing this effort and the resources management plan will provide some additional detail.

Policies and Actions —

(1) Comply with federal, state, and local requirements to protect endangered, threatened, and rare species (including state listed species).

(2) Encourage preservation and enhancement of habitat that is of special value to threatened and endangered species.

Floodplains and Wetlands. Floodplains and wetlands are listed as sensitive resources in this plan and are a high priority for protection in the corridor. They are very important areas for reducing the adverse effects of flooding, maintaining water quality, providing wildlife habitat, preserving visual variety, and maintaining biological diversity. They should be preserved, restored, and increased in the corridor. They will be protected and enhanced by increased education efforts, open space acquisition, preservation incentives, voluntary programs, and rigorous implementation of existing state and federal law and executive orders. The National Park Service will work with other agencies with lead responsibilities in this area, including the Corps of Engineers, the U.S. Fish and Wildlife Service, Environmental Protection Agency, and Minnesota Department of Natural Resources to emphasize resource protection and coordinate their activities.

Policies and Actions —

(1) Comply with federal, state, and local requirements to avoid floodplain and wetland development.

(2) Protect existing wetlands and, where practical, restore degraded wetlands.

Natural Resource Research Needs. Acquisition of additional natural resource baseline data and incorporation in the GIS database will be the primary focus of natural resource research activities in the Mississippi National River and Recreation Area. A natural resource focus group reported on research needs in the area. Recommended research areas include the status and condition of endangered species, vegetation (including species composition), special ecosystems and habitats, ecological information on biological communities, historic wetland areas, and mineral resources. The focus group report is on file at MNRRA headquarters

in St Paul. Specific research needs will be determined in the resource management plan.

Cultural Resources Management

The cultural resources of the area consist of evidence of past activities on or near the river. These include burial mounds, campsites, village sites, and ethnographic resources that illustrate the nature of the occupation by Native Americans. The fur trading period, early settlement, and later urbanization, as well as agricultural and industrial activity on or near the river, are included in historic districts, national historic landmarks, national register properties, and locally designated historic sites. Additional properties that have not yet been evaluated lie within the corridor boundaries. The MNRRA boundaries contain more than 60 sites that are either on or eligible for the National Register of Historic Places. The lands currently owned by the Park Service have no national register properties.

All currently listed national register properties or those properties that have been determined eligible by the Minnesota Historic Preservation Office for national register listing were identified, plotted on the cultural resources map, and entered in the GIS database for the Mississippi National River and Recreation Area.

General Concept. The state historic preservation office (SHPO) will continue to have the central role in protecting cultural resources in the MNRRA corridor. Cities will also play a key role in the designation and protection of historic properties, with an emphasis on local heritage preservation ordinances. The plan recognizes that the "Certified Local Government" (CLG) program, which is administered by the state historic preservation office and the National Park Service to certify and support local preservation programs, has special potential to advance plan goals. Ongoing efforts, such as the Minneapolis project to rehabilitate the Washburn Crosby mill complex, are supported by this plan. NPS activities will stress interpretation and public education on the value of protecting our cultural heritage. Additional details on NPS, SHPO, and local government activities in the corridor can be found in the interpretation and partner roles sections of this document.

Policies and Actions —

(1) Continue the historic uses of historic properties, particularly where interpretation of historic themes is planned, in preference to changing the use, even though the change might be compatible with the historic character of the resource. New uses of historic properties should be consistent with other policies in the MNRRA plan.

(2) Encourage open space land use in order to protect significant archeological resources. Provide adequate identification, evaluation, and site planning to preserve these resources.

(3) Preserve historic structures and cultural landscapes in their present condition if that condition allows for satisfactory protection, maintenance, use, and interpretation, or if another treatment is warranted but must be delayed.

(4) Rehabilitate historic structures and landscapes for contemporary uses if they cannot adequately serve in their current condition, and if rehabilitation will not alter integrity or character.

(5) Restore historic structures and landscapes to an earlier appearance if restoration is essential to public understanding of the cultural associations of the area and sufficient data exists to permit restoration with minimal conjecture.

(6) Encourage economic activities that preserve and rehabilitate historic resources in the corridor consistent with other policies in the MNRRA plan.

(7) Encourage cities in the corridor to participate in the certified local government program administered by the state historic preservation office of the Minnesota Historical society.

(8) Develop incentives to retain historic uses and preserve cultural resources.

Cultural Resource Research Needs. While available data were compiled for this plan, a comprehensive inventory of potential properties eligible for the National Register of Historic Places should be conducted for the corridor either by the Minnesota

Historic Preservation Office or a federal, state, local, or private group in the area. A complete inventory of all historic resources within the boundary of the Mississippi National River and Recreation Area is needed to provide an adequate database for future MNRRA resource management. Potential cultural landscapes were not identified as an issue during the scoping phase for this plan and no cultural landscapes are included in the current inventory. However, this will be addressed during the resources management plan process and appropriate inventories will be scheduled if determined necessary.

The Minnesota Historic Preservation Office is transferring the state's archeological site inventory to a computerized database that will aid in identification of sites within the MNRRA boundaries and provide the information necessary to determine research required. This information will be incorporated into the GIS database when it becomes available.

A complete inventory of archeological sites in the corridor is a priority research need. The identification of sites of importance to Native Americans remains to be done. No comprehensive listing of these sites now exists.

A variety of basic documents is needed. These include an archeological overview and assessment, ethnographic overview and assessment, a scope of collections statement, and a historic resource study. The purpose of these documents is to provide a complete inventory of historic resources throughout the corridor. These documents will provide guidance for the management of the Mississippi National River and Recreation Area. These projects will be more fully defined and additional research needs will be identified in the resources management plan for the area.

Economic Resource Management

General Concept. The MNRRA legislation lists the importance of economic resources along with other traditionally cited national park system resources, and the plan must "recognize existing economic activities in the area and provide for their management." "Nationally significant economic resources" were not defined in the legislation. The act charges the commission with developing "policies and programs for the commercial utilization of the

corridor consistent with the values for which the area was established." Extensive economic resource data was collected and mapped for this plan. Land use and zoning data, barge facility information, and numerous socioeconomic factors were included. As with natural and cultural resource research needs identified above, existing economic resources in the corridor should be more intensively inventoried and evaluated. The National Park Service will encourage and facilitate this research, which will be carried out primarily by others. A more thorough inventory is needed following plan approval to assist in plan implementation. As is typical of any thorough research or inventory project, it should be preceded by more analysis of the purpose of the study (based on the legislative history), agreement on the definition of "economic resource," and a comprehensive identification of what should be included in the inventory.

Policies and Actions —

Following are policies and actions for economic resource management, most of which are also found in other parts in the plan and are explained in greater detail in those sections of this document.

(1) Recognize the importance of economic activities and provide for commercial use in the corridor.

(2) Encourage businesses to invest in the river corridor consistent with the values identified in the MNRRA legislation.

(3) Preserve riverfront land for economic uses that rely on the river.

(4) Protect historic buildings for adaptive reuse.

(5) Encourage economic investment that preserves and rehabilitates historic structures.

(6) Continue existing land uses in the corridor.

(7) Allow redevelopment and expansion of corridor businesses.

(8) Encourage sustainable economic activities that improve the quality of life.

(9) Promote tourism in the corridor.

(10) Continue barge fleeting areas and allow for some expansion in fleeting activity.

(11) Interpret the working river.

(12) Encourage special events that draw people to the river.

(13) Increase visitor access and recreational use in the corridor.

(14) Minimize NPS land acquisition.

(15) Preserve riverfront investment and encourage riverfront improvement with a wide variety of land uses.

(16) Encourage local land use control and local, regional, and state economic development activities that promote sustainable development.

(17) Promote coordination and consolidation of regulations for new development and redevelopment activities.

(18) Recognize the transportation system's important role in the metropolitan economy and how transportation is necessary to preserve economic resources in the corridor.

Economic Resource Research Needs. Additional research and data collection will be done for economic resources. This comprehensive management plan/environmental impact statement includes considerable data and analysis on economic resources and impacts. A larger economic inventory was beyond the scope of the plan, and would have added considerable time and expense to the project. This inventory, like several more detailed inventories of natural and cultural resources identified above, will be a priority during plan implementation. This research will include a broader inventory of transportation resources in the corridor and an analysis of future trends as identified in metropolitan transportation planning documents. An inventory of the number of jobs in the lower river

was completed by Metro East Development Partnership during this planning process. This could be updated and expanded to include the entire corridor following agreement on definitions and a complete listing of research needs. There is a need for new forecasts and analyses of barge traffic trends by commodity and by terminal. Along with additional analyses and a comparison of barge transportation costs with competing modes, an assessment should be made of the long-term effectiveness of barge transportation and its impact on regional commodity producers and consumers. Research will investigate the relationship between barge transportation capacity and freight rates in the corridor. Previous barge fleeting requirement analyses and studies on the direct, indirect, and induced economic impacts of commercial navigation should be updated.

Research should include more detailed analysis of local, regional, state, and federal government expenditures for parks and recreation. Surveys and analysis to determine recreational land and facility benefits and estimates of tourism expenditures in the corridor are also needed.

Additional economic research and inventory needs will be identified in the resource management plan to be completed following approval of this plan.

Recreation Research Needs

During the course of the MNRRA planning process, local professionals generated lists of research needs specific to the corridor through participation in focus groups. One group categorized their concerns under the topics of public attitudes assessment and recreation user assessment. The focus group report is on file at MNRRA headquarters in St. Paul.

General information needs in recreation resource management, an assessment of research needs specific to the Mississippi National River and Recreation Area, and a list of information needs gained by combining the suggestions of several sources are available at MNRRA headquarters. The National Park Service will coordinate research relating to visitor perceptions, use, and impacts on corridor resources. Research should also be done to investigate the

effectiveness of corridor interpretation and education programs and facilities.

VISITOR USE AND INTERPRETATION

Visitor Activities and Recreational Resources

A variety of passive and active resource related recreational activities will be encouraged in the MNRRA corridor. These include fishing, hunting, boating, canoeing, cross country skiing, snowshoeing, hiking, bicycling, jogging, picnicking, taking photographs, birding, and participating in a variety of interpretive and educational programs.

People now enjoy a wealth of recreational, educational, and contemplative activities in the corridor. The Coon Rapids dam attracts anglers and other river users from spring through fall. The river above the dam offers good boating and fishing. Above the Rum River confluence canoeists paddle the segment of the Mississippi River designated by the state as wild and scenic.

Recreational and residential users share the river corridor with commercial river traffic and industry below the Camden bridge in Minneapolis. Commercially operated excursion boats show residents and tourists the river from St. Anthony Falls to Hastings. Pleasure boats power past Pigs Eye and climb the locks as far as Minneapolis. Industrial uses are found along several stretches of the river, most commonly in north Minneapolis and from St. Paul downstream to Cottage Grove.

The Mississippi from the cities of Dayton and Ramsey to Hastings once offered good fishing; walleye, bass, pike, and even sturgeon were caught. Schools of minnows and smaller fish, arthropods, worms, mollusks, protozoans, and the algae and vascular plants needed to support the trophic pyramid all existed before much of the area developed. The growth of the metropolitan area was not good for native fish, nor was the arrival of exotics such as carp. Many recent efforts by government, industry, and the public have helped native fish and other river life. Biological diversity has increased in many areas, and trophy walleyes have recently been caught. Fishing is good again in many parts of the corridor, but some consumption advisories still exist.

This plan promotes more recreational use of the Mississippi for a variety of activities, including boating, fishing, canoeing, and sightseeing. River related recreational opportunities will also be extensive along the riverbanks. Places for hiking, biking, or jogging along a riverside trail, picnicking, or just sitting in one of the many parks in the corridor will continue to attract people to the river. The river is a magnet for terrestrial and aquatic recreation, and this will be enhanced. The use of canoes, rowboats, kayaks, or other boats without motors will be encouraged. More liberal surface water use management will also be encouraged to provide additional quiet zones in the corridor and protect river shorelines. Tour boat operations and other visitor oriented commercial enterprises will be promoted. Safety will be a high priority in all these activities. If additional regulations are necessary, they will be established under existing legal processes, and public and agency input will be encouraged.

The primary direct involvement of the National Park Service in visitor activities will be through interpretive and educational programs, facilitating and coordinating the implementation of a corridor long trail system, orientation to available interpretive services, education for low impact recreation, visitor use impact monitoring, marketing research, and interpretive training for visitor contact personnel.

Policies and Actions —

(1) Use potential impacts and area characteristics such as resource quality, population density, existing development, and recreation use levels to evaluate the types of visitor activities and levels of access appropriate for specific areas in the corridor.

(2) Establish activity zones and manage visitor access where necessary to minimize use conflicts and enhance public safety.

(3) Provide diversity in public park and recreation facility types, high quality in construction, and some consistency in visitor use facility design along the corridor.

(4) Develop facilities, programs, and media to orient visitors to year-round recreational and interpretive opportunities and to interpret resources and their significance.

(5) Encourage resource related special events and major interpretive activities that contribute to visitor understanding and appreciation of natural and cultural features.

(6) Coordinate and cooperate with the many excellent interpretive and recreational programs that already exist in the corridor. Identify areas where NPS interpretive activities could build on present programs or fill a missing need.

Visitor Use Management

This plan proposes to attract more visitors to the river in areas that are not already overcrowded or causing unacceptable impacts on corridor resources. Access will be provided at levels and locations consistent with resource protection. Some sensitive natural and cultural resources might not be physically accessible but could be visible from adjacent areas. Links will be developed to integrate neighborhoods into the corridor. Many visitor uses will be made accessible to persons with disabilities. A follow-up visitor use management program will be developed to assess visitor use issues and identify more detailed management strategies to keep impacts within acceptable levels. Cooperative efforts will be explored to link the river to parks, neighborhoods, open space, activity centers, and historic resources. Visitor access and activities will be managed to reduce conflicts among users. Additional visitor use will not be promoted in already crowded areas.

All general management plans for units of the national park system must, by law, address the issue of carrying capacity. Carrying capacity refers generally to a level of use a resource can sustain before incurring unacceptable change. It includes physical, biological, and social considerations. Current approaches on this issue argue that carrying capacity is not a simple number that can be applied to all resources under all circumstances. Rather, carrying capacity defines quantifiable objectives that specify desired natural, social, and managerial conditions for a resource. To establish a carrying capacity program, it is essential to develop a systematic framework to monitor conditions over time. The monitoring begins

with the establishment of baseline conditions for an area, against which future conditions can be assessed.

Various proven frameworks exist that could be used for monitoring resource quality in the corridor. These include visitor impact management, limits of acceptable change, quality upgrading and learning, and the recreational opportunity spectrum. The Park Service also has a pilot program underway to develop a system to address visitor use planning and management in NPS areas. All of these approaches define indicators and standards of quality. Indicators are measurable variables that define the quality of the resource condition and visitor experience. Standards specify the desired or acceptable conditions of indicator variables. Determinations of carrying capacity are then made by monitoring the condition of the those variables. When indicator variables do not meet the standards specified, capacity has been exceeded and prescriptive management action is normally necessary to bring indicators back into compliance with standards.

In association with development of a visitor use management program, an ad hoc task force will be convened under the leadership of the Metropolitan Council, Department of Natural Resources, and the National Park Service. Any interested community or agency with parkland in the corridor will be invited to participate in the task force. The task force will work to define desired conditions and appropriate indicators and standards for parklands in the corridor. A monitoring framework will be established. The task force can follow one of the established systems or develop another strategy. Desired conditions and objectives will vary for specific areas of the corridor and will require different capacity thresholds. The impacts on commercial navigation will be considered in recreational capacity management efforts along with other relevant activities that affect visitor use in the corridor. The impact of recreational boat wakes on bank erosion and sediment *re-suspension* from prop wash will also be considered in visitor use management determinations. All interested parties will have input to recreation capacity management planning.

Policies and Actions —

(1) Encourage new major private developments and all public facilities to provide public trails and river access.

(2) Continue the use of existing marinas and river access sites. Monitoring programs will evaluate potential impacts and allow for adjustments to existing marina capacity or the establishment of new areas. Development of new marinas and launch ramps will be based on analyses of demand, impacts, and use capacity conducted through a follow-up visitor use management program. This will include consideration of the need for an adequate number of public launch ramps in the river corridor.

(3) Provide additional pedestrian and bicycle paths in the corridor consistent with resource preservation. Separate facilities in heavily used areas and ensure paths across all new and rebuilt bridges that are constructed using public funds. These crossings must be feasible based on engineering and safety considerations.

(4) Acquire abandoned railroad right-of-way for trail development or other open space needs consistent with the National Rails to Trails Act.

(5) Encourage surface water use regulations such as no wake zones on the main channel and in backwater areas to protect selected shoreland from erosion and reduce conflicts among recreational activities on the river while not significantly affecting the existing commercial navigation industry.
Under current law the National Park Service does not have the authority to implement surface water use regulations. The National Park Service will coordinate efforts and work with other agencies to develop a comprehensive visitor use management program, which can include recommendations for additional area specific surface use regulations. If additional regulations become necessary, they will be established under existing legal processes, and public and agency input will be encouraged. Implementation of surface water use regulations will rely heavily on the cooperation of area partners, such as the Department of Natural Resources and corridor communities. Surface water use regulations (speed limits, no wake rules, horsepower limits, etc.) are adopted by local government ordinances. Before an ordinance can take effect, it must be reviewed by the Department of Natural Resources and found consistent with statewide standards. If the rule is to affect areas in more than one county

or city, essentially identical ordinances must be adopted by all local governments with jurisdiction (both sides of the river, for example, although if a county adopts the ordinance it would not also have to be adopted by the affected cities). Once an ordinance is in place, it will be enforced by any law enforcement agency with jurisdiction, including the Department of Natural Resources.

(6) Assess the adequacy of visitor safety and enforcement in the corridor. Increased user safety, especially in the urban areas of the river corridor, will be a high priority for plan implementation. Actions could include adequate unbreakable lighting, emergency stations for calling for help, increased police patrols, and safe facility and trail designs.

(7) Provide visitor access and programs in compliance with all federal, state, and local regulations. Facilities will be accessible to all users to the maximum extent practical. For example, accessible fishing docks will be provided at selected locations. Compliance with the Americans With Disabilities Act throughout the corridor will be ensured.

(8) Evaluate the impacts of recreational boat wakes on bank erosion and the effects of prop wash on the *re-suspension* of contaminated sediment. Develop mitigation measures if impacts are beyond acceptable limits.

Interpretation, Education, and Visitor Services

Interpretive and educational activities and facilities will be designed to help secure the visions described earlier. Those visions particularly relating to interpretive activities are:

- The public is aware through coordinated interpretive programs of the status of corridor resources and their stewardship.
- The public has an understanding and appreciation of the multiple uses and purposes of the river.
- Opportunities are provided to learn about and experience corridor resources.

- The public has opportunities to learn about historic and archeological resources in the corridor through interpretive and educational programs.
- Archeological and historic preservation, enhancement, and interpretation reflect the diversity of the people who have lived in the river corridor.
- Special features are identified, developed, and promoted as tourist destinations consistent with the protection of cultural, natural, and economic resources.
- Interpretive and educational opportunities provided in the corridor reflect cultural and ethnic diversity and are physically and financially accessible to all area residents and visitors.
- The public has opportunities to learn about natural resources and values in the corridor through interpretive and educational programs.
- Opportunities are provided for observation and interpretation of the Mississippi's role in the regional and national economy.

The National Park Service will play a significant role in interpreting corridor resources and providing visitor services. The Park Service will construct one interpretive center/headquarters, cooperate with partners to develop others, assist in staffing and programming at some, conduct interpretation and education programs at several places throughout the corridor, and design and produce interpretive media. While the Park Service will have a lead role in coordinating interpretive planning, much good work is already being done in the corridor and partnerships will play a significant role in providing and coordinating visitor services and interpretation. These actions will be designed to achieve the visitor experience goals, interpretive themes, and program objectives described below. Following are the major concepts for interpretation of corridor resources. A more detailed interpretive action plan will be prepared to implement the comprehensive plan. This will provide additional details on interpretive themes, corridor interpretive facilities, specify media and estimate their costs, and detail interpretive program needs. It will be developed in cooperation with all the key interpretive agencies and organizations in the corridor.

Visitor Experience. Experiences that will allow MNRRA visitors to best enjoy and appreciate and learn and benefit from their visit are listed below. Achieving these experiences will involve partnerships, interpretive facilities and media, and interpretive and educational

activities designed for all visitors, including those with special needs. Visitors should have the opportunity to:

- understand and learn more about the ecological, cultural, economic, scenic, scientific, educational, and recreational values of the river corridor
- directly experience the river by boat, canoe, or tour boat, or from the shore
- feel safe while using corridor areas
- experience the corridor without conflict with other visitors or private landowners
- view plants and animals living on, next to, and underneath the water
- view the cultural resources in the corridor
- see activities that represent the working river
- gain important and interesting information about the corridor as described by the interpretive themes identified below
- demonstrate their caring about the river (e.g., volunteer opportunities, public involvement, friends groups, donations)
- understand how their lives affect and are affected by the river
- understand corridor management issues and identify how they can help solve problems
- find activities and experiences that meet diverse interests, skill levels, abilities, learning styles, ages, and ethnic backgrounds
- appreciate the 72mile Twin Cities portion of the Mississippi River in context with its source in northern Minnesota, relationships to other metropolitan area rivers, and its relationship to the entire Mississippi as a regional, national, and international resource

Interpretive Themes. There is an almost endless list of stories and messages that could be conveyed about the Mississippi River. The interpretive themes listed below are the key ideas and stories that will be interpreted for corridor visitors. These themes will be further detailed in the follow-up interpretive plan referenced above.

(1) The Mississippi is one of the world's great rivers. The Mississippi is one of the longest rivers in the world. Conditions throughout the massive watershed can affect the river. It drains over half of the United States and has the second largest drainage basin in the world. It bisects the country, sustaining biological diversity throughout the continent. It is a force in

American history, transports American products, and populates American mythology, arts, and literature. It is a name recognized worldwide.

(2) The stories of human life along the Mississippi River have unfolded over 12,000 years. These stories, about people who have lived along the river in villages, cities, and on farms, range from the routine to the extraordinary. The daily lives of many of these people have been intertwined directly with the river as a source of food, transportation, recreation, inspiration, and livelihood.

Human relationships with the Mississippi River, while changing over time, illustrate close interconnections among geographic, ecologic, economic, and cultural systems. The history of the cultures and individuals who have lived in association with the river is a dynamic story that helps us understand our modern relationships to these systems.

The presence of Native Americans along the Mississippi, from the retreat of the glaciers to the present, has left a legacy of cultural traditions, spiritual beliefs, place names, and legends. From the Laurel Culture to the Hopewell Indians of the Mississippi Culture to present day Dakota and Ojibwa, Native Americans have been a part of the unfolding history of the river. Many sites in the corridor were important to the Dakota who traveled the shores and plied the waters of the river. The confluence of the Mississippi and Minnesota Rivers, given the name Mdote (Mendota), is an important place for the Dakota.

Native Americans followed the seasons and moved throughout the river valley, tending gardens of corn, beans, and squash during the growing season, hunting, and moving deep into the woods to escape freezing winter winds. Within the MNRRA corridor boundaries, numerous Native American sites have been identified, such as the burial mounds at Mounds Park and the site of the village of Kaposia.

Early contact between Europeans and Native Americans on the Mississippi was focused around the fur trade. With the establishment of Fort Snelling and its Indian Agency in 1819, the United States began an attempt to regulate fur trade in this area

and extend its influence with the Native American people. Through treaties negotiated beginning in 1837, the United States purchased Dakota and Ojibwa lands along the Mississippi.

During the 1850s a rush of settlers, largely from the east, came up the Mississippi on steamboats. River towns, including St. Anthony, Minneapolis, and St. Paul, grew rapidly into culturally diverse communities. For a time, on the same street, one could encounter old voyageurs, Dakota, Ojibwa, and Winnebago people, southern tourists with a retinue of slaves, free African Americans, Metis ox cart drivers from the Red River Valley, utopian idealists from New England, eastern capitalists, Maine lumbermen, and farmers from Germany — women, men, and children of all ages and from many parts of the world.

Following the Civil War, with expansion of railroads east and west, life in the river towns changed. Settlement expanded away from the river but maintained important connections to the river cities. Trees cut in northern Minnesota were floated down the Mississippi to sawmills in Minneapolis, mills that provided lumber to build towns across the western prairies. As the northwest developed, people and goods flowed through the river cities; economies expanded to meet new needs for warehousing, commerce, and service.

During the 20th century, people from all over the world have chosen the region for their homes. The stories of immigration, cultural adaptation, and individual relationships to the Mississippi are many and varied and provide a rich tapestry of diversity.

(3) We must care for the Mississippi. The Mississippi needs our help and concern. It has been significantly affected by human activities. There are many good examples of river protection in the corridor. Although conditions vary greatly in different parts of the river, the biological diversity has generally decreased as human use of the river increased. Our challenge now is to demonstrate that a healthy river ecosystem can be maintained along with recreational and economic uses. Our challenge is also to encourage participation, education, and stewardship.

The river system is much larger than its apparent shorelines. Every contaminant that enters the water in the Mississippi's watershed can end up in the river. Contaminants range from household bleach and bug spray to industrial discharges and municipal sewage. What enters upstream ends up downstream. These products of human habitation, agriculture, and industry affect all forms of life in the corridor. Poor water quality also limits sustainable economic opportunities such as recreation, tourism, fishing, and waterfront revitalization.

Pollution comes from many sources throughout the watershed (farms, industry, municipal sewage, non-point sources, lawns, road runoff, airborne particulates, etc.). Some pollutants are concentrated as they pass up the food chain; fish consumption advisories have been issued in some stretches of the river. The efforts of government, industry, and private citizens are needed to reduce the levels of pollutants in the river. Through extensive federal and state efforts with substantial industry and government outlays for pollution prevention and control, the water quality in the river has improved.

To protect and enhance the Mississippi, the issues that affect it must continually be discussed. Current issues of interest to the public include wetland protection, water quality, trail development, public access, barge fleeting, safety, zoning, landscape and building design, waste management, power generation, and transportation systems. Increased public knowledge and sensitivity will result in better policies and decisions affecting the river.

(4) Glacial and human forces shaped the river. The geological life of the Mississippi started about 12,000 years ago in the melt-water of retreating glaciers. Erosion carved the river channel through glacial sediments. The Mississippi before extensive human alteration was a different river than it is today. It was shallower, with shifting sand bars, different plants and animals, different channels, and different sediment loads, deposition, and erosion.

While geological influences (such as erosion and deposition) continue, human activities have become the primary agents of change, sculpting the modern river into a variety of ecosystems.

None have had greater influence on the river than the engineering projects of the U.S. Army Corps of Engineers. The Corps of Engineers is responsible for maintaining the federally authorized 9foot navigation channel upriver to north Minneapolis. Locks and dams created a series of pools. Humans have largely filled and developed the limited flanking backwaters and sloughs in the north, but some still exist in the southern part of the corridor.

(5) As a working river, the Mississippi's influence extends far from its shoreline. The Minneapolis/St. Paul urban area is located where it is today because of the Mississippi River. Recognizing the potential hydropower available at the Falls of St. Anthony (the only waterfall on the entire Mississippi) the growing city of St. Anthony harnessed this power to drive sawmills that ripped logs into planks and beams. Across the river, turbines driven by water ran flour mills, and Minneapolis became the flour milling capital of the world.

Today, the Mississippi River provides power, drinking water, cooling water, waste dilution and dispersal, and an economical method for transporting commodities. These benefits have affected settlement patterns, industry, and commerce far from the riverbanks and help support agriculture, manufacturing, high-tech business, commodity transportation, recreation and tourism that make up the area's river-related economy.
The lock and dam system improved modern transportation on the river, enabling the commercial navigation industry to play a significant role in the region's economy and changing recreational patterns.

Barges are an important part of a larger transportation system (including railroads and trucks) and can frequently be seen on the river carrying goods to and from the region.

Modern river industries and commerce affect the river system in many ways. They provide jobs, afford energy efficient and lower cost transportation, and benefit other parts of the economy (farming, mining, chemicals). Negative impacts include pollution (petroleum products, potential toxic spills), loss of habitat, and visual impacts (that can be perceived in many ways). Balancing

economic, historic, and ecological concerns is a major challenge for river corridor management.

(6) The MNRRA corridor includes a variety of organisms and ecosystems; improved biological diversity is a goal. The Mississippi National River and Recreation Area ecosystems include a variety of river systems, backwaters, wetlands, bottomland forest, ponds, streams, prairie, parkland, and industrial, commercial, and residential land. All ecosystems are affected by human activities in the entire watershed, even in areas far beyond the MNRRA boundaries. Aquatic life in the river varies greatly along the corridor. Biological diversity is slowly improving in several areas because of improved sewage treatment, reduced non point source pollution, and better disposal of toxic materials.

Several species have been extirpated from the upper Mississippi in the last 100 years, and a number are listed as threatened or endangered. Several immigrant species have moved into the corridor in the last 200 years, including zebra mussels, carp, milfoil, and purple loosestrife. These aliens are, at least for now, better adapted than many native species to the present conditions in the river, often forcing out native species that could not adapt. The presence of the non natives has had serious and sometimes devastating effects on river ecosystems.

Preserving and restoring biological diversity is a goal throughout the national park system. Achieving that goal at the Mississippi National River and Recreation Area will require additional research, effective management, extensive public education and involvement, and extensive interagency cooperation.

(7) All living things (including humans) in the MNRRA corridor are interdependent. All are affected by the physical environment; for the river this includes current, substrate, pollutants, nutrients, dissolved minerals and gases, pH, sediment, turbidity, debris, shoreline development, effluents and discharges, temperature, and weather. All are affected by the biological environment. For the river this includes fish, birds, arthropods, mollusks, worms, protozoa, algae, vascular plants, and mammals (including humans). The ecological health of the river depends on the interactions among all living things and the physical

environment. Changes to the physical, socio-cultural, or biological environments in the river watershed can affect resident organisms, sometimes to the point of disease, overpopulation, or extirpation.

(8) The resources of the MNRRA corridor are nationally significant; the area is a unit of the national park system. The Mississippi is a significant asset of the region, the state, the country, and the world. Its values are economic, scenic, ecological, mythological, historical, scientific, recreational, and spiritual. The Mississippi National River and Recreation Area was created in part to "protect, preserve, and enhance the significant values of the waters and land . . ." The corridor enriches the lives of metropolitan residents and visitors by enhancing natural, cultural, economic, recreational, and aesthetic resources.

Although the Mississippi National River and Recreation Area is much different than the older and more familiar park areas, such as Yellowstone or Gettysburg, it still has the NPS mandate to preserve resources and provide for their enjoyment by the public. Making park experiences accessible to all populations, ages, backgrounds, and abilities is a major MNRRA vision.

Visitor Programs. Visitor program goals will include information and orientation, interpretation, coordination, environmental and heritage education, and other visitor activities.

Orientation — The National Park Service, in addition to other groups and agencies, will provide information and orientation to corridor resources, recreational opportunities, and visitor services. Orientation will be accomplished mostly through interpretive media (books, brochures, maps, video), print media (newspapers, magazines), and digital media (such as multimedia interactive systems, bulletin boards, and CDROM). Intended audiences will include area residents, national and international visitors, and national and international tourism organizations. Orientation services will be available at five interpretation centers, unattended kiosks, bulletin boards, wayside exhibits, and through outreach programs, including access to digital information. Orientation will include information about other units of the national park system.

Interpretation — The National Park Service, in partnership with other groups, agencies, and individuals, will interpret major corridor themes, concentrating especially on areas not covered by existing programs or facilities. The interpretive centers will house interpretive media such as exhibits, videotapes, and publications. Wayside exhibits and trail brochures will interpret outdoor resources and views. Interpretive programs will include guided walks, slide programs, seminars, lectures, river tours, and living history. These facilities and programs will be coordinated with other groups and agencies in the corridor as outlined below.

Coordination — The National Park Service, in partnership with other groups and agencies, will provide coordination and a forum for issues relating to visitor use and resource management of the corridor. With the variety of interpretive services, education related to the river, recreation, visitor services, tourism, research, and resource management services in the corridor, there is a need for better coordination. For interpretation and environmental and heritage education, coordination will be provided in a number of ways. A committee composed of groups and individuals active in interpretation and education will be one means. The Park Service will play a lead role. Additional coordination will include direct consultation with other groups and individuals, membership in appropriate organizations, and monitoring of interpretation and education services. Appropriate coordination activities could include information distribution and networking, needs assessments, wayside planning and development, marketing and effectiveness research, media relations, planning and design, training and quality assessment, extensive use of volunteers, and fund raising.

Environmental and Heritage Education Activities — The National Park Service, in partnership with other groups, agencies, and individuals, will provide environmental and heritage education to organized groups and individuals desiring educational opportunities — concentrating especially on topics and areas not covered by existing programs or facilities. Activities will include programs for schools and scout and community groups and public seminars and workshops relating to corridor issues and stories. Activities will relate to corridor

themes or resource management issues. Outreach programs will include nontraditional methods and target nontraditional audiences to increase access to MNRRA resources and experiences. In-depth and supplementary activities such as seminars and workshops could be offered on a fee basis.

National Park Service Interpretive Facilities. The Mississippi National River and Recreation Area is a 72-mile-long urban corridor; it is varied, segmented, and intertwined with contiguous communities and resources. Facilities will be dispersed along the corridor to best serve visitors and interpret resources. At the same time, the facilities will provide a central focus for the National Park Service identity in the corridor. MNRRA interpretive facilities will have four general functions:

(1) interpretation of the overall story and parts of the story that are best told indoors

(2) environmental and heritage education for organized groups such as schools and scouts with seminars or public workshops

(3) orientation to corridor resources, recreational opportunities, and visitor services

(4) visitor services, including restrooms, emergency assistance, safety services, and health and convenience items

These general functions can be broken down into the following more specific functions. The first four specific functions can best be performed by the National Park Service:

- provide focus and identity for the Mississippi National River and Recreation Area and the National Park Service
- provide interpretation of the identified themes
- orient visitors to resources and educational and recreational opportunities provided by the NPS, other federal agencies, state and local governments,
- non-profit corporations, and other private organizations throughout the corridor and nearby areas
- provide information and orientation to other units of the national park system

The remaining specific functions listed below could be performed by the National Park Service or other partners, such as the Minnesota Historical Society, Minnesota Department of Natural Resources, St. Anthony Falls Heritage Board, Minneapolis Park and Recreation Board, Suburban Hennepin Regional Park District, St. Paul Parks and Recreation Department, or the Science Museum of Minnesota. These functions are to:

- interpret historical events where physical remains are absent or inaccessible
- provide staging areas for public and environmental education programs
- interpret complex stories
- provide indoor space for interpretive activities during inclement weather
- provide security and environmental controls for displaying original objects
- provide temporary exhibits provide audiovisual interpretation
- provide workshops, seminars, educational classes
- provide books and other educational products for sale
- tell cultural, historical, economic, geological, and aquatic ecology stories

A major interpretive facility needs "critical mass" to be successful. Interpretive facilities in an large urban area should be approached somewhat differently than in a remote area. There are many attractions competing for people's leisure time in the Twin Cities area, such as the Science Museum of Minnesota, the Minnesota Zoo, the Minnesota Historical Society, the Children's' Museum, the Walker Art Center, several interpretive centers, and innumerable shopping malls, parks, lakes, jogging trails, and other recreational facilities. To accomplish their functions, the two central interpretive centers for the corridor will require sufficient critical mass to attract visitors.

For purposes of this document, critical mass is defined as including the combination of experiences that make an interpretive center a good choice for a family Saturday afternoon, for an elementary school field trip, for a stop on an afternoon boating trip, as a place

to bring the out-of-town visitors, the kids, or the media, or just as a place for an individual to pass time.

There is internal and external critical mass. Internal critical mass refers to the activities, media, and other attractions within a center or site. External critical mass includes attractions in the surrounding area. A center located near numerous existing attractions requires fewer attractions inside to attract an audience. Conversely, a site in an area devoid of existing attractions needs a larger profile to entice people to visit. Critical mass could be obtained by locating the interpretive center near a major museum or other attraction, creating a symbiotic relationship between the two functions. The National Park Service and the commission are working with other entities in the corridor to explore possibilities.

This plan depends on an educated and concerned public to accomplish its goals. Metropolitan residents must often understand complex issues, exercise stewardship, and pursue their visions for both the balanced preservation and sustainable use of the corridor. It is a major goal for the MNRRA centers to provide interpretation and education needed by both local and out-of-town visitors. To do this will require a more intensive and extensive combination of interpretive media and conducted activities than is usually required at NPS visitor centers in more remote areas. Many of the media and activities might be provided by partners. The specific media and activities needed in the corridor will be described in a more detailed interpretive plan.

There will be three types of facility partnerships: NPS-operated, cooperative, and associated.

The center at Harriet Island in St. Paul will be developed and operated by the National Park Service in close cooperation with the city of St. Paul. The city will provide land and adjacent site improvements. Additional partnerships with complementary programs such as science museums, zoos, or recreational or educational organizations will be actively pursued. The Park Service will encourage other similar entities (such as a museum, recreation site, or educational program) to locate nearby, establishing external critical mass. As this plan was being finalized new opportunities were developing in the St. Paul riverfront area. The interpretive

facility concept in this plan will remain flexible to take advantage of new opportunities in the Harriet Island vicinity.

The cooperative centers (Minneapolis, Hastings, Fort Snelling State Park, and Coon Rapids Dam Regional Park) will be developed through partnerships. In Minneapolis the National Park Service and one or more local agencies will share responsibility and funding for the steps needed to complete the project. Each agency will continue to meet its mandate. The apportionment of center operations will be developed in follow-up planning. The National Park Service will assist the Minnesota Department of Natural Resources with planning for the proposed Fort Snelling Center and seek funding to assist the development of interpretive media. These centers could actually be linked with associated facilities programmatically.

The associated centers will be facilities such as nature centers, park visitor centers, or museums whose location, mission, and activities match MNRRA goals. The National Park Service can provide some assistance with media design and interpretive programming. In addition, a Mississippi National River and Recreation Area logo and other publicity could help to identify associated sites as part of the Mississippi River story. National Park Service interpretive programs could periodically be offered at these sites.

It is anticipated that the St. Paul and Minneapolis centers will be staffed by the Park Service and other partners year-round, while the other centers will probably only be staffed seasonally. At this time it is not anticipated that NPS interpreters will be stationed on a regular basis at the proposed Fort Snelling center, although some interpretive programs offered at the center will include NPS personnel. The specifics of this cooperative arrangement have not been finalized and will be further detailed in the interpretive plan for MNRRA and a follow-up cooperative agreement between the National Park Service and the Department of Natural Resources.

Partnerships. The Mississippi National River and Recreation Area is a partnership project. There are dozens of organizations, agencies, and individuals who are already providing excellent interpretation and education related to the corridor. The National Park Service will accomplish parts of each visitor experience goal through partnerships with these groups and individuals. NPS programming

will be designed so that it does not significantly compete with other public, nonprofit, and private providers of interpretation in the area.

National Park Service staff will maintain an inventory of recreation, visitor services and tourism activities, organizations, and facilities in the corridor and nearby areas. The Park Service will maintain direct and active liaisons with groups, agencies, and individuals providing recreational services. It will participate as appropriate in committees, task groups, and organizations that provide coordination, information sharing, facility planning, and oversight of recreation, visitor services, and tourism services.

The National Park Service will cooperate with other agencies and organizations to provide research and resource management in the corridor. Active-ties such as needs assessments, priority setting, information sharing, assistance with educational programs (through intern-ships, fellowships, tutorials, mentor programs, etc.), and re-search projects could be accomplished cooperatively.

Interpretation and Education Activities. Interpretation and education programs at the interpretive centers will be planned, designed, delivered, and evaluated by the partnerships of agencies and groups involved in operating the centers, including the National Park Service. Park Service staff will be stationed or give programs at these areas and will supervise NPS interpretation, education, orientation, and visitor services operations. The National Park Service will play a significant role in providing training for interpreters (including volunteers) from other agencies.

The National Park Service will take a lead role in interpretation and education activities at the St. Paul/Harriet Island center. All interpretive themes will be interpreted to some degree at this center. However, as shown in table 1, several major themes will be emphasized at this area because nearby resources enhance the ability to tell certain stories.

These themes will be interpreted through interpretive media (such as interactive computers and models, exhibits, audiovisual programs, and publications), representations of living ecosystems (such as aquariums and wetland terrariums), and personal programs (such as interpretive talks, guided walks, seminars, and environmental and heritage education programs). Many activities

will take place around the center and at nearby areas such as Lilydale Park.

Access to the river will be important for recreational, interpretive, and educational activities. The National Park Service could have a boat at the Harriet Island marina for use in environmental education programs. Cooperative interpretive programs could also be done using commercial tour boat operators.

Activities in and around the St. Paul center could include regional, national, and international visitors observing aquariums, playing food web games on a computer, and discovering that the Mississippi really is a living system. Suburban fourth graders could wade into Pickerel Lake in Lilydale Park and discover the aquatic ecology of a bottomland lake; an inner-city high school biology class could study water quality at the Minnesota River confluence on an NPS boat; bird watchers could spot endangered, threatened, and other interesting species without disturbing nesting areas near Pig's Eye; and public workshops in the St. Paul center auditorium could explore complex river issues. All will add to the knowledge and appreciation of the Mississippi River. Additional ideas for interpretive programs at the Harriet Island center are contained in appendix J.

Because the location and functions of the Minneapolis/St. Anthony Falls interpretive center have yet to be finally determined, and several feasibility issues remain, an interim site will be negotiated with cooperators in that area. Activities could be held at several sites or at one central facility. Components could include an orientation center, which will provide information needed to orient visitors to the attractions in the area, and interpretive services, which could include outdoor wayside exhibits, portable indoor exhibits, audiovisual programs, guided walks, interpretive talks, and heritage education programs with organized groups. The primary theme areas interpreted will be cultural history, stewardship, and forces shaping the river. Tourists and metropolitan residents could take advantage of the existing guided and self-guided tours that explore the historic buildings, foundations, millraces, mills, tunnels, locks, and dams of the St. Anthony Falls area.

At the new visitor center proposed by the Department of Natural Resources at Fort Snelling State Park, themes on Native American cultures and the interdependence of all living things will be emphasized. The confluence of the Mississippi and Minnesota has special significance to Native Americans. The National Park Service will be available to cooperate with state park staff in developing interpretive media and presenting interpretive and educational programs and events.

MISSISSIPPI NATIONAL RIVER AND RECREATION AREA INTERPRETIVE FACILITIES

Location	Minneapolis	St. Paul	Anoka Area	Hastings Area	Fort Snelling State Park
Potential lead agency	City or state historical society	National Park Service	Anoka County/Hennepin Park District	To be determined	Minnesota DNR
Potential partner role	City leads rehabilitation, construction; maintenance of facility; state provides lead for historic interpretation; NPS provides assistance in construction funding; staffing and exhibits; possible joint venture with museum or other party	City provides land and adjacent site improvements such as road and trail connections and bridge access; NPS provides facility construction, maintenance, staff, and exhibits; possible joint venture with major museum or other attraction	Anoka County or Hennepin Parks has lead; NPS provides some staff and exhibit design assistance	To be determined	Minnesota DNR leads in construction, maintenance, and operation of center. NPS provides assistance in planning interpretive media, funding its production, and cooperates in interpretive programming.
Nearby amenities	"Mississippi Mile"; historic resources, Stone Arch bridge, linear park system; walking tours, lock and dam, Great River Road	"Cultural Corridor," Lilydale Park, Harriet Island Park, tour boat, marina trails, river access	Parks, trails, river access, Coon Rapids Dam	Downtown, parks, lock and dam, marina, trails, river access	Confluence of Mississippi and Minnesota rivers, Historic Fort Snelling, trails, picnicking, river access, MN Valley refuge and center, Mall of America
Audience	International, national, regional, local	International, national, regional, local	Regional, local	Regional, local	International, national, regional, local

Major themes	-Shaping the river – glacial and human forces – The stories of human life along the Mississippi have unfolded over 12,000 years – MNNRA is a nationally significant resource (cultural emphasis) – We must care for the river – All plants and animals in the corridor are interdependent	– The Mississippi is one of the world's great rivers – Plants, animals and humans in the corridor are interdependent – The corridor protects biological and cultural diversity – We must care for the river – MNNRA is a nationally significant resource (natural emphasis) – As a working river, the river's influence extends far from its shoreline	– All plants and animals in the corridor are interdependent – The stories of human life along the Mississippi have unfolded over 12,000 years – We must care for the river	– The Mississippi is one of the world's great rivers; – We must care for the river – The stories of human life along the Mississippi have unfolded over 12,000 years (river town emphasis)	– The stories of human life along the Mississippi have unfolded over 12,000 years – All plants and animals in the corridor are interdependent
Primary functions	Interpret cultural resources, orientation to MNNRA, orientation to NPS, outdoor walking tours, historic preservation, environmental and heritage education	"Big Miss" picture, focus/identify, natural history themes, orientation to MNRRA, experiences, interpretive media, environmental and heritage program	Orientation to MNRRA, environmental and heritage education	Orientation to MNRRA, environmental and heritage education	Orientation to MNRRA, interpret Native American theme, environmental, and heritage education

Programs on the natural and cultural history of the MNRRA corridor and watershed originate from the smaller interpretive centers at Hastings and the Coon Rapids Dam Regional Park. Programs will concentrate on the resources around the centers but will deal with the bigger picture as well. Environmental and heritage education programs will serve primarily schools and groups from nearby areas. Orientation to the Mississippi National River and Recreation Area and nearby attractions will be available at Hastings and the Coon Rapids Dam Regional Park. Interpretive media will supplement the activities in the interpretive center on the east side of the river at the Coon Rapids Dam Regional Park. Interpretive programs will be offered in and around all five NPS/cooperative center sites.

Interpretive Media. The National Park Service will produce interpretive media for the corridor. The interpretive centers will house exhibits, publications, videotapes, and interactive interpretive devices. Outdoor wayside exhibits will interpret interesting and significant views. Trail signs and brochures will provide self-directed interpretation. Brochures, maps, handbooks, and educational materials will be available at interpretive centers and other outlets, by mail, and through educational programs. Interpretive materials will be sold through a cooperating association (see glossary) or by corridor interpretive partners.

Policies and Actions —

(1) Develop sites to observe and interpret river corridor vistas and river activities, including commercial river transportation.

(2) Provide information about interpretive and recreational activities and sites in the metropolitan area and coordinate and link these with other activities in the region.

GENERAL DEVELOPMENT

The only facility development directly funded by the Park Service will be the interpretive facility/park headquarters in St. Paul and a share of the interpretive center in Minneapolis. The latest sustainable design concepts and materials and access for persons with disabilities will be incorporated into all NPS facility design, and technical assistance will be provided to corridor partners for design of other facilities. The following sections provide more detail about these facilities and those provided by other partners in the corridor.

National Park Service Facilities in the Corridor

Because of the nature of the corridor and the management concept, NPS facilities will be limited to interpretive centers and administrative offices. With the partnership arrangement and extent of local interpretation, these will be cooperative ventures, with only one interpretive center owned and operated by the National Park Service. Based on the audience, site analysis, functions of each facility, and the potential partners, a system of interpretive facilities is possible. Table 1 illustrates these facilities and factors leading to this scheme. This capitalizes on the excellent interpretive work already being done in the corridor and seeks to fill the interpretive gaps and offer coordination of existing interpretive facilities, activities, and programs.

There are two major interpretive facilities planned; a primary information and orientation center in the corridor at Harriet Island opposite downtown St. Paul and a cooperative information and orientation center in the corridor near downtown Minneapolis. The Harriet Island site is not actually on an island. It was an island at one time, but the channel that once created the island has been filled in, and the area is now on the right descending bank of the river. It is still known locally as Harriet Island. The St. Paul/Harriet Island facility will be combined with the MNRRA administrative headquarters, strategically located to continue extensive interaction with the government agencies included in the MNRRA partnership. These facilities will be developed using the latest sustainable design principles and accessibility standards.

Three smaller cooperative interpretive centers are planned, one at Fort Snelling State Park, one in the Hastings area, and another at Coon Rapids Dam Regional Park, each with a different interpretive emphasis and potential visitor experience (see Interpretive and Educational Facilities map).

Potential Partner Roles. Table 1 identifies lead partners based on area of expertise and the extent of activity involved. For instance, at Coon Rapids Dam Regional Park, both Anoka County and the Suburban Hennepin Regional Park District have interpretive activities and facilities. Therefore, they will take the lead in the operation of the joint facility. In Hastings the National Park Service is working with the city to identify other potential partners.

Funding will be arranged between the partners, with the National Park Service assuming responsibility for that share of the facility occupied by or needed for NPS interpretive functions. In addition the National Park Service could supply staff and design assistance. Table 1 illustrates this arrangement.

Site Selection. Potential interpretive facility sites were analyzed using the following criteria:

- accessibility and connections
- critical mass of nearby attractions
- catalyst for local actions
- visibility/identity
- fits the functions and interpretive themes
- contributes to resource preservation
- located appropriately to provide information and orientation
- interested partner/complementary activities
- accessibility to the river — visual and physical
- minimizes adverse impacts on corridor resources

St. Paul —

Many possible locations were considered for a center in St. Paul, including sites on both sides of the river and in downtown. Suggestions for sites were made by commissioners, city of St. Paul staff, and others. Site inventories were completed and options were analyzed using the criteria listed above. Alternative locations ranged between Fort Snelling and Pig's Eye Lake. This included

consideration of several downtown sites. Many of these locations were ruled out because they are in the 100-year floodplain or would be isolated during floods. Others were excluded because they did not have good access or a connection to the primary resource, the river. The potential to coordinate activities with other nearby attractions was also a key criterion. After extensive work with area partners and considerable discussion by the Mississippi River Coordinating Commission, a preferred site on Harriet Island was jointly identified by the city of St. Paul, the commission, and the National Park Service. This site offers the opportunity for a rich visitor experience because of the site's connection to downtown, natural areas in Lilydale, access by water, and nearby attractions such as the Padelford tour boat operation. It has a distinct identity and a history of recreation use that will augment the desired identity that this facility will provide for the entire corridor. It also integrates well with St. Paul's cultural corridor concept and proposed riverfront improvement programs. It could also provide the catalyst for other riverfront redevelopment projects. As stated above, while this plan was being finalized new opportunities were developing in the St. Paul riverfront area. The interpretive facility concept in this plan will remain flexible to take advantage of new opportunities in the Harriet Island vicinity. If there are significant changes in the concept, they will be subject to environmental review and public input. Additional details on the current proposal are provided in the development concept plan section below.

Minneapolis —

The NPS planning team members identified potential sites for an interpretive center in the St. Anthony Falls area from a list prepared by the Minneapolis Riverfront Technical Advisory Committee. After a comprehensive site inventory, NPS staff worked with the committee to develop a recommendation. The Minnesota Historical Society, Minneapolis Parks and Recreation Board, Minneapolis Community Development Agency, Northern States Power (NSP), Minneapolis Heritage Preservation Commission, and the St. Anthony Falls Heritage Board worked together to choose a preferred site.

Each partner developed a proposal for their contribution to the development of the preferred site and to the three alternative sites. This step was included to focus on the partnerships that will be needed at some of the sites to make their development possible.

The National Park Service conducted a concurrent analysis of the sites (based on the criteria listed above).

When the analysis was complete, the Washburn/Crosby complex (a national historic landmark) was identified as the preferred site. The Northern States Power Main Street Station was chosen as a fully acceptable option. However, the analysis also identified concerns that will have to be resolved before either of these sites can be developed as an interpretive facility. Examples of the concerns include safety and health issues and uncertainties about structural soundness. Other sites can be evaluated later if these sites prove infeasible.

The Washburn/Crosby complex is a national historic landmark. A portion of it burned in 1991. It was identified as the best site in the area through extensive discussions with interpretive partners. It must be viewed in the context of a vision of major rehabilitation for the waterfront in this area, which is planned by the city of Minneapolis and supported by this document. This includes proposals for Mill Ruins Park, the Heritage Trail, and major concepts for rehabilitating and adaptively using the Washburn/Crosby complex and its immediate environs. The cost of stabilizing and maintaining the complex without adaptive reuse would be prohibitive. A developer is needed to facilitate the rehabilitation. A final NPS commitment to move into the complex will only occur after more facility planning is completed, it is rehabilitated, and there is a commitment for a compatible mix of uses. If the right combination of uses is assembled and a portion of the building that is in better shape is used, the cost to locate the interpretive center in the complex might not exceed the costs to use other historic buildings in the area.

While answers to the concerns continue to be sought, an interim strategy will be implemented to provide interpretation and information in the St. Anthony Falls area. A small information center in a location that can be made useable without great expense will be established. Interpretive and educational programs could be planned for other locations in the St. Anthony Falls area. A portable interpretive exhibit that could be erected at various locations in the area will be produced. The exact site for the interim information center will be chosen with the St. Anthony Falls partners. Possible sites include the Fuji-ya building, St. Anthony Main, Army Corps of

Engineers lock observation area, the Crown Roller Mill building, or a moveable, tent-like structure operated on a seasonal basis.

Hastings Area —

NPS staff also worked with city of Hastings staff and others to gather information for an inventory of possible interpretive center sites and to review available sites. Sites reviewed included the current city hall, the LeDuc House owned by the Minnesota Historical Society, historical residences west of downtown, the renovated courthouse, Spring Lake Park, and the area near Lock and Dam 2. No active interpretive programs are currently operating at these sites. The courthouse was identified as a preferred location, but it is not available for interpretive center use at this time. Further discussion will be needed to identify and select a site and partners for an interpretive center in the Hastings area.

Anoka Area —

Three sites were considered for an interpretive center in the Anoka vicinity: Peninsula Point Two Rivers Historical Park, an area currently being developed by the city of Anoka, and two existing interpretive facilities, one on either side of the Coon Rapids dam. After the site inventories, meetings to discuss the possibilities at the Peninsula Point Two Rivers Historical Park area were held with the city of Anoka staff. To explore possibilities at the Coon Rapids Dam Regional Park, meetings were held with representatives from Suburban Hennepin Regional Park District and Anoka County parks. Suburban Hennepin County Regional Park District owns the land and the two interpretive buildings in the area of the dam. Anoka Parks operates the interpretive building (which is leased from Hennepin Parks) and the portion of the regional park on the east side of the river.

Interpretive functions will be placed in all three sites. NPS staff will cooperate with Anoka County staff in providing information at the visitor center on the Anoka side of the Coon Rapids Dam Regional Park. The National Park Service will also provide assistance with interpretive exhibits in this facility. The walkway over the river on the Coon Rapids Dam makes the connection between interpretive centers on either side convenient. It is currently closed. If the walkway is not reopened or replaced, the NPS exhibits, information,

and interpretive programming on each side will have to be designed to be independent from the other side. Cooperative interpretive and educational programming that complements programs already being provided by partners will be offered at all three sites. Information/interpretive kiosks or waysides will be installed as a part of the development of Peninsula Point Two Rivers Historical Park. Other visitor services such as restrooms and first aid will be provided by partners.

Fort Snelling State Park —

The Department of Natural Resources in Fort Snelling State Park interprets the significance of the confluence of the Minnesota and Mississippi rivers. From prehistory to the present, this meeting place of rivers has been the focus of cultural contact, interaction and change. It is the center of an ancient homeland of the Dakota people, whose many villages were located along the Mississippi and Minnesota Rivers. This was a lifestyle and economy based on the rich diversity of the floodplain. Today, the spiritual significance of the park to Native Americans still revolves around the meeting of rivers and historic sites such as the 1805 treaty and the 1862 Dakota Internment Camp.

The state park's interpretive and environmental education program focuses on the relationship between people and the rivers through time. A special emphasis is placed on the importance of Native American history and culture. Educational projects and citizen involvement foster understanding and stewardship of river floodplain and wetlands in the park and surrounding communities. An interpretive center is proposed by the Department of Natural Resources for the park to provide accessible interpretive and environmental education services.

The Department of Natural Resources' proposed Fort Snelling interpretive center was identified as a potential cooperative center during the draft comprehensive management plan/environmental impact statement public review process. Comments from many sources encouraged the National Park Service to strengthen its commitment to the interpretation of the Native American culture and its relationship to the river. These comments, along with the DNR proposal to develop the new center at the state park, which would emphasize interpretation about Native Americans, led to the

identification of this facility as a cooperative center in the MNRRA plan.

Facility Needs

Following are long-range space needs for the five interpretive facilities discussed above. The interpretive facilities listed in this comprehensive management plan are general plan concepts. All size and cost estimates should be considered approximate and subject to change during additional planning and design for the facilities, which will be based on further discussions with the involved partners and the final mix of activities.

- Harriet Island Center — 19,000 square feet (includes 7,000 for administrative headquarters)
- St. Anthony Falls — 12,000 square feet (half funded by the National Park Service)
- St. Anthony Falls (interim) — 1,000 square feet (space provided by partners and/or National Park Service)
- Hastings Area — 2,500 square feet (space provided by others)
- Coon Rapids Dam Regional Park — 2,500 square feet (space provided by others)
- Fort Snelling State Park — 8,000 square feet (space provided by others)

The interpretive center on Harriet Island will be built and maintained by the National Park Service. Partnerships with complementary programs will be sought to increase the critical mass at this site. The National Park Service will also be responsible for site improvements at the Harriet Island facility. These include parking, landscape development, and utility connections within NPS property boundaries. The facility will be of high-quality design and construction, a model of partnerships, fully accessible, and will serve as a model of sustainable development to demonstrate environmentally friendly site planning and building practices. Additional details on the Harriet Island center are provided in the following section.

Responsibilities for the other centers will be shared by partners. In the St. Anthony Falls area, the National Park Service will jointly operate an interpretive center with one or more partners. The portion of space and building remodeling costs to be allocated to

each partner has not been determined. For purposes of this plan, half of the costs will be assumed to be paid by the National Park Service and half by partner(s). Since the total size of this center is relatively small compared to the size of the existing buildings at the preferred site, other attractions will have to be found to occupy the remaining space and enable comprehensive redevelopment.

The interim center in the St. Anthony Falls area will be considerably smaller with some interpretive functions being operated in remote locations. This center could be less than 1,000 square feet in size.

At the Coon Rapids Dam Regional Park there will be no costs for building rehabilitation, as existing facilities will be used or space will be provided by partners.

At Hastings, a facility has not yet been identified. At Fort Snelling State Park, an interpretive facility has been proposed by the state of Minnesota.

The Existing and Proposed Interpretive and Educational Facilities map shows selected facilities in and near the corridor.

Harriet Island Development Concept

A National Park Service interpretive center will be built at Harriet Island on land to be donated by the city. The facility will also house the MNRRA administrative headquarters, and there will possibly be another partner on adjacent land to increase the area's critical mass. The site selection process identified this as the preferred location because (1) it has potential to offer a special visitor experience through links to downtown, Lilydale, and the river, (2) it has potential for relationships with other major attractions, and (3) it has potential to act as a catalyst for riverfront improvements. Other major considerations were the extensive interest and cooperation shown by the city of St. Paul and the many benefits of a location at Harriet Island. It has a history of public use and is near Lilydale Regional Park, a natural area in the heart of the city. It is also near downtown St. Paul, with its complementary activities. The city of St. Paul plans to make major park improvements at Harriet Island and Lilydale, and the NPS interpretive facility will complement these plans. A concept plan map for the interpretive facility and the related portions of Harriet Island Park has been jointly prepared by

the city of Saint Paul and the NPS staff and is described below (see Harriet Island Development Concept map and cross-section sketch).

Site Analysis. The interpretive center site is located on a former industrial site adjacent to Harriet Island Park. The site is in an authorized expansion area for the city park. It is located behind a levee, which will be rebuilt in the next few years offering opportunities for improvements in the area. It is adjacent to commercial and industrial uses on three sides, but buildings on the west side will be removed by the levee construction.

The site offers a number of opportunities for design and has advantages of proximity to nearby features and potential links to adjacent resources. The city plans numerous park improvements that will enhance access to and from the site and will greatly improve the appearance of the area. A bike and pedestrian trail will replace a road that is currently on top of the levee (construction by the Corps of Engineers and the city), linking the site to downtown, an existing promenade to the east, and Lilydale Park. In addition, a river walk is proposed by the city along the river. The site will be linked to this feature, giving direct access to the shoreline. It is located near two marinas and a tour boat operation, providing opportunities for related visitor activities that could be linked by road and trail. The site is part of the city's cultural corridor, which is an area of St. Paul with many civic, cultural, and historic facilities. The Wabasha Street bridge is scheduled for replacement in the next few years, offering an opportunity to improve pedestrian and bicycle access from downtown St. Paul and to generally improve the aesthetic environment in the area. Riverfront land east of this site is being considered for an outdoor amphitheater and/or a new Science Museum of Minnesota facility. Development of either of these could have a significant impact on the proposed NPS interpretive center.

The site has a number of physical constraints. The first is its location behind the levee. Although the levee presents some design problems and could act as a barrier to the river, it also offers some site planning opportunities. By constructing the building into and higher than the levee, views of the river will be maximized, and a direct link to the trail system will be achieved. NPS interpretive centers must not be located in a 100-year floodplain, so a site behind the levee is needed. Most sites that were considered in the

St. Paul area were ruled out because they are located in the floodplain.

The site vicinity includes a building listed on the National Register of Historic Places — the Harriet Island Pavilion. It is about one-quarter mile northwest of the proposed NPS interpretive center. The pavilion will be preserved by the city of St. Paul in the joint plan for the Harriet Island area (see Harriet Island Interpretive Center map).

The area south of the interpretive center site on the other side of Water Street is occupied by an industrial use, including a large building. Because the interpretive center site is behind the levee and in the middle of a historic bottomland island, it is somewhat isolated from the river both physically and visually. It does not provide the best views of the river, although the views could be improved through design of the building and proposed city park improvements. Views of downtown are excellent, including views of the Saint Paul cathedral. Following levee reconstruction, access will be via the Wabasha bridge, then along Water Street, or from Wabasha to Plato Boulevard, the major city park entrance. It is anticipated that non-local visitors will use the Plato route, while many residents will know to use the Water Street route, which is a bit more direct. Both routes are somewhat inconsistent in appearance as park entrances because of their industrial character. Design features and extensive landscaping are planned by the city to soften this effect.

Proposed Development. Following is a list of actions for the Harriet Island area.

- The city of St. Paul will transfer about five acres to the National Park Service for the interpretive center (see Harriet Island Interpretive Center Development Concept map).
- The site and building relationship to river will be maximized through facility design, placement, and orientation.
- A multilevel building will be constructed, locating administrative headquarters, storage, and classrooms on the bottom and the interpretive facility on the top in order to provide the best views of the river and downtown and facilitate access to walks and trails in the area.
- Water will be used as a unifying element through architectural treatments for the exterior and the interior of the building and

continuing though the interpretive displays, which could include aquatic displays.

- Direct visual and physical connections to the river will be provided using windows on the river side, a plaza focused on the river, and a view preservation area between the building and the river, which will be kept clear of parking and major structures and a path to the river.
- The site will be extensively landscaped. Design techniques and plant materials will be used to screen less desirable views and to soften the effects of a relatively large NPS building.
- Windows will focus on good views in the area and minimize undesirable views.
- Parking lots providing a total of about 100 spaces will be located on either side of the building to avoid large expanses of asphalt and will be convenient to either approach to the building. The west parking lot will be used for bus parking and by the city for overflow parking during peak activity periods.
- City plans to revegetate the back of the levee will be followed by the National Park Service on its lands. Landscaping on the site will generally be native to the river valley and could reflect riparian character in order to demonstrate revegetation techniques.
- The building entry will be designed to be inviting, incorporating a plaza with a water feature that will tie into the interior to overcome the effect of the road approaches.
- Building design will reflect the river and its urban setting. It will not be designed in a rustic park architectural style but will consider its relationship to the historic pavilion that is in the general vicinity of the site and the river and its setting.
- The building and site improvements will incorporate and demonstrate sustainable design, such as the use of recycled materials, construction of permeable parking surfaces for aquifer recharge, high energy efficiency, and water conservation. Measures could include the use of natural lighting, energy efficient electrical fixtures, automatic light timers, "smart" windows, low water use landscaping, and water conserving plumbing fixtures. Building design will also include consideration of its location behind a levee, and it will be constructed to withstand flooding in the unlikely event of a levee failure.
- The building and site will be designed to provide accessibility in compliance with the Americans With Disabilities Act and

related federal laws and regulations. (Note that the map is a concept only. Details on access to the building and around the site are not shown but will be developed during the design phase, and all facilities will be fully accessible).

The Preliminary Partner Responsibilities. The city and the National Park Service will share resources to the greatest extent possible, and both partners will be fully involved in decisions of mutual concern at Harriet Island. For example, personnel from both the city and the National Park Service will work together on a number of activities, including programming and outdoor interpretive activities.

The city will provide the following, most of which are part of approved city plans:

- landscape Plato Boulevard
- construct the river walk
- provide a view preservation area from the NPS center to the river
- improve the marina area
- relocate the boat storage area prior to NPS facility construction
- construct the bike and pedestrian trail on adjacent lands
- provide entry features at park entrances
- clear and clean up the interpretive center site and remove hazardous waste before it is transferred to the National Park Service
- clear adjacent industrial sites owned by the city as a part of the levee improvements
- work to improve the appearance of the surrounding industrial sites on private land
- provide pedestrian access from the reconstructed Wabasha bridge
- redevelop the Harriet Island Park per the master plan as revised by the cooperative site plan

The National Park Service will provide:

- funds for design, construction, and operation of the center and its immediate environs

- space for temporary exhibits that will be available for community exhibits related to the river
- a cooperative venture with a major partner for an expanded or complementary interpretive facility on site or on adjacent land
- wayside exhibits interpreting the river
- staff for joint interpretive programs
- cooperative planning for interpretive facilities and functions with the city
- space in the building for operational partners

There may also be grants available through the National Park Service for up to 50% of the cost of city improvements on adjacent land in the Harriet Island/Lilydale Regional Park if the MNRRA grant program is funded by Congress, and if the city adopts tier two of plan implementation. Additional information on the grant program is provided in the plan implementation section below. For a detailed description of interpretive media and activities at the Harriet Island center see appendix J.

Other Facilities in the Corridor

Besides the NPS interpretive facilities, there will continue to be many other local and regional visitor use facilities in the MNRRA corridor. Local interpretive facilities will continue as discussed in the section on interpretation, sometimes in conjunction with the National Park Service interpretive facilities, but most will be independently operated. It is beyond the scope of this plan to provide detailed facility needs for the entire corridor. These needs will continue to be the responsibility of local and state agencies. The National Park Service will encourage recreational and interpretive facilities that are consistent with the visions and policies contained in this comprehensive plan. The NPS staff will work with other entities to provide advice on park and open space development that best meets the intent of this plan. The National Park Service will encourage other entities to comply with the resource protection policies contained in this plan, use the latest concepts in sustainable development, and comply with all accessibility standards in new and reconstructed facilities.

NATIONAL PARK SERVICE OPERATIONS

Administrative offices for the Mississippi National River and Recreation Area will be located in conjunction with the interpretive facility at Harriet Island in St. Paul. This site is preferred because other government offices are located in St. Paul and it would be efficient to have the Park Service headquarters and primary interpretive facility offices in one location.

National Park Service Staffing Needs

The estimated NPS staffing needs for the Mississippi National River and Recreation Area are about 34 full-time equivalent positions at an estimated annual cost of about $1.5 million, which includes salaries, benefits, and support costs (equipment, utilities, etc.). Estimated costs could change based on the final role established for the National Park Service and other partners in managing the corridor as documented follow-up implementation plans. This is a long-range staffing concept that will take several years to implement. Support staff for the Mississippi River Coordinating Commission are included in this estimate. Other than one administrative clerk, the commission support duties are spread among several existing (and proposed) NPS staff members. Descriptions of work to be done by additional staff and a table showing existing and proposed NPS staff are in appendix F.

Maintenance

Since the National Park Service will only own one facility, a full scale maintenance staff and program will not be necessary. Maintenance of the St. Paul interpretive facility and surrounding grounds will be contracted to local building maintenance and landscaping businesses or performed by NPS personnel. The private businesses could perform custodial, repair, lawn care, landscaping, and snow removal services.

Maintenance of the interpretive facilities at Minneapolis, Coon Rapids Dam Regional Park, Fort Snelling State Park, and Hastings will be the responsibility of the building owner.

Cooperating Association

The National Park Service will seek an agreement with one or more cooperating associations to provide sales outlets at the corridor interpretive centers. The National Park Service will provide office, storage, and sales space to the association consistent with NPS policy on sales permitted to cooperating associations. Cooperating associations are typically nonprofit and provide NPS areas with benefits such as donations and scholarships. To the extent possible, cooperating associations also provide staff for operating sales outlets. This association will be different from the associated interpretive facilities discussed above, which will be owned and operated by other agencies in the corridor.

PLAN IMPLEMENTATION

Public Law 100-696, establishing the corridor as a unit of the national park system, required in section 703(i) that the plan include:

- a program for management of existing and future land and water use (covered above)
- a program providing for coordinated implementation and administration of the plan with proposed assignment of responsibilities to the appropriate governmental unit at the federal, state, regional, and local levels
- a coordination and consistency component that details the ways in which local, state, and federal programs and policies could best be coordinated
- a program for the coordination and consolidation, to the extent practical, of permits that might be required by federal, state, and local agencies having
- jurisdiction over land and waters within the area

The following sections were developed to comply with the three closely related directives on coordination and consistency and NPS guidelines on general management plans.

General Concept for Implementation

The legislation for the Mississippi National River and Recreation Area and the nature of the issues in the corridor require cooperative action that transcends the political boundaries of the corridor. The future of the corridor could be shaped and directed through the concerted actions of citizens, public officials, and business leaders. The past record of excellent but fragmented efforts in the corridor led to the management recommendations that follow. The plan proposes extensive partnerships among federal, state, regional, and local agencies, the private sector, and the Mississippi River Coordinating Commission. The success of the plan will be dependent on coordination and cooperation to achieve the identified visions. The commission, the Metropolitan Council, the Department of Natural Resources, and the National Park Service will work together to serve as catalysts and provide forums for these

partnerships. Land use management will continue to be primarily the responsibility of local governments. The National Park Service will develop cooperative agreements with the Metropolitan Council and the Minnesota Department of Natural Resources to provide technical assistance, oversight, and coordination of land use implementation.

The implementation framework for the MNRRA comprehensive management plan envisions two levels. The first level, tier 1, incorporates the planning and regulatory requirements and standards already in place as part of the Critical Areas Act and Shoreland Management Act. The MNRRA plan envisions that with administrative reorganization and increased funding, the critical area and shoreland management programs could become a viable way of achieving many of the MNRRA plan visions and assuring minimum standards for the Mississippi corridor. Tier 2 consists of the additional land and water use, resource protection, and open space concepts, policies, and guidelines that have been developed as part of the MNRRA plan, which in some cases go beyond the minimum state and regional requirements. Compliance with the MNRRA plan by communities will not be mandatory; however, compliance with tier 2 will be necessary in order to the receive acquisition and development grants authorized under the MNRRA act. Compliance with the MNRRA plan does not ensure automatic grant funds, however.

Detailed tier 2 planning guidelines and standards will be developed jointly by the Metropolitan Council, Department of Natural Resources, and National Park Service. This guidance will then be used to review local plans and regulations to determine if they substantially conform to the MNRRA plan. These guidelines will provide some additional direction on how communities should respond to the MNRRA plan and possibly further explain the concept of tailoring the MNRRA plan policies to local conditions, but they will not serve as a substitute for a thorough analysis of the comprehensive management plan. The guidelines will be presented to the Mississippi River Coordinating Commission for review during their development.

This comprehensive management plan adopts and incorporates the state critical area program, shoreland management program, and other applicable state and regional land use management programs

that implement the visions identified above. The National Park Service will seek federal funding to support the state in achieving more effective implementation of these programs, which will achieve many of the MNRRA plan visions. This is described as tier 1 above. The National Park Service will also encourage and seek federal funding to help corridor communities move to tier 2; to update their plans and ordinances to substantially conform to the MNRRA plan. This effort to encourage communities to achieve tier 2 will be a high priority for MNRRA plan implementation. The National Park Service will emphasize the grant program for land acquisition and development as the primary incentive to encourage communities to implement tier 2 and achieve MNRRA plan compliance. Other than withholding grants and the possible use of other limited enforcement authorities specified in the MNRRA legislation, section 705(d)(3), local governments that choose to remain in tier 1 (comply only with existing state and regional land use management requirements) will face no penalty for doing so. The National Park Service and the commission do not have approval authority over local plans and ordinances, and they do not have authority to approve or deny project-specific land use decisions. Existing local plans and ordinances could be amended to substantially conform to the MNRRA plan and need not be replaced entirely. The MNRRA plan does not propose a moratorium on development while local plans and ordinances are updated. Development activity will continue and the National Park Service will encourage MNRRA plan consistency.

The MNRRA legislation specifies that NPS regulatory authority, in the Code of Federal Regulations (36 CFR), which includes regulations on the use of NPS lands, only applies to land that the National Park Service owns, which are envisioned in this plan to be less than 50 acres. The National Park Service does not have authority outside of federal lands. Special regulations under 36 CFR could be established for the small NPS-owned land areas if necessary to address issues not covered in the general regulations, but that is not contemplated at this time.

The Metropolitan Council will assist local governments with modifications to their comprehensive and critical area plans to promote consistency with this plan (if local governments elect to adopt tier 2). These plans will be reviewed concurrently for consistency with regional objectives under existing Metropolitan

Council authorities. The Department of Natural Resources will assist local governments with ordinance modifications to ensure that they substantially conform with modified comprehensive and critical area plans (if the local government elects to implement the second tier of planning and management described in this plan), and it will monitor local government implementation of those ordinances. The National Park Service will review major proposals that have potential for significant impact. The National Park Service and the commission will facilitate multiagency discussion of major issues. The National Park Service is the primary advocate for national interests in the corridor and has mandated review responsibilities for federally funded or permitted activities. The Park Service will also have a major role in providing interpretive leadership and allocating grants (if funds are provided by Congress).

A common concern during the planning process was the imposition of another layer of government bureaucracy. That concern will be satisfied with this plan, because the Metropolitan Council is already involved in comprehensive plan modification issues and the Department of Natural Resources is already involved in land use ordinance matters. The existing critical area program review by the Environmental Quality Board will be transferred to the Department of Natural Resources and coordinated with the shoreland management process, which will help streamline existing state authorities.

Reviews under the MNRRA plan will be coordinated with existing review processes. NPS review of undertakings by other federal agencies in the corridor, as well as other reviews discussed in this section, will be completed within existing review timetables to the maximum extent practical. The National Park Service will not have approval authority over actions by other agencies — federal, state, or local — except on land owned by the federal government and managed directly by the National Park Service (anticipated to be less than 50 acres).

The surface water use management plan is a priority and will be prepared as soon as practical. It is an important component of the tier 2 planning process, although it may not be completed when the tier 2 planning process goes forward. The Corps of Engineers, Metropolitan Council, Department of Natural Resources, Department of Transportation, and National Park Service will be

responsible for the timely completion of the surface water use management plan. The National Park Service will promptly explore and work to secure federal funding and assist partners in identifying other funding sources for preparation of the plan. All interested persons, including commercial navigation transporters, agricultural, recreational, environmental, and municipal representatives, and the general public will be involved in the planning process.

Citizen participation will be an important part of ongoing national river and recreation area management, including appropriate involvement on task forces and committees

Partner Roles

The major partners have a number of roles in implementing the comprehensive management plan. There are many other agencies and organizations, such as the U.S. Coast Guard, that will be critical to the success of the plan. The following includes descriptions of selected partners, which are not listed in priority order. This section presents an overview of their responsibilities. Additional details on roles and relationships will be worked out in follow-up cooperative agreements and memoranda of understanding.

The Commission. In addition to its key role in preparing this plan, the 1988 MNRRA legislation directs the Mississippi River Coordinating Commission to assist the secretary of the interior in reviewing and monitoring implementation of the plan by other federal, state, and local agencies. It also authorizes the commission to recommend modifications to the plan. The commission will not have approval authority over land use plans or development or pollution control permits in the corridor, but it will serve as a forum to bring involved organizations together to discuss major land and water issues in the corridor. The commission will receive reports from the National Park Service, Metropolitan Council, and Department of Natural Resources and will report to the secretary of the interior on the progress of plan implementation. The Park Service will continue to provide funding and staff services for the commission. The major functions of the commission will be to:

- act as catalyst and facilitator for local efforts
- regularly monitor progress toward plan implementation

- recommend modifications to the comprehensive plan and prepare draft amendments (with public input)
- raise issues to the public and to state government
- provide general oversight and periodic status reports to the public on the progress of plan implementation
- serve as a forum to resolve disputes, including major site-specific issues in the corridor
- advise the secretary of interior and the governor on the progress of plan implementation
- provide recommendations on follow-up implementation plans prepared by the Park Service and other corridor partners

Federal law authorizes the establishment of a state commission after the 1998 sunset of the Mississippi River Coordinating Commission. Prior to its sunset, the commission will recommend to the state what entity should continue to provide the above functions.

The National Park Service. The Park Service will monitor general implementation progress along with the commission. The National Park Service will have the lead role in coordinating interpretive activities for the corridor. The Park Service will offer various types of technical assistance to communities on matters related to the river corridor or plan implementation. The Park Service will contract with the Metropolitan Council and Department of Natural Resources to provide assistance to corridor communities to encourage substantial conformance of their plans and actions with the MNRRA plan. The National Park Service (acting for the secretary of the interior) will make the final determination on whether communities are conforming to the MNRRA plan, as specified in section 705(c) of the MNRRA legislation. The Park Service will administer the grants program authorized by the enabling legislation for communities that choose to implement tier 2 and substantially conform to the MNRRA plan, and the National Park Service will assist local governments in identifying and seeking other funding that could be used for river corridor projects that are compatible with this plan. The Park Service, working with the commission and other agencies, will have the lead to develop more detailed plans, such as a resource management plan and visitor use management plan. The National Park Service will carry out its mandated federal review responsibilities, emphasizing natural, cultural, and economic resource protection as articulated by the visions, concepts, and

policies contained in the plan. The National Park Service could also review other major nonfederal actions that require a state environmental assessment worksheet or if requested by another agency or the project applicant. These reviews will be done within existing project review processes, with an emphasis on coordinated timeframes. The National Park Service does not have approval authority over state or federal permit applications, local critical area plans, or zoning ordinances. The National Park Service does not have authority to approve or deny specific local land use decisions. The major functions of the National Park Service will be to:

- provide general oversight on the progress of plan implementation with commission
- have the lead role to prepare selected implementation plans with advice from the commission and extensive involvement by other corridor partners and the public
- make final determinations on whether communities are substantially conforming to the MNRRA plan and issue grants to implement the plan
- provide the lead role in coordinating interpretive planning and a major role assisting with interpretive media production, publications, and exhibit development
- provide the major role in developing an interpretive center and cooperating on other interpretive facilities
- participate in efforts to promote tourism in the MNRRA corridor
- coordinate interpretive services and provide missing programs
- provide technical assistance, such as on historic preservation techniques
- serve as federal and state grant information clearinghouse
- review selected land use proposals (as specified above) and all federal, federally funded, or federally permitted proposals, emphasizing the use of existing review processes and timeframes
- monitor overall progress of local governments to update corridor plans and ordinances
- provide staff for the commission
- act as catalyst and facilitator for plan implementation along with the commission
- liaison with other units of government on corridor issues
- implement the MNRRA plan on NPS lands enforce 36 CFR (limited to NPS-owned lands)

The Metropolitan Council. The Metropolitan Council will conduct a review of local comprehensive and critical area plans for consistency with the first and second tiers of compliance with the MNRRA plan. The council staff will assist local governments electing to implement the second tier of planning and management, identify those plans needing modification to achieve tier 2, coordinate review of draft plan amendments, provide technical assistance on amending these plans, and administer small planning grants to local governments. In preparing draft local plan amendments, communities could propose policies and provisions that are generally consistent with the MNRRA plan, but that tailor the plan to fit the specific resources in their section of the river and thus might not be in strict compliance with specific policies of the plan. The local community should state the reasoning for the proposed local policies. The inconsistent policies and provisions will be considered by the Metropolitan Council in reviewing the proposed local plan amendment and, if it is determined that the plan's visions and general concepts are achieved and resources are protected in a balanced and sustainable manner, the provisions will become part of the approved local plan and determined to be in substantial conformance with the MNRRA plan. In reviewing draft plan amendments, the council staff will seek comments from the Park Service and especially from the Department of Natural Resources, because the department will be responsible for monitoring land use implementation. The Metropolitan Council will advise the National Park Service on whether the updated plans substantially conform to the MNRRA plan. The final determination on whether conformance has been achieved and whether a community is ultimately eligible for the acquisition and development grant program will be made by the National Park Service.

There is nothing in the MNRRA plan that exceeds the existing Metropolitan Council authority. There is no intervention or control over local land use decisions proposed for the Metropolitan Council, except for efforts carried out on behalf of the National Park Service to encourage communities to revise their plans to substantially conform to the MNRRA plan, similar to what they have done under the state critical area program. The MNRRA act requires that the National Park Service contract with the state or a political subdivision to review community plans and amendments for conformance to the comprehensive management plan. The Park

Service will develop an agreement with and provide funds to the Metropolitan Council to accomplish its responsibilities.

The existing land use planning process occurs under the authority of the Metropolitan Land Planning Act and the Critical Areas Act of 1973. The council's role in the land use planning process under these statutes is as follows. Pursuant to the Critical Areas Act of 1973, the council has the authority to review local plans and regulations to determine their consistency with regional objectives and the provisions of the governor's order designating the area of critical concern. The council then submits its evaluation of the plans and regulations to the Minnesota Environmental Quality Board for approval (proposed to be transferred to the Department of Natural Resources).

The Metropolitan Land Planning Act, which was passed in 1976, subsequent to the Critical Areas Act, requires that each local community in the seven-county metropolitan area prepare comprehensive plans that are reviewed by the Metropolitan Council for their consistency with regional policies. The council may require modifications to local comprehensive plans if the plans could constitute a substantial impact on or a substantial departure from the council's plans for the four metropolitan systems of wastewater treatment, transportation, aviation, and parks and open space. Local comprehensive plans must also contain an implementation program, including a description of official controls addressing at least the matters of zoning and subdivision and a schedule for the preparation, adoption, and administration of the official controls. The Metropolitan Land Planning Act also requires that local communities adopt official controls that are consistent with the objectives of the local comprehensive plan.

The major functions of the Metropolitan Council will be to:

- assist implementation of tier 1 (improve existing state land use programs)
- assist the National Park Service in analyzing critical area plans and developing guidance on how they should be amended to substantially conform to the MNRRA plan (tier 2)
- provide technical assistance to help communities bring their plans into compliance with the comprehensive management plan

- review local plans for conformance to the MNRRA plan
- assist the Department of Natural Resources in developing a model ordinance for compliance with the MNRRA plan
- monitor progress toward land use planning implementation
- recommend modifications to the MNRRA comprehensive management plan to address local government concerns
- participate in regulatory coordination and consolidation efforts
- coordinate with the Mississippi National River and Recreation Area Minnesota Pollution Control Agency on water quality planning for the metropolitan area

The Department of Natural Resources. The Department of Natural Resources will have the lead in administering existing state land use management programs for the corridor, which is key to achieving tier 1 implementation of the MNRRA plan. It will also develop a model ordinance in consultation with the National Park Service and the Metropolitan Council and assist local government adoption and enforcement of ordinances that are consistent with the MNRRA plan (if they choose to implement the second tier of planning and management described in this document). Local governments will have an active role in the model ordinance preparation, and they will have the lead in preparation of their own plans and ordinances. The model ordinance will be provided as a sample of how an ordinance could be revised for substantial conformance with the MNRRA plan but will not be mandatory. Communities will be able to tailor the ordinance to their needs or write their own ordinance to substantially conform to the MNRRA plan. Their critical area plans will be revised to achieve substantial conformance. The Department of Natural Resources will review these updated ordinances and advise the National Park Service on whether they substantially conform to the MNRRA plan. A final determination on whether conformance has been achieved and whether a community is eligible for the acquisition and development grant program will be made by the National Park Service.

To increase coordination between existing state programs and between state programs and the MNRRA plan, the Mississippi River Critical Area Program will be transferred to the Department of Natural Resources from the Environmental Quality Board and will be administered by the Department of Natural Resources, (if the critical area program is not transferred to the Department of Natural

Resources, the National Park Service will contract separately with the Environmental Quality Board for the critical area program and with the Department of Natural Resources for the shore land management program). In reviewing draft local ordinance amendments, the Department of Natural Resources will seek comments from the Park Service and especially from the Metropolitan Council since the council will be responsible for the plans on which the ordinances are based. The MNRRA act requires that the National Park Service contract with the state or a political subdivision to review local ordinances and monitor enforcement and land use implementation actions for conformance with the comprehensive management plan. It is understood that there is some low level of action that could be excluded from this review without violating the intent of the MNRRA legislation requirement to monitor development in the corridor. This threshold level will be worked out in follow-up discussions between the National Park Service and the Department of Natural Resources in consultation with the affected communities. The Park Service will develop an agreement with and provide funds to the Department of Natural Resources to accomplish its responsibilities under this plan. This agreement will also confirm that the Department of Natural Resources will implement the MNRRA plan on its lands in the corridor. Under this plan, the Department of Natural Resources will have no more authority than available under existing state law. The Department of Natural Resources will not create a new review process for this effort but rather build on its existing relationships with local governments and the shore land management program. The Department of Natural Resources will not have certification (veto) authority over local decisions except to certify to the National Park Service that revised ordinances and implementation programs are consistent with the MNRRA plan. The Department of Natural Resources will:

- lead implementation of tier 1 (improve existing state land use programs)
- develop a model ordinance and adopt guidelines to implement land use management portions of the MNRRA plan
- assist the National Park Service in analyzing existing ordinances and developing recommendations on how they should be amended to make them substantially conform to the MNRRA plan (tier 2)

- review development proposals for conformance to the comprehensive plan
- monitor progress toward land use management plan implementation
- review variances for conformance to the plan
- lead regulatory coordination and consolidation efforts
- implement the MNRRA plan on its land

The Minnesota Pollution Control Agency. The Minnesota Pollution Control Agency will continue to have the lead role in pollution prevention and control for the corridor. The Minnesota Pollution Control Agency will be the primary agency to implement most of the policies and actions that affect air and water quality in the corridor. The agency is also working on a major effort to reduce non-point source pollution on the Minnesota River, which will lead to better water quality in the Mississippi River through the lower half of the river corridor. The Minnesota Pollution Control Agency will:

- continue its lead role in pollution prevention and control programs
- coordinate with Metropolitan Council on water quality planning
- monitor progress toward pollution prevention and control plan implementation

The Minnesota Department of Agriculture. The Minnesota Department of Agriculture will continue to be responsible for pesticide and fertilizer storage and use requirements and cleanup activities in the MNRRA corridor under existing state law. The Minnesota Department of Agriculture will also continue its authorized role in regulation of land use under the Minnesota Agricultural Land Preservation Act. The Minnesota Department of Agriculture will continue:

- its lead role in regulating agricultural chemicals, including pesticide and fertilizer storage and use
-
- its lead role in cleaning up ground and surface water contamination from agricultural chemicals

- regulating land use in the corridor through the Minnesota Agricultural Land Preservation Act

State Historic Preservation Office of the Minnesota Historical Society. The State Historic Preservation Office will continue to have the central role in protecting cultural resources in the MNRRA corridor. This plan also supports a strong emphasis on historic preservation efforts at the community level. The state's "certified local government" program will be emphasized. The state historic preservation office will:

- continue its central role in protecting cultural resources
- promote the enactment of new local historic preservation ordinances
- offer technical assistance to communities in establishing local preservation programs and reviewing critical area plans
- work with local preservation commissions to integrate MNRRA policies and objectives into local preservation plans
- help fund local historic preservation survey and planning efforts through the certified local government grants program
- continue its section 106 of the National Historic Preservation Act review responsibilities
- work with local units of government to integrate cultural resource concerns into community plans and ordinances

The Corps of Engineers. Commercial navigation management will continue to be the responsibility of the U.S. Coast Guard and the Corps of Engineers, with day-to-day coordination and consolidation efforts provided by the Corps. The Corps of Engineers will be responsible along with the Department of Natural Resources and National Park Service for periodically reviewing the commercial navigation and barge fleeting program, including consolidating and coordinating permits, communication, and education, to ensure conformance with the MNRRA plan. The National Park Service will also review all individual permit applications under the MNRRA legislated review authority. The Corps of Engineers will:

- continue the lead role on regulation of commercial navigation
- lead coordination and consolidation efforts for commercial navigation regulation

- coordinate development of the surface water use management plan
- report to the commission on efforts to implement the MNRRA plan
- implement the MNRRA plan on its lands

Local Governments. Local governments will be the primary vehicle for implementing the land use management and open space portions of this plan, and local control of those authorities will be retained. Land use management will continue to be the responsibility of local governments, but their actions will be reviewed by the Metropolitan Council (plans) and the Department of Natural Resources (actions). Communities that choose to participate in the NPS grant program will update their plans and ordinances to the second tier management framework and substantially conform to the MNRRA plan. Federal cost-sharing funds will be made available to local governments for plan and ordinance revision. Local governments will continue to have the lead in local economic development planning activities. They will:

- comply with existing critical area law and shoreland management regulations (tier 1)
- be encouraged to revise their plans and ordinances to substantially conform to the MNRRA plan (tier 2)
- continue implementation of land use controls
- acquire and develop parkland and build trails
- receive acquisition and development grants if implementing the MNRRA plan (tier 2)
- conduct economic development activities
- operate local parks and interpretive facilities
- implement the MNRRA plan on their lands

Private Sector. The citizens, interested organizations, and businesses in the metropolitan area are critical to the success of the MNRRA plan. Concern has been expressed by some parties interested in the river that the plan will hurt their interests. It is hoped that by working cooperatively to develop a joint understanding of the problems and a shared vision for the future of the corridor, citizens, organizations, and businesses will recognize the benefits a coordinated plan could bring to everyone in the area. If implementation proceeds, the commission and partner agencies will make a major effort to enlist the help of businesses,

organizations, and landowners in corridor activities, including pollution prevention, bank cleanup, trail building, enhancing economic resources, and public education. Much has already been done by local industry and nonprofit organizations for the good of the river, and this could be a sound basis for more. The private sector will:

- propose land use and site development actions consistent with
- the plan
- provide private sector funding for partnership efforts
- sponsor citizen efforts to clean up the corridor
- redevelop or improve areas to accomplish the plan's visions and concepts
- increase efforts to prevent and reduce pollution in the corridor
- operate private interpretive facilities and commercial recreation activities consistent with the plan
- provide input to comprehensive plan implementation, including follow-up plans
- implement the MNRRA plan on their lands

Coordination and Consistency

While the majority of land management responsibilities will remain with local governments, more effective management will result from corridor wide cooperation and improved coordination. Without this cooperation and coordination, individual cities might not protect resources such as bluffs or shorelines as well as their neighbors. Also, they could make zoning decisions without regard to the visual, traffic, or environmental impacts on neighboring communities or the river. Several of the previous planning efforts identified the need for consistency and coordination in managing the river corridor. The studies and the MNRRA legislation also identified the need for consolidating and coordinating the permit process, which is discussed below.

At present, local governments are responsible for land use decisions in the corridor (state designated critical area) with oversight from the Environmental Quality Board. In the case of violations or lack of implementation, this arrangement has not been particularly effective. Many excellent individual local efforts have occurred over the years, but there is little coordination or communication. A brief analysis of the state critical area work

follows, which points out the need for improved consistency and coordination of use and development in the corridor.

The Mississippi River critical area was created in 1976 by a governor's executive order in response to concerns about preservation and enhancement of the Mississippi River. The purpose was to:

- promote orderly development of the residential, commercial, industrial, and public areas in the river corridor
- conserve the natural and scenic beauty of the corridor
- conserve and develop natural resources in the corridor
- provide for the compatibility of land use throughout the corridor

The program required local governments to prepare plans addressing land use, resource protection (especially riverbanks, bluffs, vegetation, water quality, wetlands, and floodplains), barge fleeting, trails, parks and recreation, view preservation, and erosion. Although most of the local governments prepared plans, they varied widely in content and quality. In spite of several excellent plans and implementation programs (the results of which are visible today), the program did not result in an overall vision for the river corridor, or result in consistency in plans or coordination of implementation. It did not result in a unified land or resource protection program or comprehensively address barge fleeting. Implementation by local governments varied. However, the critical areas program raised local and public awareness of the importance of the river and its resources and resulted in some excellent plans. These plans were used as a basis for provisions in this comprehensive management plan. The Mississippi was formally re-designated as a state critical area by state statute in 1991, but little has been done to implement that statute.

There is a perception that the procedures for obtaining permits required by local, state, and federal agencies are onerous, confusing, and redundant. There seems to be no one authority or source of information on a number of river-related subjects. This perception is widely held by industry and even by local government officials. Those officials also believe that they are being affected negatively by new mandates without corresponding funding. The next section addresses these issues. Some of the problems are

being addressed by local, state, and federal agencies; activities resulting from the MNRRA plan will build on work that is ongoing.

Proposal for Consistency, Coordination, and Consolidating Permits. The following recommendations define responsibilities for improvements in coordination and consistency:

- design guidelines — corridor partners (see sample design guidelines in appendix C)
- oversight and coordination of local land use decisions — Metropolitan Council and Department of Natural Resources
- review of federal activities — the National Park Service and other partners
- coordination of corridor activities — the commission and National Park Service
- coordination and consolidation of permits and regulations — a temporary task force
- coordinated land use plans and regulations consistent with the MNRRA plan — Metropolitan Council, Department of Natural Resources, and, in the case of lands within the scope of the Minnesota Agricultural Land Preservation Act, the Minnesota Department of Agriculture

In order to address the MNRRA mandate to coordinate policies, programs, and permits of federal, state, and local agencies, the identification of those governmental activities to be considered is necessary. Planning and regulatory authorities could cover several activities. Land acquisition and resource management is one. An agency could also have the authority to establish standards that might be enforced by the agency or by another level of government. A third category is issuing permits (Minnesota State Planning Agency 1975). An agency might also have the authority to participate with another on projects with a specific purpose. This last type of activity might involve programs and plans based on a policy but not through a permitting or regulatory activity. Finally, tax policy also influences land use decisions. Tax policies often impact investments in land that ultimately affect land uses.

Previous reports and studies list a large number of governmental bodies with many responsibilities. This section of the plan concentrates on those with direct regulatory authority. This does not negate the importance or impact of planning and management

efforts of non-regulatory agencies, nor does it exclude such efforts from coordination and consolidation. Several models for planning coordination currently exist among MNRRA governments and could be expanded. Examples of coordination of direct regulatory responsibilities also exist among governments in the Mississippi National River and Recreation Area that could be used as models for the future by all levels of government. The existing efforts to coordinate permitting and other direct approval roles will be part of the foundation for the interagency coordination proposal. In December 1992 the governor of Minnesota directed all state agencies to review their programs and eliminate or reduce rules and regulations affecting Minnesota business (E.O. 92-15).

Several studies have addressed the often unwieldy regulatory system that results in many levels of review and a number of permits necessary for certain development activities in and along rivers. An inventory showing the complex array of permitting and regulatory authorities is contained in appendix I.

A Program for the Coordination and Consolidation of Permitting. Coordination and consolidation of permits and regulations is a high priority for implementation. The National Park Service will support the current efforts of the state to address this issue.

A management structure for the Mississippi National River and Recreation Area must take into account the existing authorities and institutional arrangements. Such an assessment was undertaken as part of the Metropolitan River Corridors Study Committee project. Management agencies were found to have the requisite authorities. However, program planning has developed independently due to legislation that fosters unit-by-unit planning and due to funding mechanisms based on state or national priorities rather than river system perspectives. Improvement of land use regulation was recommended along with better clarification of the roles of the varying governmental agencies and levels (MRCSC 1986).

With the land use management strategy outlined in this plan, there should be little duplication with existing land use control systems. Existing review structures will be used, reviews will be concurrent, and existing agencies will be responsible for the review. NPS review

of federal actions is mandated by the MNRRA legislation. Coordination will be a major goal in all of these processes.

An effort to address coordinating and consolidating permits should supply:

- a mechanism to expand cross-program coordination based on a river system perspective that fulfills congressional and other legislative mandates
- a mechanism to address funding priorities from a river system perspective
- the time involved in obtaining permits
- duplication of effort
- the results of state agency action pursuant to the governor's executive order to reduce regulations
- improve mechanisms to facilitate citizen understanding of and participation in permitting processes

The recommendations from past studies all agree that the many governmental levels and agencies should work together regularly, in whatever venue is most appropriate, to make the management and regulatory structure more efficient and less burdensome on the private and public sector. An example of cooperative planning exists in an informal, interagency committee that meets regularly to discuss riverfront activities and plans in downtown Minneapolis. A similar team made up of representatives from regulatory bodies will facilitate communication and reveal the redundancies and other inefficiencies now present.

Coordination and consolidation normally evolves slowly, often coming after long-term familiarity with a routine situation. The general section 404 and section 10 permits issued by the Corps of Engineers are examples. The general permit reduces duplication between the Corps of Engineers and the Department of Natural Resources by granting section 404 and section 10 permits to projects of certain types that are approved by the Department of Natural Resources. This includes small projects such as dock and boat ramp construction, small sand blankets, minor discharges, and the installation of submerged utility line crossings.

While such general permits could require specific authorizing legislation, other regulatory actions on a smaller scale could be

consolidated. Great opportunity lies in reducing redundancy of federal, state, county, and municipal permits or approvals. Recommendations could be made to change state legislation regarding delegating review authority and cooperative agreements.

In order to address these issues, the following initial strategies for coordination and consolidation will be pursued:

(1) Existing permits and regulatory activities will be inventoried and analyzed. Appendix I provides a foundation by displaying the large number of agencies and permits currently involved in the development process. This inventory should be expanded and made more specific in regard to activities that do or might require permits.

(2) A forum for all regulatory agencies will be provided in order to examine the potential for coordination. One large meeting or a series of meetings could provide the momentum needed for an interagency effort. An outgrowth of such a forum will be public and intergovernmental educational presentations. There is a lack of understanding between municipal, county, and state entities about jurisdictions. This leads to a perception by permit applicants that there is confusion that delays projects and increases costs.

(3) A small task force consisting of representatives of local government, the Metropolitan Council, the Minnesota Department of Natural Resources, the Minnesota Pollution Control Agency, the Minnesota Department of Agriculture, the private sector, and other interested organizations could be charged by the governor with improving the process in a limited time frame. Minnesota Department of Natural Resources should have the lead in facilitating this effort.

(4) A guide to corridor development and river activities could be published. Such a publication would require sharing expertise in specific areas, would provide a tangible product for focus, and would reduce or avoid duplication of efforts. The knowledge gained by the participating parties about other agencies would facilitate further understanding. Several publications exist that could serve as models, such as the DNR Shoreland Development

Guide. This effort could include completing a corridor wide set of design guidelines.

(5) The Department of Natural Resources will identify specific personnel to assist permittees with the process. Like the publication suggested above, this will necessitate familiarity with issues beyond those normally expected of the agency. It will also provide an objective liaison between parties in conflict situations.

(6) The commission will use the work of the task force in coordinating and consolidating the permit process as a model for other coordination and consistency measures.

(7) The commission will monitor progress on the governor's executive order on reducing regulation and will incorporate the results into corridor management strategies.

(8) The task force will assess the need for and feasibility of creating a clearinghouse for permit applications and approvals.

Compatibility with Other Plans and Programs

The visions, concepts, and policies of the comprehensive management plan are, in principle, compatible with existing local, state, and federal plans and programs, and the existing channel maintenance program on the Mississippi River. This consistency review is required by the MNRRA legislation, section 703(i)(2)(C). Plans and programs reviewed include general or comprehensive plans or programs covering the entire MNRRA corridor (or at least significant portions), such as community critical area plans. There are a very large number of site-specific plans for parcels of land or small pieces of the corridor and a multitude of local, regional, state, and federal programs having some impact on corridor sites, but it is beyond the scope of this plan to analyze each one and make a consistency determination. Few conflicts have been identified between major site-specific plans or programs and this comprehensive management plan.

Local and Regional Plans and Programs. The most pertinent local plans and programs are the cities' and townships' critical area plans, local zoning ordinances, local comprehensive plans, parks and recreation plans, and special area plans such as the St. Paul

Riverfront Plan. These have been analyzed and the cities have been asked for input. Some inconsistencies were pointed out during this process and have been resolved. However, since this plan contains a few policies that are more restrictive than some existing critical area plans, the existing plans will have to be revised or amended if the community chooses to participate in the grant program and is determined in substantial conformance with the MNRRA plan (tier 2). After the comprehensive management plan is completed, local governments will be encouraged to review and update their critical area plans and ordinances, which will be reviewed by the Metropolitan Council, the Department of Natural Resources, and the National Park Service to determine whether they have achieved substantial conformance as described in the plan implementation section. If substantial inconsistencies exist between the local plans and the more restrictive policies in the MNRRA plan, and the community wishes to participate in the NPS land acquisition and development grant program, the Metropolitan Council and the Department of Natural Resources, working under agreements with the Park Service, will work with the unit of government to resolve the inconsistency. This includes the possibility of amending the MNRRA comprehensive management plan if significant new information is found during the local plan reviews.

The Metropolitan Council's Recreation Open Space Plan is an important regional plan. The MNRRA plan envisions more local land acquisition along the river than contained in the current Metropolitan Council plan. It is anticipated that the regional plan will be updated to reflect the more ambitious open space concept articulated in this document. There have been no conflicts identified with the Metropolitan Council's regional development framework. A representative of the Metropolitan Council serves on the Mississippi River Coordinating Commission and the council was asked to review this document for consistency with regional plans. No conflict was identified.

State Plans and Programs. The state plans and programs reviewed for consistency with the MNRRA plan are:

Metropolitan Land Use Planning Act and Metro Governance Act
Shore land Management Program
Minnesota Floodplain Act
Waters and Watercraft Safety Act

Metropolitan Surface Water Act
Minnesota Critical Area Act and Governor's Executive Order 130
Minnesota State Comprehensive Outdoor Recreation Plan
Wetland Conservation Act
Minnesota Groundwater Protection Act
Minnesota Agricultural Land Preservation Act

There have been no conflicts identified with these plans and regulations. In addition, members of the commission include representatives of the Minnesota Department of Natural Resources, the Minnesota Historical Society, and the Minnesota Environmental Quality Board. These members were asked to review the plan for consistency or potential conflicts with their agencies' plans. These state agencies were asked to review the draft comprehensive management plan / environmental impact statement during the public review process and potential conflicts were addressed in this final plan.

Federal Plans and Programs. No conflicts have been identified between this plan and other federal agency plans for the corridor. Plans specifically reviewed were the Minnesota Valley National Wildlife Refuge Master Plan and the Upper Mississippi Land Use Allocation Plan (Corps of Engineers).

The commission includes members from the U.S Fish and Wildlife Service and the Corps of Engineers, who were asked to review this plan for consistency with their plans and programs. No conflicts were identified.

Channel Maintenance Program. No conflicts have been identified between this plan and the channel maintenance program for the Mississippi River. The Corps of Engineers has a representative on the commission, and the agency was asked to review this plan for consistency with the channel maintenance program. No conflicts were identified.

Water Quality

The MNRRA legislation, section 703(i)(2)(D), requires a statement on coordinated implementation regarding the provisions of the Clean Water Act and Safe Drinking Water Act. The provisions that pertain to the surface waters will continue to be implemented by existing

federal, state, and local agencies. The National Park Service and the commission will periodically review actions taken to implement the plan to facilitate coordination and determine if progress is being made toward meeting water quality standards and achieving improvement in overall water quality in the corridor. Specific policies and actions are discussed in the resources management section above.

Costs and Priorities (Financial Plan)

Following are estimated costs to implement the plan. This section constitutes the financial plan referred to in the MNRRA legislation, section 703(i)(2)(B). NPS facility construction cost estimates were prepared by an NPS estimator (based on the cost of similar facilities in the Midwest region) to comply with NPS guidelines for preparing general plans. The Mississippi River Coordinating Commission neither agrees nor disagrees with these estimates.

Development. NPS development costs will be incurred for the St. Paul/Harriet Island interpretive/headquarters facility and the Minneapolis/St. Anthony Falls interpretive facility. Development costs cannot be estimated in great detail at this time. Estimates provided below are "class C," which means they are based on general size assumptions and the cost of constructing similar facilities in the Midwest (using 1993 cost data). They should be considered rough, preliminary estimates subject to change during additional planning and design.

The Harriet Island building will be the first phase for NPS facility construction because it will provide the primary center for corridor orientation and area headquarters. It will cost about $8 million for construction contracts, furnishings, interpretive exhibits, and site development, including construction supervision and contingencies. These costs are very preliminary estimates and based on only a conceptual site plan. They include a factor for inflation due to the uncertainty of when funding might become available and the fact that even if funds are immediately available, actual construction will still require a couple of years to allow for interpretive planning, project site planning, and design development. NPS planning directives require that all cost estimates in general planning documents be shown as "gross" costs, including the cost for construction supervisors (NPS or contract). Contingencies must also

be included to cover potential unforeseen costs related to site development, such as difficult soil conditions or archeological mitigation work. The MNRRA plan makes a commitment to total accessibility, sustainable design, and high quality construction that could require a greater up front cost but will result in lower long-term operation and maintenance costs and provide a showcase for environmentally friendly development. Site surveys and design costs (advance and project planning costs) will add about $1.6 million to this cost. Funding for this facility will be provided through an appropriation from Congress or from other funding sources. For additional details on this cost estimate see appendix J.

The St. Anthony Falls interpretive facility will be developed in later phases. The total costs of that facility cannot be estimated until additional details are worked out with the partners in that area. Assuming a 12,000-square-foot facility, of which half will be funded by the Park Service, the NPS construction and interpretive display development will total about $2,286,000, which includes construction supervision and contingencies for 6,000 square feet of this space. Because a specific space has not been identified, this was estimated as if it were equivalent to a new building. Actual costs could be significantly higher or lower than this estimate, depending on the condition of the space selected for the interpretive center and potential historic preservation treatment needs. Park Service facility and interpretive exhibit design costs will be about $460,000 for this center (NPS share), again assuming new construction cost equivalency. The interim center for this area will be done as soon as possible. There will be no construction cost for the interim center.

The Washburn/Crosby complex is a national historic landmark. A portion of it burned in 1991. It was identified as the best site in the area through extensive discussions with interpretive partners. It must be viewed in the context of a vision of major rehabilitation for the waterfront in this area, which is planned by the city of Minneapolis and supported by this document. This includes proposals for Mill Ruins Park, the Heritage Trail, and major concepts for rehabilitating and adaptively using the Washburn/Crosby complex and its immediate environs. The cost of stabilizing and maintaining the complex without adaptive reuse will be prohibitive. A developer is needed to facilitate the rehabilitation, and the city of Minneapolis is seeking an investor. A final NPS commitment to

move into the complex will occur after more facility planning is completed, it is rehabilitated, and there is a commitment for a compatible mix of uses. If the right combination of uses are assembled and a portion of the building that is in better shape is used, the cost to locate the interpretive center in the complex might not exceed the costs to use other historic buildings in the area.

NPS wayside exhibits in the corridor will cost about $180,000, including design and production. These will be done during the second or third phase of NPS construction. There will also be NPS costs in the design and production of interpretive media for other cooperative centers. It is not possible to estimate these costs at this time.

The MNRRA legislation authorizes matching grants of up to 50% of the cost for development of land by others in the corridor consistent with the plan. Congress will be asked to fund this program through the federal budget appropriations process. This will be a high priority for plan implementation. A detailed inventory of state and local park land development needs that are consistent with this plan has not been assembled and is beyond the scope of this plan. Therefore, it is difficult to estimate total costs of development that might be funded by this program. Projects that will be funded are those achieving the visions and concepts of this plan and in compliance with the policies articulated in this document. Within one year after approval of the plan, a framework for the grants program will be developed. The process will include scoping with river corridor communities to assess the magnitude of projects potentially eligible for grant funding. Based on this scoping, a report will be prepared detailing possible costs and priorities for grants projects. It is probable that needs will far exceed funds available, and a priority system will have to be set to fund the most important projects first. If the grant program is funded by Congress, a written process will be developed to determine grant recipients and amounts with selection criteria further spelled out.

National Park Service Operations. Total annual salaries for Park Service staff when the area is fully operational will be about $994,000 (based on 1994 salary tables). Benefits add, on average, about 30% to salaries. Total staff benefits will be about $298,000. The staff will also need support materials and services (such as

equipment, travel, and training). Support materials and services should total about $248,000 (or about 25% of salary). Thus, total annual personnel costs will be about $1,541,000. Support for the Mississippi River Coordinating Commission is included in this figure.

The cost of maintaining the St. Paul interpretive center and surrounding grounds is estimated at about $180,000 per year. This includes contract custodial, general repair, lawn care, landscape upkeep, and snow removal services. The estimated maintenance costs for the Minneapolis center cannot be determined at this time. The annual cost is subject to further planning and negotiation with the facility partners. It is anticipated that there will be no NPS maintenance costs at the other cooperative interpretive centers.

Other Agency Operations. As stated above, the Metropolitan Council and Minnesota Department of Natural Resources will provide monitoring and implementation review of land use plans and proposals for conformance with the MNRRA plan. Local governments will be asked to update their plans to conform to the MNRRA plan. These state and local activities will require an estimated annual budget of about $300,000, which could be allocated to these agencies under the cooperative planning authority in the MNRRA legislation, section 706 (b). Local agencies will be eligible for grants under this funding source to update their critical area plans and ordinances to substantially conform to the MNRRA plan. The details of how this funding will be distributed will be worked out in follow-up agreements with the involved agencies. The National Park Service will seek funds through the appropriations process to cover these needs, and this will be a high priority for plan implementation.

Land Acquisition. There will be no costs for NPS land acquisition as the plan is written. The land for the interpretive center/headquarters facility in St. Paul will be donated by the city of St Paul. Pursuant to Secretarial Order 3127 the site will be surveyed for hazardous waste. Cleanup costs, if any, will be borne by the city. Land for interpretive facilities in Minneapolis, Fort Snelling State Park, Hastings, and Coon Rapids will be owned by other partners. There is the possibility that land acquisition costs will be incurred if eminent domain proceedings are required to protect threatened resources under the terms of the MNRRA legislation and this plan;

however, eminent domain will be used only as a last resort in very limited circumstances, and any associated costs cannot be estimated at this time.

Local land acquisition will be facilitated by the grant program authorized in the MNRRA legislation (if appropriations are made by Congress) in coordination with existing state and regional funding programs. This will be a high priority for plan implementation. Criteria for land acquisition priorities are contained in the open space proposal. There is insufficient detail at this time to estimate the total cost of this program, but it will be significant. Again, the needs will probably exceed funding available, and projects will be funded based on the criteria articulated in the open space section above. NPS staff will work with local governments in the corridor to more thoroughly estimate these needs and will provide an estimate of total funding needs within one year in the report discussed in the development cost section above. If the grant program is funded by Congress, written grant application procedures and selection guidelines will be developed.

Funding. Funding for plan implementation will come from federal grants, state and local programs, donations from the private sector, and appropriated increases in the NPS operating budget. Funds from these sources will be sought through the normal budget process and administered by the Park Service in consultation with the commission. If funded by Congress, the Park Service will provide direct grants for up to 50% of the cost for public land acquisition and development by other entities for projects that conform to the MNRRA plan. The MNRRA legislation in section 706 (a) is not limited to park land, but it does limit these grants to acquisition and development. The grant program will be a high priority for plan implementation. This funding will be available to communities that move to tier 2 of plan implementation and choose to update their critical area plans and ordinances to be consistent with the concepts and policies in this plan. The Park Service will also assist in identifying and pursuing other grant funds available to local communities. However, other federal funds could not be used to provide the local 50% match for the program authorized in the MNRRA legislation.

The commission will stimulate fund-raising activities by others to implement the visions, concepts, and policies contained in the plan.

The National Park Service will seek congressional authorization for a more general authority, if determined necessary during review or implementation of this plan, to make a broader range of grants available. This may include a range of local government activities that will be carried out to implement the plan. Priorities for these grants will be developed if the broader authorization is granted.

DEVELOPMENT OF THE PLAN

PUBLIC INVOLVEMENT IN THE PLANNING PROCESS

This final comprehensive management plan is the product of an extensive public involvement effort undertaken by the Mississippi River Coordinating Commission and the National Park Service over a four-year period. The 22-member commission includes representatives from several federal, state, and local agencies, and the general public of the area. The commission held 20 public meetings while the plan was being developed. Members of public were provided with opportunities to speak at each one, and many people did so. In addition, National Park Service personnel worked extensively with other interested parties through informal meetings and telephone contacts.

Work groups and subset focus groups were formed early in the planning process to assist the commission and National Park Service planning team in developing vision statements, gathering data, and reviewing preliminary alternatives. About 180 people from state and local agencies, businesses, and organizations participated in these groups. See appendix D for a list of agencies and organizations that participated in the work groups.

As a result of these meetings, draft purpose and vision statements were issued for public review in a project newsletter in October 1991. A postage-free response form was included in the newsletter to facilitate public response. The vision statements contained in this document received strong public support. They are a result of that input and subsequent comments on later newsletters. The results of these and other newsletter response forms are contained in summary reports on file at park headquarters.

Conceptual alternatives grounded in these visions were developed for public review based partially on input received. They were issued for public comment in a second newsletter published in March 1992. A postage-free response form was also included in that newsletter to facilitate public feedback. A special round of meetings was held with local government representatives from communities in the corridor during that period. The resource

protection alternative and the alternative emphasizing a wide range of uses and activities in the corridor were almost equally supported. There was little enthusiasm for the alternative emphasizing economic development. Among the management options there was a clear preference for the alternative that emphasized equal responsibility among the partners. One of the most distinct preferences was for strengthened pollution control. Another was a clear preference for a variety of visitor activities and access.

The University of Minnesota conducted a resident survey of attitudes about the river in 1992 that was used to help prepare the plan.

Planning issues were identified for the project throughout the early phases of the project. A "notice of intent" to prepare an environmental impact statement (EIS) was published in the Federal Register on July 14, 1992, which officially announced the scoping process for the environmental impact statement, and public input was solicited on EIS issues throughout the remainder of that year.

A preliminary proposed action was developed and issued for public review in a third newsletter published in September 1992. Again a response form was provided. A series of three public open house meetings was held to further define issues and alternatives in this plan/EIS.

The Draft Comprehensive Management Plan / Environmental Impact Statement was published in June 1993. Four public hearings were held in July 1993, and public input was accepted through the fall. Over 1,000 pages of written comments and more than 100 pages of hearing comments were received on the Draft Comprehensive Management Plan / Environmental Impact Statement. Review comments were analyzed and summarized by the planning team, and responses were developed by the commission and NPS team through a series of three working papers and commission meetings during late 1993 and early 1994. Additional public input was received during each of these meetings. A draft revised plan was made available for public inspection and comment at commission meetings in February and March 1994, and a motion was adopted by the commission in an April 1994 meeting (after public comment) to recommend the final plan for review by the governor of Minnesota and approval by the secretary of the interior.

NPS personnel and commission members have also held numerous additional meetings, one-on-one consultations, and telephone discussions with corridor communities, agencies, businesses, environmental groups, other interested organizations and individuals to seek advice, coordinate efforts, and help prepare this document. This extensive program to work with others in the area will continue. The commission and the National Park Service are sincerely grateful to everyone who contributed to make this a better plan.

LEGAL COMPLIANCE

National Environmental Policy Act

An environmental impact statement was prepared pursuant to the National Environmental Policy Act and its implementing regulations and guidelines. A notice of intent to prepare an environmental impact statement was published in the Federal Register in July 1992. A Federal Register notice was published announcing the availability of the draft environmental impact statement, which was published in June 1993, and four public hearings were held during the public comment period. Following publication of the final environmental impact statement in December 1994, the secretary of the interior approved the plan and the National Park Service issued a record of decision in 1995.

Section 7 of the Endangered Species Act

Because the corridor includes species listed on the federal endangered and threatened species list, the National Park Service has been informally consulting with the U.S. Fish and Wildlife Service. Lists of species were obtained from the Fish and Wildlife Service and the Minnesota Department of Natural Resources. Species locations were entered in the GIS database. Policies were developed to protect species, and data were used in the analysis of alternative interpretive facility sites. The Fish and Wildlife Service regional director sits on the commission and all project documents were reviewed by his staff. The U.S. Fish and Wildlife Service reviewed the draft environmental impact statement and concurred in its conclusion that listed species will not be adversely affected by the MNRRA plan. If it is later determined that actions under this

plan could have significant adverse effects on a federally listed species, formal consultation will be initiated with the U.S. Fish and Wildlife Service.

E.O. 11988 Floodplains and E.O. 11990 Wetlands Compliance

The MNRRA corridor includes extensive areas of floodplains and wetlands, and NPS activities are subject to executive orders protecting these areas. Available data were obtained from the Federal Emergency Management Agency, and floodplain boundaries were entered in the GIS database. Wetland information was collected from the U.S. Fish and Wildlife Service and also entered into the GIS database. The proposed NPS interpretive center/administrative headquarters at Harriet Island will be outside the 100- and 500-year floodplains, and the site is not classified as wetland. No other construction is proposed by the National Park Service that might adversely affect floodplain or wetland values. Policies were developed to protect floodplains and wetlands and the data were used in the analysis of alternative facility sites.

Section 106 of the National Historic Preservation Act

The National Park Service has the responsibility to seek preservation and protection for significant cultural resources within the boundaries of units of the national park system. The National Park Service also supports the secretary of the interior's guidelines for adaptation of historic resources. Because the corridor includes buildings and districts listed on the National Register of Historic Places, the National Park Service consulted with the Advisory Council on Historic Preservation (ACHP) and the Minnesota State Historic Preservation Officer (SHPO) pursuant to the programmatic agreement, including a review of the task directive, project newsletters, and the Draft Comprehensive Management Plan / Environmental Impact Statement. Available data on cultural resources were gathered and sites mapped in the GIS database. Policies were developed to protect cultural resources and the data were used in the analysis of alternative interpretive facility sites. The state historic preservation officer is a member of the commission, and she or a representative of the Minnesota Historical Society has attended all commission meetings and commented on project documents. This plan documents the results of this consultation under section 106.

Following is a list of actions contained in the final comprehensive management plan and a notation as to need for additional SHPO/ACHP review.

(1) The most significant NPS action in this plan that could potentially affect national register properties is the proposal to acquire land and build and manage a new interpretive center/headquarters facility in St Paul. The proposed site at Harriet Island does not contain any known cultural resources, but it will be surveyed for possible archeological resources prior to facility construction. The Harriet Island Pavilion, a building listed on the National Register of Historic Places, is in the general vicinity of the proposed interpretive center site. There will be no adverse effect on that structure. This project will require additional SHPO/ACHP review after additional details become available.

(2) As currently envisioned, the cooperative interpretive facility in Minneapolis will involve adaptive use of a historic structure. A final site has not yet been selected. The city of Minneapolis or the Minnesota Historical Society will probably have the lead in this project. The National Park Service will not have the lead and will be a cooperating partner in the project. SHPO/ACHP review will be required when a preferred site is selected and enough is known about the adaptive use to facilitate review. Additional consultation will be sought after the comprehensive management plan is completed and as further details become available. The National Park Service will ensure that this consultation is completed.

(3) The cooperative interpretive facility at the Coon Rapids Dam Regional Park will use relatively new facilities and will not impact cultural resources. No further SHPO/ACHP review will be required for this proposal. NPS involvement will be limited to staffing and exhibits.

(4) The site for an interpretive center in the Hastings area has not been identified. If the final selection has potential to impact cultural resources, additional SHPO/ACHP review will be sought. When a preferred site is identified, additional consultation with

the state historic preservation office will be undertaken to see what 106 compliance steps, if any, are needed.

(5) The Fort Snelling State Park interpretive center is proposed by the Minnesota Department of Natural Resources. The National Park Service proposes to be a cooperative partner and assist the state in interpretive planning for the facility, provide design and financial assistance for some exhibits, and supplement state-offered interpretive programs in the area. The National Park Service will ensure that any section 106 compliance consultation that is needed for this proposal is completed.

(6) The follow-up interpretive plan developed for the corridor will specify additional exhibits and programs that will be provided by the National Park Service. This plan will include involvement by the State Historic Preservation Office. If additional cultural resources might be affected, concurrent SHPO/ACHP review will be sought at that time.

(7) Land and water use management and pollution control activities in the corridor will continue to be the responsibility of local governments and other state and federal agencies. Except on lands that it owns, the National Park Service will not have a permitting authority, licensing authority, approval authority, or delegation of approval authority, and therefore these activities will not require SHPO/ACHP review.

(8) The National Park Service (acting for the secretary of the interior) has authority in the MNRRA legislation to give grants for state or local acquisition and development consistent with the plan. It is uncertain how much funding might be available for this program, and specific projects are not listed in the plan. All grants will be subject to additional SHPO/ACHP review.

During and following public review of the comprehensive management plan/environmental impact statement, additional consultation took place between the National Park Service and the Minnesota Historic Preservation Officer and the Advisory Council on Historic Preservation to determine what additional 106 compliance will be needed from actions resulting from this plan. No comments were received from the Advisory Council on Historic Preservation on the draft plan. The above list of projects documents future

compliance requirements as agreed to by the National Park Service and Minnesota Historic Preservation Officer. Because no comments were received from the ACHP, concurrence is assumed.

LIST OF AGENCIES AND ORGANIZATIONS TO WHOM COPIES OF THE FINAL ENVIRONMENTAL IMPACT STATEMENT WERE SENT

There are over 2,500 entries on the mailing list for this project. All will be given an opportunity to receive the final document. The National Park Service is circulating the final comprehensive management plan/environmental impact statement to the agencies and organizations listed below. A complete list of individuals who will receive the document is available at park headquarters.

City/Township Government
City of Anoka
City of Brooklyn Center
City of Brooklyn Park
City of Champlin
City of Coon Rapids
City of Cottage Grove
City of Dayton
City of Fridley
City of Hastings
City of Inver Grove Heights
City of Lilydale
City of Maplewood
City of Mendota
City of Mendota Heights
City of Minneapolis
City of Newport
City of Ramsey
City of Rosemount
City of South St. Paul
City of St. Paul
City of St. Paul Park
Denmark Township
Grey Cloud Island Township
Minneapolis Community Development Agency
Minneapolis Parks and Recreation Board
Nininger Township
Port Authority of the City of St. Paul

Ravenna Township
County Government
Anoka County
Dakota County
Hennepin County
Ramsey County
Washington County
Regional Government
Metropolitan Council
Metropolitan Parks and Open Commission
Metropolitan Mosquito Control District
Metropolitan Waste Control Commission
Minnesota/Wisconsin Boundary Area Commission
Suburban Hennepin Regional Park District
State Government
Board of Water and Soil Resources
Department of Agriculture
Department of Natural Resources
Department of Trade and Economic Development
Department of Transportation
Environmental Quality Board
Minnesota Army/Air National Guard
Minnesota Historical Society
Minnesota House of Representatives
Pollution Control Agency
State Planning Agency
University of Minnesota
Federal Government
Advisory Council on Historic Preservation
Department of Agriculture
Soil Conservation Service
Department of Commerce
Department of Energy
Federal Energy Regulatory Commission
Department of Health and Human Services
Federal Emergency Management Agency
General Services Administration
Small Business Administration
Department of Housing and Urban Development
Department of the Army
U.S. Army Corps of Engineers
Department of the Interior

U.S. Fish and Wildlife Service
Bureau of Indian Affairs
Bureau of Land Management
U.S. Geological Survey
Bureau of Mines
Department of Transportation
Federal Aviation Administration
Federal Highway Administration
Federal Transit Administration
U.S. Coast Guard
U.S. Maritime Administration
Department of Veterans Affairs
VA Medical Center
Environmental Protection Agency
Federal Reserve Bank of Minneapolis

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Nina Archabal, Minnesota Historical Society
Shirley Bonine, local governments
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Richard Craig, U.S. Army Corps of Engineers
Robert Dunn, Minnesota Environmental Quality Board
Sally Evert, local governments
Shirley Hunt, general public
Barbara Ann Johnson, Metropolitan Parks and Open Space

Commission

Nonie Kisch, general public
Richard Lambert, commercial navigation
Naomi Loper, city of Minneapolis
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Ronald Nargang, Minnesota Department of Natural Resources
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Former Commissioners

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Jack Ditmore, Environmental Quality Board
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Jude Patin, U.S. Army Corps of Engineers
Dottie Rietow, Metropolitan Council
William Saed, local governments
Erika Sitz, general public
LuAnn Stoffel, local governments
Mary Vogel, general public
Kathleen Wallace, Minnesota Department of Natural Resources

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APPENDIX A: LEGISLATION

PUBLIC LAW 100-696 – NOV. 18, 1988

TITLE VII – MISSISSIPPI NATIONAL RIVER AND RECREATION AREA

Subtitle A – Mississippi National River and Recreation Area

FINDINGS AND PURPOSES

Sec. 701. (a) FINDINGS. – The Congress finds that:

(1) The Mississippi River Corridor within the Saint Paul-Minneapolis Metropolitan Area represents a nationally significant historical, recreational, scenic, cultural, natural, economic, and scientific resource.

Minnesota
Water
Historic
preservation
16 USC
460zz

(2) There is a national interest in the preservation, protection and enhancement of these resources for the benefit of the people of the United States.

(3) State and local planning efforts along the River Corridor provide a unique foundation for coordinating Federal, State, and local planning and management processes.

(4) Existing Federal agency programs lack sufficient coordination and financial participation with State and local planning and regulatory authorities to provide for adequate and comprehensive resource management and economic development consistent with the protection of the Mississippi River Corridor's nationally significant resources, and the public use and enjoyment of the area.

(5) The preservation, enhancement, enjoyment, and utilization of the nationally significant resources of the Mississippi River Corridor can be accomplished by a cooperative Federal, State, and local comprehensive planning and management effort.

(b) PURPOSES. – The purpose of this subtitle are:

(1) To protect, preserve and enhance the significant values of the waters and land of the Mississippi River Corridor within the Saint Paul-Minneapolis Metropolitan Area.

(2) To encourage adequate coordination of all governmental programs affecting the land and water resources of the Mississippi River Corridor.
(3) To provide a management framework to assist the Sate of Minnesota and its units of local government in the development and implementation of integrated resource management programs for the Mississippi River Corridor in order to assure orderly public and private development in the area consistent with findings of this subtitle.

ESTABLISHEMENT OF NATIONAL RIVER AND RECREATION AREA

16 USC 460zz-1.

Sec. 702. (a) ESTABLISHMENT. – There is hereby established the Mississippi National River and Recreation Area (hereinafter in this title referred to as the "Area") which shall consist of the State designated Mississippi Critical Area encompassing that portion of the Mississippi River and adjacent lands generally within the Saint Paul-Minneapolis Metropolitan Area, as depicted on the map entitled Mississippi National River and Recreation Area numbered MI-NRA/80,000 and dated April 1987. The map shall be on file and available for public inspection in the offices of the Metropolitan Council of the Twin Cities Area in Saint Paul, Minnesota.

Public information. District of Columbia

Federal Register, publication

(b) BOUNDARIES – The Secretary of the Interior (hereinafter referred to as the "Secretary") shall publish in the Federal Register, as soon as practicable after the enactment of this title a detailed description and map of the boundaries established under subsection (a).

MISSISSIPPI RIVER COORDINATING COMMISSION

16 USC 460zz-2.

Sec. 703. (a) ESTABLISHMENT. – There is hereby established a Mississippi River coordinating Commission whose purpose shall be to assist Federal, State, and local authorities in the development and implementation of an integrated resource management plan for those lands and waters as specified in section 702. The Commission shall consist of the following 22 members appointed by the Secretary of the Interior:

(1) The Director of the National Park Service, or his designee.
(2) The chief of the Corps of Engineers, or his designee.
(3) The Director of the Fish and Wildlife Service, or his designee.
(4) Three individuals, from recommendations by the Governor of Minnesota, to represent the Minnesota Department of Natural Resources, Department of Transportation, and Minnesota Environmental Quality Board.
(5) One individual, to represent the Minnesota Historical Society.
One individual, to represent the metropolitan Council of the Twin Cities Area.
(7) Four elected officials, to represent the cities of Saint Paul and Minneapolis.
(8) Four elected officials, from recommendations by the Governor of Minnesota, to represent the interests of the other affected municipalities and counties.
(9) One individual, to represent the Metropolitan parks and Open Spaces Commission.
(10) One individual, from recommendations by the Governor of Minnesota, to represent the interests of commercial navigation.
(11) Four individuals, from recommendations by the Governor of Minnesota, to be chosen from the general public.

(b) TERMS.—(1) Except as provided in paragraphs (2) and (3), members (other than ex officio members) shall be appointed from terms of three years.
(2) Of the members first appointed—
(A) Under paragraph (4) of subsection (a):
(i) One shall be appointed for a term of one year.
(ii) One shall be appointed for a term of two years.
(B) Under paragraphs (7) and (8) of subsection (a), one shall be appointed for a term of one year.
(C) Under paragraph (11) of subsection (a):
(i) One shall be appointed for a term of one year.
(ii) One shall be appointed for a term of two years.
(iii) One shall be appointed for a term of four years.
(3) Any member appointed to fill a vacancy occurring before the expiration of the term for which his predecessor was appointed shall be appointed only for the remainder of such term. A member

may serve after the expiration of his term until his successor has taken office.

(c) COMPENSATION. — Members of the Commission shall serve without pay. While away from their homes or regular places of business in the performance of services for the Commission, members of the Commission shall be allowed travel expenses, including per diem in lieu of subsistence, in the same manner as persons employed intermittently in Government service are allowed expenses under section 5703 of title 5 of the United States Code.

(d) CHAIRPERSON. —The Chairperson of the Commission shall be appointed by the Secretary from among the members of the Commission nominated by the Governor of Minnesota to serve for a term of three years.

(e) QUORUM. — Twelve members of the Commission shall constitute a quorum.

(f) MEETINGS. — The Commission shall meet at the call of the Chairman or a majority of its members.

(g) DEVELOPMENT OF POLICIES AND PROGRAMS. — As a coordinator and advisory organization, the Commission shall assist the Secretary, the State of Minnesota and local units of government, endeavoring to use exiting Federal, State, regional, and local plans and programs where consistent with the intent and goals of this subtitle, in developing the following:

(1) Policies and programs for the preservation and enhancement of the environmental values of the Area.

(2) Policies and programs for enhanced public outdoor recreation opportunities in the Area.

(3) Policies and programs for the conservation and protection.

(4) Policies and programs for the commercial utilization of the Area and its related natural resources, consistent with the protection of the values for which the Area is established as the Mississippi National River and Recreation Area.

(h) STAFF. — The Secretary shall provide the Commission with such staff and technical assistance as the Secretary , after consultation with the Commission, considers appropriate to enable the Commission to carry out its duties. Upon request of the Secretary, any Federal agency may provide information, personnel, property, and services on a reimbursable basis, to the Commission to assist in carrying out its duties under this subtitle. The Secretary may accept the services of personnel detailed from the State of Minnesota or any political subdivision of the State and may reimburse the State or such political subdivision for such services.

The Commission may procure temporary and intermittent services under section 3109 (b) of title 5 of the United States Code.

(i) PLAN. — Within 3 years after enactment of this Act, the Commission shall submit to the Secretary and the Governor of Minnesota a comprehensive plan for land and water use measures for the area to be developed and implemented by the responsible Federal agencies, the State of Minnesota, and local political subdivisions. The plan shall endeavor to use exiting Federal, State, regional, and local plans and where consistent with the intent and goals of this subtitle shall coordinated those plans to present a unified comprehensive plan for the Area. The plan shall include but not be limited to each of the following:

(1) A program for management of existing and future land and water use which —

(A) considers and details the application of a variety of land and water protection and management techniques;

(B) includes a policy statement for the use of Federal, State, and local regulatory responsibilities to manage land and water resources in a manner consistent with the purposes of this subtitle; and

(C) recognizes existing economic activities within the area and provides for the management of such activities, including barge transportation and fleeting and those indigenous industries and commercial and residential developments which are consistent with the findings and purposes of this subtitle.

(2) A program providing for coordinated implementation and administration of the plan with proposed assignment of responsibilities to the appropriate governmental unit at the Federal, State, regional and local levels, including each of the following:

(A) Ways in which local, regional, State, and Federal policies and permits may better be coordinated to the goals and policies of this subtitle.

(B) A financial plan to provide and support the public improvements and services recommended in the plan; and a mechanism for coordinating local, regional, State, and Federal planning to promote the purposes of this subtitle.

(C) How the goals and policies of the management plan will be compatible with the existing channel maintenance program on the Mississippi River, and the existing Federal, State, regional, and local programs and goals on the Minnesota and Saint Croix Rivers.

(D) The provisions of the Clean Water Act and the Safe Drinking Water Act (title XIV of the Public Health Service Act) which pertain to the surface waters of the Mississippi National River and Recreation Area.

(3) A coordination and consistency component which details the ways in which locals, State, and Federal programs and policies may best be coordinated to promote the purposes of this subtitle.

(4) A program for the coordination and consolidation, to the extent feasible, of permits that may be required by Federal, State, and local agencies having jurisdiction over land and waters within the Area.

(j) DEVELOPMENT OF PLAN. —

(1) In developing the plan the Commission shall consult on the regular basis with appropriate officials of any local government of Federal or State agency which has jurisdiction over lands and waters within the Area.

(2) In developing the plan the Commission shall consule with interested conservation, business, professional and citizen organizations.

(3) In developing the plan the Commission shall conduct public hearings within the Area, and at such other places as may be appropriate, for the purposes of providing interested persons with the opportunity to testify with respect to matters to be addressed by the plan.

(k) APPROVAL OF PLAN. — The Commission shall submit the plan to the Secretary and the Governor of Minnesota, for review. The Governor shall act on the plan within 90 days. In reviewing the plan the Secretary shall consider each of the following:

(1) The adequacy of public participation.

(2) Assurances of plan implementation from State and local officials.

(3) The adequacy of regulatory and financial tools that are in place to implement the plan.

(4) Plan provisions for continuing oversight of the plan implementation by the Secretary and the Governor of Minnesota.

If the Secretary disapproves the plan, he shall, within 60 days after the date of such disapproval advise the Governor and Commission in writing of the reasons therefore, together with his recommendations for revision. The Commission shall within 90 days of receipt of such notice of disapproval revise and resubmit the plan to the Governor for his review. Following his review, the Governor shall submit the revised plan, together with any

recommendations he may have, to the Secretary who shall approve or disapprove the revision within 60 days.
(l) INTERIM PROGRAM. — Prior to the adoption of the Commission's plan, the Secretary and the Commission shall monitor all land and water use activities within the Area to ensure that said activities are in keeping with the purposes of this subtitle, and shall advise and cooperate with the appropriate Federal, State, and local governmental entities to minimize adverse impacts on the values for which the Area is established.
(m) COMMISSION REVIEW. — The Commission shall assist the Secretary and the Governor of Minnesota in reviewing and monitoring the implementation of the plan by Federal, State, and local governmental agencies having jurisdiction in the Area. The Commission may, after providing, for public comment and subject tot he review and approval, as set forth in subsection (k), modify said plan, if the Commission determines that such modifications is necessary to further the purposes of this subtitle.
(n) TERMINATION OF COMMISSION. — The Commission shall terminate on the date 10 years after the enactment of this subtitle. Following termination of the Commission the State is authorized to establish a State Commission which shall exercise the functions and authorities described in subsection (m). The Secretary of the Interior and the Secretary of the Army are authorized and directed to participate as members of such State Commission.

FEDERAL LANDS AND DEVELOPMENTS

16 USC 460zz-3.

Sec. 704. (a) LANDS.— Notwithstanding any other provision of law, any Federal property located within the boundaries of the Area as identified on the map referred to in section 702, is hereby transferred without consideration to the administrative jurisdiction of the Secretary for use by him in implementing the purposes of this subtitle, except as follows:

(1) Facilities and lands administered by the Secretary o ft he Army through the Corps of Engineers for navigational and flood control purposes may continue to be used by the Secretary of the Army subject to the provisions of subsection(b).

(2) Federal property on where there is located any building or other structure which is in use (as of the enactment of this subtitle) or for which a lease is in effect shall not be transferred under this subsection without the concurrence of the administering agency.

(b) FEDERAL AGENCY ACTIVITIES. —

(1) IN GENERAL. — Before any department, agency, or instrumentality of the United States issues or approves any license or permit for any facility or undertaking with in the Area and before any such department, agency, or instrumentality commences any undertaking or provides any Federal assistance to the State or any local governmental jurisdiction for any undertaking within the Area, the department, agency, or instrumentality shall notify the Secretary. The Secretary shall review the proposed facility or undertaking to assess its compatibility with the plan approved under section 703. The Secretary shall make a determination with respect to the compatibility or incompatibility of a proposed faculty or undertaking with in 60 days of receiving notice under this subsection. If the Secretary determines that the proposed facility or undertaking is incompatible with the plan, he shall immediately notify such Federal department, agency, or instrumentality and request such department, agency, or instrumentality to take the actions necessary to conform the proposed facility or undertaking to the plan. The Federal department, agency, or instrumentality shall, within 60 days after receiving the Secretary's request, notify the Secretary of the specific decisions made in response to the request. To the extent that such department, agency, or instrumentality does not then conform such facility or undertaking to the request of the Secretary, the Secretary is directed to notify the Congress in writing of the incompatibility of such facility or undertaking with the plan approved under section 703.

(2) NAVIGATION. —

(A) Nothing in this subtitle shall be deemed to impact or otherwise affect such existing statutory authority as may be vested in the Secretary of the Department in which the Coast Guard is operating or the Secretary of the Army for the maintenance of navigation aids and navigation improvements: Provided, That in exercising such authority the Secretary of the Army, through the Corps of Engineers and the Secretary of the Department in which the Coast Guard is operating, shall not take any action that would have a direct and adverse effect on the values for which the Area is established unless such action is essential for the protection of public health or safety or is necessary for nation al security or defense.

(B) In planning for the development and public use of the Area, the Secretary shall consult with the Secretary of the Army to assure that public use of adjacent or related water resource developments or flood control projects and that of the Area are compatible.

ADMINISTRATION

Sec. 705. (a) AUTHORITIES. — The Secretary shall administer the Area in accordance with this subtitle. Only those lands within the Area under the direct jurisdiction of the Secretary shall be administered in accordance with the provisions of law generally applicable to units of the National Park System. Our lands and waters within the Area shall be administered under State and local laws. In the case of any conflict between the provisions of this subtitle and such generally applicable provisions of law, the provisions of this subtitle shall govern. 16 USC 460zz-4.

(b) STATE AND LOCAL AUTHORITIES.-The Secretary shall consult and cooperate with the State of Minnesota and its political subdivisions concerning the development and management of Federal lands within the Area.

(c) LAND ACQUISITION.-Within the boundaries of the Area, the Secretary is authorized, in consultation with the State of Minnesota and the affected local governmental unit, to acquire land and interests therein by donation, purchase with donated or appropriated funds, exchange or transfer, except as provided in paragraphs (1) and (2).

Gifts and property.

(1) Any lands or interests therein owned by the State of Minnesota or any political subdivision thereof may be acquired only by donation.

(2)Privately owned lands or interests therein may be acquired only with the consent of the owner thereof unless the Secretary makes a determination pursuant to subsection (dX2). In no event may the Secretary use the authority provided in the subsection (dX3) to acquire land or interests in land without the owner's consent for nay use exercised prior to January 1, 1987, that is consistent with the plan under section 703.

(d) REVIEW OF LOCAL PLANS. —

Contracts. State and local governments.

(1) AUTHORITY. — For the purpose of protecting the integrity of the Area the Secretary shall cooperate and consult with the State and the appropriate political subdivisions to review all

relevant local plans, laws and ordinances to determine whether they substantially conform to the plan approved pursuant to section 7088. Additionally the Secretary shall in consultation with the State and its political subdivisions determine the adequacy of enforcement of such plans, laws, and ordinances, including the review of building permits and zoning variances granted by local governments, and amendments to local laws and ordinances. The Secretary shall enter into agreements with the State or its political subdivision to provide, on behalf of the Secretary, professional services necessary for the review of such local plans, laws and ordinances, and of amendments thereto and variances therefrom, and for the monitoring or the enforcement thereof by the local governments having jurisdiction over any areas to which the management plan applies.
(2) PURPOSE. — The purpose of review under paragraph (1) shall be to determine the degree to which actions by local governments are compatible with the purposes of this title. Following the approval of the plan under section 703 and after a reasonable period of time has elapsed, upon a finding by the Secretary that such plans, laws and ordinances are nonexistent, are otherwise not in conformance with the plan or are not being enforced in a manner consistent with the plan, and if the Secretary determines that there is no feasible alternative available to prevent uses which would be substantially incompatible with the plan, the Secretary may exercise the authority available to him under the provisions of paragraph (3).
(3) ENFORCEMENT. — In those section of the Area where local plans, laws and ordinances, or amendments thereto or variances therefrom are found by the Secretary not to be in conformance with the plan approved pursuant to section 703, or are not being enforced in a manner consistent with the plan, the Secretary shall notify the local government authority concerned. The Secretary may withhold from the local government authority concerned or, require reimbursement of, (A) Federal funds made available for implementation of the plan, or (B) any grant under section 706(a) if the local plan, law, ordinance, amendment, or variance is not modified to conform with the plan and enforced in such manner as will carry out the purposes of this subtitle. If that State has not initiated, within a 60-day period, such judicial or other action as necessary to ensure conformity with the plan and if noncompliance with the plan or failure to enforce the plan continues after the end of such 60-day period, the Secretary may

acquire, subject to appropriations, land or interests in land under this subsection without the consent of the owner thereof. Land and interests in land acquired pursuant to this subsection shall be restricted to the geographical area of the local government unit failing to conform with the plan and shall be limited to those lands clearly and directly required, in the judgment of the Secretary, for the protection of the Area in a manner compatible with the plan.

(e) RETENTION BY OWNER OF USE AND OCCUPANCY. — The Secretary may permit the owner or owners of any improved residential property acquired by the Secretary under this subtitle to retain a right of use and occupancy of the property for noncommercial residential uses not incompatible with the plan approved under section 703. The provisions of subsection (c), (d), and (e) of section 102 of the Act of August 15, 1978 (16 U.S.C. 460ii-I) shall apply to the retention of such rights, except that for purposes of this subtitle, the applicable date shall be January 1, 1987 in lieu of January 1, 1975 and the purposes of this subtitle shall be substituted for the purposes referred to the section 102(d) of such Act.

STATE AND LOCAL ASSISTANCE AND JURISDICTION

Sec. 706. (a) GRANTS. — Upon approval of the plan under section 703, the Secretary is authorized to make grants to the State of Minnesota, or its political subdivisions, to cover not more than 50 percent of the cost of acquisition and development within the Area of lands and waters or interests therein in a manner consistent with the purposes of this subtitle.

16 USC 460zz-5.

(b) COOPERATIVE AGREEMENTS. — The Secretary is authorized to enter into cooperative agreements with the State of Minnesota or any political subdivision thereof pursuant to which he many assist in the planning for and interpretation of non-Federal publicly owned lands within the Area.

(c) TECHNICAL ASSISTANCE. — To enable the State of Minnesota and its political subdivisions to develop and implement programs compatible with the paln, the Secretary shall provide such technical assistance to the State and its political subdivisions as he deems appropriate.

(d) STATE AND LOCAL JURISDICTION. — Nothing in this subtitle shall diminish, enlarge, or modify any right of the state of Minnesota or any political subdivision thereof, to exercise civil and criminal jurisdiction or to carry out State fish and wildlife laws, rules, and regulations within the Area, or to tax persons, corporations, franchises, or private property on the lands and waters included in the Area.

AUTHORIZATION OF APPROPRIATIONS

Sec. 707. There is authorized to be appropriated such sums as may be necessary to carry out this subtitle.

16 USC 460zz-6.

Subtitle B-Tri-Rivers Management

TRI-RIVERS MANAGEMENT BOARD

Sec. 711. (a) FEDERAL REPRESENTATIVES. — In furtherance of the integrated management of those portions of the Mississippi, Saint Croix, and Minnesota Rivers within the Saint Paul-Minneapolis Metropolitan Area, the Secretary of the Interior and the Secretary of the Army are authorized and directed to appoint representatives to a Tri-Rivers Management Board (hereinafter referred to as the "Board"), or any similar organization, which may be established by the State of Minnesota to assist in the development and implementation of consistent and coordinated land use planning and management policy for such portions of the rivers.

16 USC 460zz-11.

(b) PERSONNEL. — Upon request of the Board, the Secretary of the Interior and the Secretary of the Army may detail, on a reimbursable basis, any personnel to the Board.

(c) AUTHORIZATION OF APPROPRIATIONS. — There is hereby authorized to carry out the purposes of this subtitle the sum of $100,000 annually; except that the Federal contribution to the Board shall not exceed one-third of the annual operating costs of the Board.

APPENDIX B: GEOGRAPHIC INFORMATION SYSTEM

Geographic information systems are used to store, retrieve, display, and manipulate spatial resource information. In these computer systems, resource information is organized by resource type into map layers. A typical GIS database might include map layers of roads, slopes, land use, and political boundaries. Geographic information systems can be used to rapidly and efficiently overlay different types of resource information (map layers) to identify and measure areas with certain resource conditions.

A GIS database of resource information was created to aid in Mississippi National River and Recreation Area planning and to serve as a monitoring tool following completion of the plan. Information was gathered from a variety of sources, including regional, state, and national agencies, and existing maps and documents. The Metropolitan Council, Minnesota Department of Transportation, Minnesota Department of Natural Resources, and State Historic Preservation Office contributed information for entire map layers. Many other individuals volunteered their time and expertise to contribute more specific information to the database. Some of the ways the geographic information system was used in planning are described below.

Areas along the river with significant interpretive potential were identified by looking for clusters of interesting resources with good access. Cultural resources were superimposed with special plant communities, threatened and endangered species, parks, trails, roads, and river access sites.

Potential open space opportunities were identified. First, map layers of land cover, parks, and the MNRRA boundary were overlaid. Large areas of forested or shrubby lands within the boundary that are not currently parks or proposed for parks were located. The system was then used to determine the municipality where these lands lie. Potential park acquisition opportunities were then refined with input from affected municipalities.

The geographic information system was also used to study the structure or "framework" of the river corridor. Barriers to river

access such as major roads, railroads, steep slopes, and industrial areas were identified. The visual character of the river was revealed by studying the concentrations of barge terminals and fleeting areas, marinas, cultural resources, and riverside terrain and vegetation. Connections across the river (indicated by bridges and mirrored land uses) and along the river (indicated by trails, parkland, and minor riverside roads) were identified. Areas within the boundary that might be expected to convert to urban uses were identified. Proposed (zoned) land use was superimposed over existing land use. The system was also used to compare the overall existing land use composition of the Mississippi National River and Recreation Area with proposed (zoned) land use.

Possible effects of policies or actions on resources were identified. Interpretive facility placement and park acquisition opportunities were considered with respect to potential natural (floodplain, wetland, steep slope, threatened and endangered species), cultural, and economic resource impacts so that measures to avoid or mitigate adverse impacts could be taken. Consideration of land use regulations (such as the prohibition against developing the river bluff face) included using the geographic information system to locate and measure the lands they would affect.

THE MISSISSIPPI NATIONAL RIVER AND RECREATION AREA GEOGRAPHIC INFORMATION SYSTEM DATABASE

General Resource Information

Mississippi National River and Recreation Area boundary
Source: Federal Register legal description, mapped by the National
Park Service Midwest Regional Office Cartographic Branch

County boundaries
Source: U. S. Geological Survey Maps (1:24,000 scale)

Municipal boundaries
Source: Minnesota Department of Transportation (1:24,000 scale, 1990 data)

Roads
Source: U. S. Geological Survey (1:100,000 scale, 1985 data)

Hydrology
Source: U. S. Geological Survey (1:100,000 scale, 1985 data)

Railroads
Source: U. S. Geological Survey (1:100,000 scale, 1985 data)

Elevation (topography)
Source: processed satellite imagery (1:24,000 scale, 1989 data)

Slope
Source: derived from elevation data

Aspect
Source: derived from elevation data

Parks and Recreation

Parks and open space
Sources: regional and local maps, documents (date and original scale vary)

Trails
Sources: regional and local maps, documents (date and original scale vary)

River access (marinas, launch ramps, designated carry-in sites)
sources: Cumulative Impacts Analysis of Proposed Recreational Marina Expansions, Metro Area Rivers Guide (1990), Public Boat Launch Guide (1991), Department of Natural Resources
Great River Road

Source: Minnesota Department of Transportation map (no date, scale varies)

Land Use

Municipal zoning
Sources: municipal zoning plans (date and original scale vary)

Critical area districts (approximate)
Source: Minnesota Executive Order No. 79-19 (Critical Area Legislation)

Land cover
Source: processed satellite imagery (date: 1988)

Land use
Source: Metropolitan Council (1:9600 scale, 1990 data)

Utilities
Source: Metropolitan Council synthesis of a variety of sources (date: 1991)

Cultural Resources

Cultural resources
Source: Minnesota State Historic Preservation Office (1:24,000 scale, 1991 data)

Natural Resources

Threatened and endangered species
Source: Minnesota Dept. Natural Resources, National Heritage Program (date: 1991)

Special plant communities
Source: Minnesota Dept. Natural Resources, National Heritage Program (date: 1991)

100-yr. floodplain
Source: FEMA Federal Insurance Rate maps (date and original scale vary)

Wetlands
Source: U. S. Fish and Wildlife Service National Wetland Inventory (1:24,000 scale, 1991-1992 data)

Barge-Related Facilities

Nine-foot navigable channel
Source: U.S. Army Corps of Engineers navigation charts (1:36,000 scale, 1989 data)

Barge terminal and service areas

Source: Minnesota's River Terminals, Minnesota Dept. of Transportation, Ports and Waterways Section, (date: 1991)

Barge fleeting areas
Source: Barge Fleeting Study, Metropolitan Council (1981); St. Paul Port Authority (1990), individual industry representatives (1991)

APPENDIX C: SAMPLE DESIGN GUIDELINES

INTRODUCTION

A set of sample design guidelines are contained in this appendix. There is some repetition in this appendix with the policies in the plan. Guidelines below that are also found in the body of this document are considered part of the plan for compliance purposes. Other more detailed guidelines are included for illustrative purposes only to provide examples of how the policies could be applied to achieve the visions and concepts in the plan. The National Park Service, Metropolitan Council, and Department of Natural Resources will work with communities in the corridor to improve the guidelines and apply them to local conditions. The Department of Natural Resources and the National Park Service will also provide technical assistance to communities wishing to apply these on a site-specific basis.

The comprehensive management plan for the Mississippi National River and Recreation Area affirms that many of the resources of the Mississippi River corridor are nationally significant. Many aspects of the river are important, but a priority has been placed on preservation of visual character. Archeological resources, historic structures and sites, and key natural resources (the bluffs, shoreline, floodplain, vegetation, wetlands, and the water), and the views to and from the river provide this character.

Although the majority of the corridor is developed, much of the land near the river appears natural. Many Twin Cities area residents feel that this natural appearance contributes to the quality of their lives. For this reason, development should fit into this open appearance and respect the resources around it. Downtown areas should continue to reflect their urban character with more "hard" treatments of plazas, promenades, steps to the river, etc. The goal is to provide continuous landscaped open space in the city center while respecting both the new and historic urban context.

The following sample design guidelines are intended to protect resources while allowing sensitive, carefully planned, and coordinated development. The guidelines are intended to be

flexible and provide options for achieving the goal. The guidelines are based on work done previously by the various cities in the corridor for the critical area program, augmented by updated policies from the MNRRA plan. The guidelines below generally concentrate on the riverfront area, the bluff preservation area, historic areas, and sensitive natural areas. However, many of the guidelines cover the entire corridor. These guidelines are applicable to typical development projects in the area. It is probable that there will be special circumstances where these guidelines do not apply. They are intended primarily for new development, substantial expansion, or major redevelopment activities. Safety will be a primary concern in applying these guidelines and will take precedence over aesthetic objectives where there is a direct conflict. In most cases, however, safety and aesthetic objectives could both be met in new development projects.

This document recognizes that special application of these guidelines will be needed for transportation and levee improvements, and some of these guidelines will not apply. As long as the basic visions and concepts of the plan are achieved, the guidelines could be modified as necessary to accommodate the needs of these special kinds of development.

When working on projects involving cultural resources these guidelines should be used in conjunction with the Secretary of the Interior's Standards for Archeology and Historic Preservation.

RESOURCES

General Concepts

- More uniform approaches to protecting bluffs, shorelines, wetlands, historic buildings, and other sensitive areas in the corridor should be used.
- The architectural statements in downtown areas should be enhanced through landscaping and shoreline improvements to improve the visual appeal of the downtown from riverfront areas.
- The bluffs, slopes, shoreline, vegetation, and other natural features should be maintained in a natural state.

- Development should be designed and located to fit its context, whether downtown, in a natural area, or in an historic area.
- Attractive developments should be ensured and the historic building scale should be maintained in historic districts.
- New development should avoid degradation or demolition of significant cultural resources.
- In historic areas development should be designed to fit the historic context, the street pattern, the streetscape, and the fabric created by the historic buildings. The historic landscape should be respected, while also providing a vegetated shoreline along the river (see Architectural Guidelines).
- Development should be clustered to give the appearance of more open space and to preserve resources.
- In natural or open areas development should be designed to be unobtrusive through building placement, material colors, vegetative screening, height, scale, and mass.
- Native plant materials, including trees, shrubs, and ground cover, should be used for erosion control. If rip-rap is used, it should not be mortared and should be planted using native plant materials. Use of structural methods is justified only when there is a major threat to property and all nonstructural methods have been exhausted.
- Adequate erosion control, vegetation retention, and materials that blend into the surroundings should be incorporated in designs for stairs and ramps to the river

Shoreline Area

New development could fit near the shoreline if properly located, designed, and screened while maintaining a relatively natural appearance along the shoreline. Providing at least a minimum narrow vegetative strip along the shoreline will aid in slope stabilization, help improve water quality, and maintain the natural appearance of the river. In downtowns and historic districts, the landscape and human environment will also be improved with the addition of vegetation and the preservation of the natural areas still in existence.

- New or substantially redesigned developments (outside downtown areas) should appear unobtrusive from the river

- The natural appearance of the shoreline should be preserved where it exists and restored by providing vegetative screening.
- Where a more natural appearance is desired, development should be unobtrusive as seen from the water and the opposite shore except in the downtowns and in some historic districts.
- New development should be designed to maintain views of the river.
- A 40-foot vegetated strip should be maintained along the shoreline. Native vegetation should be preserved for a natural appearance and for erosion control. If natural vegetation has been disturbed, revegetate using plant materials native to the river valley. In historic areas, downtowns, transportation corridors, and areas behind the levees, the design treatment might be different, but the intent of providing substantial vegetated screening should be met.
- Structures should be placed behind the 100-foot setback line (50 feet in downtown areas). In natural areas, 40 to 100 feet from the shoreline should remain relatively undisturbed. If disturbed, landscape treatments should use native plant materials. Minimize bluegrass, and retain mature trees. Small view windows to the river might be left open, or selectively pruned.
- Access to the river should not be reduced by new development. Where there is the possibility of trail connections along the river, to other trails, or to linear open space, trail connections should be provided.

Vegetation

Vegetation provides shade, bank stabilization, erosion control, wildlife habitat, aquifer recharge, and water filtration. It also minimizes the visual impact of development, frames views, and provides pleasure. Vegetation should be maintained and enhanced to provide a natural appearance, passageways for wildlife movement, and natural screening for development. These guidelines recognize the need for flexibility to remove trees with infectious diseases or to remove hazardous trees that pose a threat to public safety.

- Removal of healthy, non-hazardous vegetation is discouraged, particularly along the shoreline, bluff face, in wetlands, and on floodplains. Clear cutting is not appropriate in the corridor. Plant materials native to the river valley should be used in replanting.
- Cutting of trees of over 4-inch caliper is strongly discouraged.
- Vegetation removal is only appropriate in the area of the building envelope, driveways, and accessory parking areas and only if the cutting maintains a continuous natural cover.
- Grading should preserve the root aeration zone and stability of existing trees. It should provide an adequate watering area equal to at least 50% of the crown area. Fencing should be used to ensure this where necessary.
- Vegetation could be selectively pruned to improve views of the river and to open key scenic vistas, but the pruning should not alter the character or massing of the vegetation.
- For a natural appearance, pollution control and conservation of water, large areas of bluegrass should be avoided.

Bluffs

One of the most significant elements of the scenic beauty of the corridor is the line of bluffs above the river. Whether vegetated or a exposed limestone, the bluffs are an important visual resource that set the Twin Cities off from many other areas. Development could take advantage of the bluff location while respecting the character of the bluff. The natural appearance of the bluffs should be maintained while allowing sensitive development on the top of bluffs.

Development should be on the top of the bluff, preserving the bluff face and a narrow area behind the bluff line. Disturbance of the bluff face by grading, road building, construction, or tree cutting is not appropriate. Tracts of undisturbed land are vital to the health of the bluffs. To protect these lands, clustered development is often preferable to large-lot zoning.

- The line that marks the top of the 18% or greater slope (bluff line) should not be altered by adding fill, nor excavated so that the bluff line moves closer to the river.

- An area 40 feet back from the bluff line should remain undisturbed, retaining present vegetation and revegetating using native plant materials.
- All buildings should be placed behind the 40-foot line, with structures over 30 feet set back an additional 60 feet.
- Only minimal disturbances, such as landscaping, play areas, or patios are appropriate within 40 feet of the bluff line. If vegetation is present, it should be maintained. Road construction is not appropriate except for bridge approaches.

SITE DEVELOPMENT DETAILS

Note that these site development guidelines are meant primarily for site work in typical development projects within the corridor, such as a housing subdivision or commercial development project. They are not generally intended for transportation improvement projects, although many could be applied to such projects.

- Developments should be attractive and relate to the context, particularly in historic and natural areas. Development should work with site characteristics and should be located to minimize visual and natural impacts.
- Structures should be sited to blend with the land; site alteration and vegetation removal should be minimized.
- Larger developments should be clustered to take advantage of site amenities and to protect resources.
- Development not to be seen should be screened from the river.
- Projects should avoid degradation or demolition of significant cultural resources.
- New development should continue the vegetated appearance of the corridor as viewed from the river and shoreline areas.
- Development should be located away from slopes, ravines, ridgelines, wetlands, streams, and high points.

Preservation Areas

The following are areas of minimal disturbance:

- the area between the 40-foot shoreline preservation area and the setback line (50 feet total in downtown areas and 100 feet elsewhere)
- ravines
- floodplains
- wooded areas outside of the building footprint, driveways, and parking areas
- The following are areas of no disturbance:
- wetlands
- slopes over 12%
- bluff faces
- the area 40 feet back from the river
- the area 40 feet back from the bluff line

Parking

- Non-accessory parking is discouraged in the area 300 feet back from the river.
- The amount of parking provided should be limited to that necessary to serve the need.
- Parking lots should be screened from the river and from surrounding uses with natural new natural materials.
- Several small parking lots are preferable to one large one. Curvilinear parking areas are preferred to long straight lots.
- Building Setbacks
- 100 feet from the ordinary high water line (plus additional setbacks for tall buildings in the area 100-300 feet back from the shore — see architectural guidelines below). The setback in downtown areas is 50 feet
- 40 feet from the bluff line (plus additional setback of 60 feet for buildings over 30 feet — see architectural guidelines)

Accessory Parking

- 100 feet from the ordinary high water line (50 feet in downtown areas); 40 feet from bluff line
- signs 100 feet from the shoreline and bluff line. In downtown areas the setback is 50 feet.

Erosion Control

Erosion and sedimentation should be minimized by:

- Development suited to the site, soil conditions, and existing drainage patterns.
- New development should minimize runoff rates and maximize the absorption rate of storm water. Encourage the use of porous surface materials to facilitate aquifer recharge and reduce storm water runoff.
- Natural erosion control devices are preferred over structural devices such as culverts, ditches, and walls. o Adequate erosion control measures should be maintained before, during, and after construction to ensure that soil loss does not degrade adjacent water. Methods to trap sediments should be used.
- The quality of surface water runoff that leaves the site and water that infiltrates the water table should not degrade the water quality in the river or in the groundwater aquifer below the site.
- Erosion control measures and revegetation plans should make maximum use of native vegetation.
- Fill should be stabilized with plant material and normally should not exceed a 4:1 slope.
- Wetlands and other water bodies should not be used as sediment traps.
- Detention ponds should be used for temporary water storage whenever practical.
- Walls should be no higher than 5 feet in most cases and should be constructed of wood or natural stone. If walls are terraced, the space between the terraces should normally be at least 15 feet and heavily planted.
- In the design of drainage facilities, consideration should be given to aquifer recharge, particularly by use of porous materials for parking lots and drainage facilities.

ARCHITECTURAL GUIDELINES

An architectural approach that allows buildings to blend with and complement their surroundings should be used. Development should fit the context, whether natural, historic, or urban. In natural areas buildings should be unobtrusive.

- make new or substantially redesigned developments (outside downtown areas) appear unobtrusive from the river
- ensure attractive developments throughout the corridor and maintain the historic building scale
- locate and design buildings so that they do not loom over the river
- minimize the overall size of the structure and the elevation facing the river; keep development low profile near the river
- break up building mass using methods such as broken planes, varying rooflines, stepping back of upper stories, etc; minimize mass near the river
- use simple forms
- in historic areas the scale, roofline, and fenestration of the building should be similar to and compatible with surrounding buildings
- use materials that blend with the setting; avoid the use of reflective materials
- use suitable colors; subtle, subdued colors are best — bright colors are generally not appropriate near the river
- Except for downtown areas, buildings in the riverfront area (which must be set back at least 100 feet from the river) should not exceed the following heights:
- 30 feet within 200 feet of the river
- 45 feet within 300 feet of the river
- Buildings in the bluff preservation area (which must be set 40 feet back from the bluff line) should not exceed 30 feet, with an additional 60 feet of setback for buildings over 30 feet.

BRIDGES, POWERLINES, AND ROADS

- The visual impact of utility structures should be minimized in the riverfront area.
- Bridges should be designed using architectural treatments consistent with the historic character of other bridges in the corridor (e.g., the Lake Street, Ford Parkway, Hennepin Avenue, Robert Street, and High bridges)
- Except in downtown areas, construction of new roads and utilities should be avoided within 300 feet of the shoreline, within 100 feet of the bluff line, and on the bluff face.
- Roads within 300 feet of the river should incorporate design concepts used for scenic drives and parkways that provide recreational access to the river:

- design to be as narrow and as unobtrusive as possible
- minimize cut and fill and disturbance of vegetation
- design with a curvilinear alignment and to emphasize views
- locate on slopes less than 12% grade (except bridge approaches)
- Natural vegetation should be allowed to grow in utility and road rights-of-way. Where natural vegetation has been removed, it should be replaced with native vegetation. Herbicide use should be avoided.
- Where vegetation is lacking, landscapes should be designed and planted appropriately for the setting.
- Bridges should be designed with sensitive architectural treatments consistent with the traditional character of other bridges in the corridor (e.g., the Lake Street, Ford Parkway, Hennepin Avenue, Robert Street, and High bridges). For example, new or renovated bridges should reflect the traditional features of other bridges in the area if it is structurally feasible to do so. Whenever possible, historic bridges should be renovated, rather than replaced.
- Utility lines should be placed underground.

TIPS FOR HOMEOWNERS

In addition to meeting the guidelines that incorporate the concepts and policies of the MNRRA plan and DNR shoreland rules, there are local zoning ordinances with certain requirements. When there is a question or conflict between requirements or jurisdictions, the state law stipulates that the most restrictive applies. Impact on state-regulated wetlands or floodplains should be approved in advance by the Minnesota Department of Natural Resources. Other wetlands are regulated under the state Wetlands Conservation Act of 1991; landowners should consult with the Board of Water and Soil Resources for potential impact on these wetlands.

Bluffs

Constructing homes in harmony with the bluff lands protects the environment and preserves scenic beauty. By locating homes away from the bluff edge and below the treeline, views of the bluffs remain unspoiled. A strip of undisturbed forest along the bluff line minimizes potential runoff and erosion while providing wildlife habitat.

Vegetation

Retaining or restoring the natural vegetation is of benefit to landowners and the environment. Natural vegetation holds the soil and lessens the need for any other erosion control. It also attracts wildlife and provides a natural appearance from the river. Views of the river are usually improved if filtered or framed by vegetation, so only enough vegetation should be pruned to provide view windows from the house to the river. If the land is bare, native plants should be used in revegetation.

Runoff

The ability of the ground to absorb rainwater (before it runs off and causes erosion problems or carries nutrients and other materials into the river) could be increased by:

- installing gravel trenches along driveways and patios to collect water and allow it to filter into the soil
- maintaining natural plant materials along the shoreline
- minimizing bluegrass because it is relatively impervious to water and requires chemicals that run off into the river and cause pollution
- planting new native vegetation and allowing existing shrubs and trees to remain
- considering the use of porous materials for patios, decks, sidewalks, and drives; using brick, paving stones, or pavers set in a sand bed
- Architecture
- Building a structure that fits into the landscape and is not highly visible near the river is preferable to making an highly visible architectural statement. The architectural guidelines above suggest ways for homes to fit into the river setting.

Lots

Lots should be large enough and shaped to accommodate the intended structure. They should meet the setback requirements and allow the placement of the structure where it will cause the least site disturbance.

APPENDIX D: WORKGROUPS

Listed are organizations and agencies that participated in workgroups (with one or more persons participating).

In the early phases of the planning effort work groups of local experts were formed to advise the commission and National Park Service on certain matters. Focus groups were subgroups of the work groups formed to gather data.

Business and Industry

3M
American Iron and Supply
Burlington Northern Railroad
Capitol Barge Service
Cargo Carriers, Inc.
Dakota Barge Service
Ford Motor Company
J.L. Shiely Company
John Gorman, Inc.
Northern States Power
R.E.D. Marine Service
River Fleets
Riverway Company
Soo Line Railroad
Upper Mississippi Waterway Association
Upper River Services
Willie's Hidden Harbor Marina

University of Minnesota (Departments)

Architecture
Bell Museum of Natural History
Forest Resources
Landscape Architecture
Plant Biology
Recreation, Parks, and Leisure Studies
Tourism Center
Wildlife

State Government

Department of Natural Resources
Department of Trade and Economic Development
Department of Transportation
Minnesota Army/Air National Guard
Minnesota Historical Society
Minnesota House of Representatives
Pollution Control Agency

Local/County/Regional governments

Anoka County
City of Anoka
City of Brooklyn Park
City of Cottage Grove
City of Fridley
City of Hastings
City of Inver Grove Heights
City of Minneapolis
City of South St. Paul
City of St. Paul
Dakota County
Metropolitan Council
Metropolitan Waste Control Commission
Minneapolis Park and Recreation Board
Minneapolis Community Development Agency
Minnesota-Wisconsin Boundary Area Commission
Ramsey County
Suburban Hennepin Regional Park District
Washington County

Federal Government

U.S. Army Corps of Engineers
U.S. Coast Guard
U.S. Fish and Wildlife Service

Other Organizations

Center for Urban and Regional Affairs
Hastings Historic Preservation Commission

Mankato State University-Dept. of Recreation
Minnesota Indian Affairs Council
North Metro Convention and Visitors Bureau
River Environmental Action Project
Science Museum of Minnesota
St. Anthony Falls Heritage Board
St. Paul Downtown Development Council
Upper Midwest Museum of Trans.
Upper Mississippi River Basin Association

APPENDIX E: NINE-FOOT NAVIGATION CHANNEL MAINTENANCE ACTIVITIES

Congress authorized the 9-foot navigation channel project with the Rivers and Harbors Act (RHA) of 1930, which extended from the mouth of the Missouri River to Minneapolis, Minnesota. The Rivers and Harbors Act of 1937 extended the northern reach to mile 857.6. The St. Paul Harbor and small boat harbor were authorized by River and Harbors Committee Doc. 44, 64th Cong. 1st session and by House Doc. 547, 76th Cong., 3rd session, respectively. The Hastings Harbor was authorized by House Doc. 559, 79th Cong., 2nd session. A 4-foot navigation channel was authorized on the Minnesota River up to mile 25.6 by the Rivers and Harbors Act of 1892 and a 9-foot channel up to mile 14.7 with the Rivers and Harbors Act of 1958.

Channel maintenance plans designating placement sites and operating procedures have been made through coordination with the River Resources Forum, and any maintenance dredging required is coordinated with the interagency On-Site Inspection Team (OSIT). In the metropolitan area, the team includes members from the cities of St. Paul and Minneapolis as well as the usual state and federal agencies.

Dredging and dredged material placement is conducted in accordance with section 404(b)(1) guidelines of the Clean Water Act and National Environmental Policy Act. The Corps of Engineers has a general permit and memorandum of understanding (MOU) with the Minnesota Department of Natural Resources to cover all previously designated permanent and temporary placement sites. Separate permits are required for those sites not previously designated and where placement of material is below the ordinary high watermark as outlined in the memorandum. The state could also require a separate permit if they determine that placement at a site could result in significant adverse impacts. The Corps of Engineers has a 5-year state disposal system permit with the Minnesota Pollution Control Agency allowing the construction and operation of disposal facilities on the Mississippi, Minnesota, and St. Croix rivers. The permit established procedures for approval of projects and outlines coordination that must take place between agencies. Certification is

required for any placement operations in the state where either material or effluent must be discharged below the ordinary high watermark. Dredged material placement permits are received from the landowners of the placement sites used and permits are also required in accordance with the city of Minneapolis noise ordinance.

The city of Minneapolis is the local sponsor for the Upper St. Anthony Falls Pool navigation project and provides the land necessary for dredged material placement. An agreement with the city also designates placement site responsibilities in pool 1. The city of St. Paul is the local sponsor of the St. Paul small boat harbor and provides land necessary for dredged material placement. The Lower Minnesota River Watershed District is the local sponsor for the 9-foot channel on the Minnesota River and has dredged material site placement responsibilities.

Dredging is accomplished by the hydraulic dredges William A. Thompson and Dubuque and by mechanical methods including the Corps of Engineers derrick barge Hauser and Wade and similar contractor-owned dredging equipment. Most work above the St. Paul barge terminal is accomplished by mechanical methods due to placement site restrictions. The exception is that the Dubuque might be used to dredge at the turning basin at the head of navigation.

In the reach described above, there are nine permanent (P) and four temporary (T) placement sites in the following locations: USAF Pool 9 865.6RM(P); Pool 1 — 853.2LM(P), 851.3-LM(T), and 849.5RM(ST); Pool 2 — 840.4RM(P), 836.8-RM(P), 824.1-LM(P), 823.8-RM(T), 822.8-RM(P), 821.3LM(T), 820.5-LM(P); Pool 3 — 815-RM(P). There are also several sites on the Minnesota River that are within the MNRRA boundary.

Sediment contamination and effects on water quality from dredging operations are concerns due to the influence of the metropolitan area and the sediment characteristics. The sediment tends to be finer grained, which bonds more easily with contaminants. The Corps of Engineers conducts periodic sediment sampling and analysis of historic dredging locations to document the sediment quality. A 404(b)(1) evaluation is prepared for any dredging with an effluent return or when dredged material is placed below the

ordinary high water mark. The evaluations are reviewed by state and federal agencies.

APPENDIX F: NATIONAL PARK SERVICE STAFFING NEEDS

Following are table showing existing and proposed NPS staff for the Mississippi National River and Recreation Area, with a description of their primary duties. It is subject to refinement based on the results of follow-up implementing plans. This is a long-range staffing concept that will take many years to implement. Support staff for the Mississippi River Coordinating Commission are included in these positions. Other than one administrative clerk, these duties are spread among several existing and proposed staff members.

STAFFING REQUIREMENTS (INCLUDES EXISTING STAFF) SUMMARY					
MNRRA Totals	**Salary (1994 dollars) [1]**	**Benefits (est. 30%)**	**Staff Support (est. 25%) [2]**	**FTE**	**Total Staff Costs**
All Divisions	$993,983	$298,201	$248,491	33.8	$1,540,678
1. All salary figures are based on step-3 for the full performance level 2. Support includes required equipment, travel, training, and other miscellaneous items					
DIVISION OF MANAGEMENT AND ADMINISTRATION					
Position	**Grade**	**Salary (1994 dollars) [1]**	**Benefits (est. 30%)**	**Staff Support (est. 25%) [2]**	**FTE**
Existing Authorized Staff					
Superintendent	GM-13	$52,693	$15,808	$13,173	1.0
Administrative manager	GS-05/06	22,479	6,744	5,620	1.0
Administrative clerk	GS-04	18,025	5,408	4,506	1.0
Additions to Staff					
Administrative officer	GS-07/09	$30,557	$9,173	$7,644	1.0
Clerk typist (MRCC)	GS-04	9,013	2,704	2,253	0.5
Secretary	GS-06	22,479	6,744	5,620	1.0
DIVISION TOTALS		$155,246	$46,581	$38,816	5.5
1. All salary figures are based on step-3 for the full performance level. 2. Support includes required equipment, travel, training, and other miscellaneous items.					

DIVISION OF PLANNING AND RESOURCE MANAGEMENT					
Position	**Grade**	**Salary (1994 dollars) [1]**	**Benefits (est. 30%)**	**Staff Support (est. 25%) [2]**	**FTE**
Existing Authorized Staff					
Division chief, outdoor recreation planner	GS-12	$44,312	$13,294	$11,078	1.0
Resource management specialist [3]	GS-05/06	22,479	6,744	5,620	1.0
Outdoor Recreation Planner	GS-09/11	36,973	11,091	9,243	1.0
Additions to Staff					
Cultural resources specialist	GS-09	$30,577	$9,173	$7,644	1.0
Resource management specialist	GS-09	30,577	$9,173	$7,644	1.0
Outdoor recreation planner (grants)	GS-07	24,980	7,494	6,245	1.0
Resource management technician	GS-05	20,166	6,050	5,041	1.0
Planning technician	GS-05/06	22,479	6,744	5,620	1.0
DIVISION TOTALS		$247,037	$74,110	$61,758	8.0

1. All salary figures are based on step-3 for the full performance level.
2. Support includes required equipment, travel, training, and other miscellaneous items.
3. Position is classified as cartographic technician GS-07/09. The position will be reclassified and responsibilities modified accordingly.

DIVISION OF INTERPRETATION AND VISITOR SERVICES					
Position	**Grade**	**Salary (1994 dollars) [1]**	**Benefits (est. 30%)**	**Staff Support (est. 25%) [2]**	**FTE**
Existing Authorized Staff					
Division chief, park ranger	GS-12 [3]	$44,312	$13,294	$11,078	1.0
Additions to Staff					
Environmental education specialist	GS-11	$36,973	$11,091	$9,243	1.0
Heritage education specialist	GS-11	36,973	11,091	9,243	1.0
Interpretive spec. (volunteer development)	GS-09	30,577	9,173	7,644	1.0
Interpretive specialist (media)	GS-09	30,577	9,173	7,644	1.0
Interpretive specialist (native cultures)	GS-09	30,577	9,173	7,644	1.0
Interpretive spec. (neighborhood outreach)	GS-09	30,577	9,173	7,644	1.0
Interpretive spec. (special populations)	GS-09	30,577	9,173	7,644	1.0
Interpretive specialist (special events)	GS-09	30,577	9,173	7,644	1.0
Clerk typist (scheduling)	GS-05	20,166	6,050	5,041	1.0
Park interpreter	GS-05/7/9	122,308	36,692	30,576	4.0
Park interpreter (temporary guides)	GS-05	80,664	9,635	8,029	4.0
DIVISION TOTALS		$524,858	$157,457	$131,209	18.0

1. All salary figures are based on step-3 for the full performance level.
2. Support includes required equipment, travel, training, and other miscellaneous items.
3. Position will receive a one-grade increase over the existing level. Salary noted is for the higher grade level

DIVISION OF MAINTENANCE					
Position	**Grade**	**Salary (1994 dollars) [1]**	**Benefits (est. 30%)**	**Staff Support (es t. 25%) [2]**	**FTE**
Additions to Staff					
Division chief, facility manager	GS-09	30,577	9,173	7,644	1.0
Maintenance worker	WG-07	29,072	8,722	7,268	1.0
Laborer WG-03	WG-03	7,213	2,164	1,803	0.3
DIVISION TOTALS		$66,842	$20,053	$16,711	2.3
1. All salary figures are based on step-3 for the full performance level. 2. Support includes required equipment, travel, training, and other miscellaneous items.					

Interpretation, Education, and Visitor Services

Interpretive and educational activities and facilities will be designed to help secure the visions described earlier. Those visions particularly relating to interpretive activities are:

- The public is aware through coordinated interpretive programs of the status of corridor resources and their stewardship.
- The public has an understanding and appreciation of the multiple uses and purposes of the river.
- Opportunities are provided to learn about and experience corridor resources.
- The public has opportunities to learn about historic and archeological resources in the corridor through interpretive and educational programs.
- Archeological and historic preservation, enhancement, and interpretation reflect the diversity of the people who have lived in the river corridor.
- Special features are identified, developed, and promoted as tourist destinations consistent with the protection of cultural, natural, and economic resources.
- Interpretive and educational opportunities provided in the corridor reflect cultural and ethnic diversity and are physically and financially accessible to all area residents and visitors.
- The public has opportunities to learn about natural resources and values in the corridor through interpretive and educational programs.
- Opportunities are provided for observation and interpretation of the Mississippi's role in the regional and national economy.

The National Park Service will play a significant role in interpreting corridor resources and providing visitor services. The Park Service will construct one interpretive center/headquarters, cooperate with partners to develop others, assist in staffing and programming at some, conduct interpretation and education programs at several places throughout the corridor, and design and produce interpretive media. While the Park Service will have a lead role in coordinating

interpretive planning, much good work is already being done in the corridor and partnerships will play a significant role in providing and coordinating visitor services and interpretation. These actions will be designed to achieve the visitor experience goals, interpretive themes, and program objectives described below. Following are the major concepts for interpretation of corridor resources. A more detailed interpretive action plan will be prepared to implement the comprehensive plan. This will provide additional details on interpretive themes, corridor interpretive facilities, specify media and estimate their costs, and detail interpretive program needs. It will be developed in cooperation with all the key interpretive agencies and organizations in the corridor.

Visitor Experience. Experiences that will allow MNRRA visitors to best enjoy and appreciate and learn and benefit from their visit are listed below. Achieving these experiences will involve partnerships, interpretive facilities and media, and interpretive and educational activities designed for all visitors, including those with special needs. Visitors should have the opportunity to:

- understand and learn more about the ecological, cultural, economic, scenic, scientific, educational, and recreational values of the river corridor
- directly experience the river by boat, canoe, or tour boat, or from the shore
- feel safe while using corridor areas
- experience the corridor without conflict with other visitors or private landowners
- view plants and animals living on, next to, and underneath the water
- view the cultural resources in the corridor
- see activities that represent the working river
- gain important and interesting information about the corridor as described by the interpretive themes identified below
- demonstrate their caring about the river (e.g., volunteer opportunities, public involvement, friends groups, donations)
- understand how their lives affect and are affected by the river
- understand corridor management issues and identify how they can help solve problems

- find activities and experiences that meet diverse interests, skill levels, abilities, learning styles, ages, and ethnic backgrounds
- appreciate the 72-mile Twin Cities portion of the Mississippi River in context with its source in northern Minnesota, relationships to other metropolitan area rivers, and its relationship to the entire Mississippi as a regional, national, and international resource

Interpretive Themes. There is an almost endless list of stories and messages that could be conveyed about the Mississippi River. The interpretive themes listed below are the key ideas and stories that will be interpreted for corridor visitors. These themes will be further detailed in the follow-up interpretive plan referenced above.

(1) The Mississippi is one of the world's great rivers. The Mississippi is one of the longest rivers in the world. Conditions throughout the massive watershed can affect the river. It drains over half of the United States and has the second largest drainage basin in the world. It bisects the country, sustaining biological diversity throughout the continent. It is a force in American history, transports American products, and populates American mythology, arts, and literature. It is a name recognized worldwide.

(2) The stories of human life along the Mississippi River have unfolded over 12,000 years. These stories, about people who have lived along the river in villages, cities, and on farms, range from the routine to the extraordinary. The daily lives of many of these people have been intertwined directly with the river as a source of food, transportation, recreation, inspiration, and livelihood.

Human relationships with the Mississippi River, while changing over time, illustrate close interconnections among geographic, ecologic, economic, and cultural systems. The history of the cultures and individuals who have lived in association with the river is a dynamic story that helps us understand our modern relationships to these systems.

The presence of Native Americans along the Mississippi, from the retreat of the glaciers to the present, has left a legacy of

cultural traditions, spiritual beliefs, place names, and legends. From the Laurel Culture to the Hopewell Indians of the Mississippi Culture to present-day Dakota and Ojibwa, Native Americans have been a part of the unfolding history of the river. Many sites in the corridor were important to the Dakota who traveled the shores and plied the waters of the river. The confluence of the Mississippi and Minnesota Rivers, given the name Mdote (Mendota), is an important place for the Dakota.

Native Americans followed the seasons and moved throughout the river valley, tending gardens of corn, beans, and squash during the growing season, hunting, and moving deep into the woods to escape freezing winter winds. Within the MNRRA corridor boundaries, numerous Native American sites have been identified, such as the burial mounds at Mounds Park and the site of the village of Kaposia.

Early contact between Europeans and Native Americans on the Mississippi was focused around the fur trade. With the establishment of Fort Snelling and its Indian Agency in 1819, the United States began an attempt to regulate fur trade in this area and extend its influence with the Native American people. Through treaties negotiated beginning in 1837, the United States purchased Dakota and Ojibwa lands along the Mississippi.

During the 1850s a rush of settlers, largely from the east, came up the Mississippi on steamboats. River towns, including St. Anthony, Minneapolis, and St. Paul, grew rapidly into culturally diverse communities. For a time, on the same street, one could encounter old voyageurs, Dakota, Ojibwa, and Winnebago people, southern tourists with a retinue of slaves, free African Americans, Metis ox cart drivers from the Red River Valley, utopian idealists from New England, eastern capitalists, Maine lumbermen, and farmers from Germany — women, men, and children of all ages and from many parts of the world.

Following the Civil War, with expansion of railroads east and west, life in the river towns changed. Settlement expanded away from the river but maintained important connections to the river cities. Trees cut in northern Minnesota were floated down the Mississippi to sawmills in Minneapolis, mills that provided lumber to build towns across the western prairies. As the

northwest developed, people and goods flowed through the river cities; economies expanded to meet new needs for warehousing, commerce, and service.

During the 20th century, people from all over the world have chosen the region for their homes. The stories of immigration, cultural adaptation, and individual relationships to the Mississippi are many and varied and provide a rich tapestry of diversity.

(3) We must care for the Mississippi. The Mississippi needs our help and concern. It has been significantly affected by human activities. There are many good examples of river protection in the corridor. Although conditions vary greatly in different parts of the river, the biological diversity has generally decreased as human use of the river increased. Our challenge now is to demonstrate that a healthy river ecosystem can be maintained along with recreational and economic uses. Our challenge is also to encourage participation, education, and stewardship.

The river system is much larger than its apparent shorelines. Every contaminant that enters the water in the Mississippi's watershed can end up in the river. Contaminants range from household bleach and bug spray to industrial discharges and municipal sewage. What enters upstream ends up downstream. These products of human habitation, agriculture, and industry affect all forms of life in the corridor. Poor water quality also limits sustainable economic opportunities such as recreation, tourism, fishing, and waterfront revitalization.

Pollution comes from many sources throughout the watershed (farms, industry, municipal sewage, non-point sources, lawns, road runoff, air-borne particulates, etc.). Some pollutants are concentrated as they pass up the food chain; fish consumption advisories have been issued in some stretches of the river. The efforts of government, industry, and private citizens are needed to reduce the levels of pollutants in the river. Through extensive federal and state efforts with substantial industry and government outlays for pollution prevention and control, the water quality in the river has improved.
To protect and enhance the Mississippi, the issues that affect it must continually be discussed. Current issues of interest to the

public include wetland protection, water quality, trail development, public access, barge fleeting, safety, zoning, landscape and building design, waste management, power generation, and transportation systems. Increased public knowledge and sensitivity will result in better policies and decisions affecting the river.

(4) Glacial and human forces shaped the river. The geological life of the Mississippi started about 12,000 years ago in the melt water of retreating glaciers. Erosion carved the river channel through glacial sediments. The Mississippi before extensive human alteration was a different river than it is today. It was shallower, with shifting sand bars, different plants and animals, different channels, and different sediment loads, deposition, and erosion.

While geological influences (such as erosion and deposition) continue, human activities have become the primary agents of change, sculpting the modern river into a variety of ecosystems. None have had greater influence on the river than the engineering projects of the U.S. Army Corps of Engineers. The Corps of Engineers is responsible for maintaining the federally authorized 9-foot navigation channel upriver to north Minneapolis. Locks and dams created a series of pools. Humans have largely filled and developed the limited flanking backwaters and sloughs in the north, but some still exist in the southern part of the corridor.

(5) As a working river, the Mississippi's influence extends far from its shoreline. The Minneapolis/St. Paul urban area is located where it is today because of the Mississippi River. Recognizing the potential hydropower available at the Falls of St. Anthony (the only waterfall on the entire Mississippi) the growing city of St. Anthony harnessed this power to drive sawmills that ripped logs into planks and beams. Across the river, turbines driven by water ran flour mills, and Minneapolis became the flour milling capital of the world.

Today, the Mississippi River provides power, drinking water, cooling water, waste dilution and dispersal, and an economical method for transporting commodities. These benefits have affected settlement patterns, industry, and commerce far from

the riverbanks and help support agriculture, manufacturing, high-tech business, commodity transportation, recreation and tourism that make up the area's river-related economy.
The lock and dam system improved modern transportation on the river, enabling the commercial navigation industry to play a significant role in the region's economy and changing recreational patterns.

Barges are an important part of a larger transportation system (including railroads and trucks) and can frequently be seen on the river carrying goods to and from the region.

Modern river industries and commerce affect the river system in many ways. They provide jobs, afford energy-efficient and lower cost transportation, and benefit other parts of the economy (farming, mining, chemicals). Negative impacts include pollution (petroleum products, potential toxic spills), loss of habitat, and visual impacts (that can be perceived in many ways). Balancing economic, historic, and ecological concerns is a major challenge for river corridor management.

(6) The MNRRA corridor includes a variety of organisms and ecosystems; improved biological diversity is a goal. The Mississippi National River and Recreation Area ecosystems include a variety of river systems, backwaters, wetlands, bottomland forest, ponds, streams, prairie, parkland, and industrial, commercial, and residential land. All ecosystems are affected by human activities in the entire watershed, even in areas far beyond the MNRRA boundaries. Aquatic life in the river varies greatly along the corridor. Biological diversity is slowly improving in several areas because of improved sewage treatment, reduced non-point source pollution, and better disposal of toxic materials.

Several species have been extirpated from the upper Mississippi in the last 100 years, and a number are listed as threatened or endangered. Several immigrant species have moved into the corridor in the last 200 years, including zebra mussels, carp, milfoil, and purple loosestrife. These aliens are, at least for now, better adapted than many native species to the present conditions in the river, often forcing out native species that could

not adapt. The presence of the non-natives has had serious and sometimes devastating effects on river ecosystems.

Preserving and restoring biological diversity is a goal throughout the national park system. Achieving that goal at the Mississippi National River and Recreation Area will require additional research, effective management, extensive public education and involvement, and extensive interagency cooperation.

(7) All living things (including humans) in the MNRRA corridor are interdependent. All are affected by the physical environment; for the river this includes current, substrate, pollutants, nutrients, dissolved minerals and gases, pH, sediment, turbidity, debris, shoreline development, effluents and discharges, temperature, and weather. All are affected by the biological environment. For the river this includes fish, birds, arthropods, mollusks, worms, protozoa, algae, vascular plants, and mammals (including humans). The ecological health of the river depends on the interactions among all living things and the physical environment. Changes to the physical, socio-cultural, or biological environments in the river watershed can affect resident organisms, sometimes to the point of disease, overpopulation, or extirpation.

(8) The resources of the MNRRA corridor are nationally significant; the area is a unit of the national park system. The Mississippi is a significant asset of the region, the state, the country, and the world. Its values are economic, scenic, ecological, mythological, historical, scientific, recreational, and spiritual. The Mississippi National River and Recreation Area was created in part to "protect, preserve, and enhance the signifi-cant values of the waters and land . . ." The corridor enriches the lives of metropolitan residents and visitors by enhancing natural, cultural, economic, recreational, and aesthetic resources.

Although the Mississippi National River and Recreation Area is much different than the older and more familiar park areas, such as Yellowstone or Gettysburg, it still has the NPS mandate to preserve resources and provide for their enjoyment by the public. Making park experiences accessible to all populations, ages, backgrounds, and abilities is a major MNRRA vision.

Visitor Programs. Visitor program goals will include information and orientation, interpretation, coordination, environ-mental and heritage education, and other visitor activities.

Orientation — The National Park Service, in addition to other groups and agencies, will provide information and orientation to corridor resources, recreational opportunities, and visitor services. Orientation will be accomplished mostly through interpretive media (books, brochures, maps, video), print media (newspapers, magazines), and digital media (such as multimedia interactive systems, bulletin boards, and CD-ROM). Intended audiences will include area residents, national and international visitors, and national and international tourism organizations. Orientation services will be available at five interpretation centers, unattended kiosks, bulletin boards, wayside exhibits, and through outreach programs, including access to digital information. Orientation will include information about other units of the national park system.

Interpretation — The National Park Service, in partnership with other groups, agencies, and individuals, will interpret major corridor themes, concentrating especially on areas not covered by existing programs or facilities. The interpretive centers will house interpretive media such as exhibits, videotapes, and publications. Wayside exhibits and trail brochures will interpret outdoor resources and views. Interpretive programs will include guided walks, slide programs, seminars, lectures, river tours, and living history. These facilities and programs will be coordinated with other groups and agencies in the corridor as outlined below.

Coordination — The National Park Service, in partnership with other groups and agencies, will provide coordination and a forum for issues relating to visitor use and resource management of the corridor. With the variety of interpretive services, education related to the river, recreation, visitor services, tourism, research, and resource management services in the corridor, there is a need for better coordination. For interpretation and environ-mental and heritage education, coordination will be provided in a number of ways. A committee composed of groups and individuals active in interpretation and education will be one means. The Park Service will play a lead role. Additional coordination will include direct consultation with other groups and individuals, membership in appropriate organizations, and monitoring of interpretation and

education services. Appropriate coordination activities could include information distribution and networking, needs assessments, wayside planning and development, marketing and effectiveness research, media relations, planning and design, training and quality assessment, extensive use of volunteers, and fund raising.

Environmental and Heritage Education Activities — The National Park Service, in partnership with other groups, agencies, and individuals, will provide environmental and heritage education to organized groups and individuals desiring educational opportunities — concentrating especially on topics and areas not covered by existing programs or facilities. Activities will include programs for schools and scout and community groups and public seminars and workshops relating to corridor issues and stories. Activities will relate to corridor themes or resource management issues. Outreach programs will include nontraditional methods and target nontraditional audiences to increase access to MNRRA resources and experiences. In-depth and supplementary activities such as seminars and workshops could be offered on a fee basis.

National Park Service Interpretive Facilities. The Mississippi National River and Recreation Area is a 72-mile-long urban corridor; it is varied, segmented, and intertwined with contiguous communities and resources. Facilities will be dispersed along the corridor to best serve visitors and interpret resources. At the same time, the facilities will provide a central focus for the National Park Service identity in the corridor. MNRRA interpretive facilities will have four general functions:

(1) interpretation of the overall story and parts of the story that are best told indoors

(2) environmental and heritage education for organized groups such as schools and scouts with seminars or public workshops

(3) orientation to corridor resources, recreational opportunities, and visitor services

(4) visitor services, including restrooms, emergency assistance, safety services, and health and convenience items

These general functions can be broken down into the following more specific functions. The first four specific functions can best be performed by the National Park Service:

- provide focus and identity for the Mississippi National River and Recreation Area and the National Park Service
- provide interpretation of the identified themes
- orient visitors to resources and educational and recreational opportunities provided by the NPS, other federal agencies, state and local governments,
- nonprofit corporations, and other private organizations throughout the corridor and nearby areas
- provide information and orientation to other units of the national park system

The remaining specific functions listed below could be performed by the National Park Service or other partners, such as the Minnesota Historical Society, Minnesota Department of Natural Resources, St. Anthony Falls Heritage Board, Minneapolis Park and Recreation Board, Suburban Hennepin Regional Park District, St. Paul Parks and Recreation Department, or the Science Museum of Minnesota. These functions are to:

- interpret historical events where physical remains are absent or inaccessible
- provide staging areas for public and environmental education programs
- interpret complex stories
- provide indoor space for interpretive activities during inclement weather
- provide security and environmental controls for displaying original objects
- provide temporary exhibits provide audiovisual interpretation
- provide workshops, seminars, educational classes
- provide books and other educational products for sale
- tell cultural, historical, economic, geological, and aquatic ecology stories

A major interpretive facility needs "critical mass" to be successful. Interpretive facilities in an large urban area should be approached somewhat differently than in a remote area. There are many

attractions competing for people's leisure time in the Twin Cities area, such as the Science Museum of Minnesota, the Minnesota Zoo, the Minnesota Historical Society, the Childrens' Museum, the Walker Art Center, several interpretive centers, and innumerable shopping malls, parks, lakes, jogging trails, and other recreational facilities. To accomplish their functions, the two central interpretive centers for the corridor will require sufficient critical mass to attract visitors.

For purposes of this document, critical mass is defined as including the combination of experiences that make an interpretive center a good choice for a family Saturday afternoon, for an elementary school field trip, for a stop on an afternoon boating trip, as a place to bring the out-of-town visitors, the kids, or the media, or just as a place for an individual to pass time.

There is internal and external critical mass. Internal critical mass refers to the activities, media, and other attractions within a center or site. External critical mass includes attractions in the surrounding area. A center located near numerous existing attractions requires fewer attractions inside to attract an audience. Conversely, a site in an area devoid of existing attractions needs a larger profile to entice people to visit. Critical mass could be obtained by locating the interpretive center near a major museum or other attraction, creating a symbiotic relationship between the two functions. The National Park Service and the commission are working with other entities in the corridor to explore possibilities.

This plan depends on an educated and concerned public to accomplish its goals. Metropolitan residents must often understand complex issues, exercise stewardship, and pursue their visions for both the balanced preservation and sustainable use of the corridor. It is a major goal for the MNRRA centers to provide interpretation and education needed by both local and out-of-town visitors. To do this will require a more intensive and extensive combination of interpretive media and conducted activities than is usually required at NPS visitor centers in more remote areas. Many of the media and activities might be provided by partners. The specific media and activities needed in the corridor will be described in a more detailed interpretive plan.

There will be three types of facility partnerships: NPS-operated, cooperative, and associated.

The center at Harriet Island in St. Paul will be developed and operated by the National Park Service in close cooperation with the city of St. Paul. The city will provide land and adjacent site improvements. Additional partnerships with complementary programs such as science museums, zoos, or recreational or educational organizations will be actively pursued. The Park Service will encourage other similar entities (such as a museum, recreation site, or educational program) to locate nearby, establishing external critical mass. As this plan was being finalized new opportunities were developing in the St. Paul riverfront area. The interpretive facility concept in this plan will remain flexible to take advantage of new opportunities in the Harriet Island vicinity.

The cooperative centers (Minneapolis, Hastings, Fort Snelling State Park, and Coon Rapids Dam Regional Park) will be developed through partnerships. In Minneapolis the National Park Service and one or more local agencies will share responsibility and funding for the steps needed to complete the project. Each agency will continue to meet its mandate. The apportionment of center operations will be developed in follow-up planning. The National Park Service will assist the Minnesota Department of Natural Resources with planning for the proposed Fort Snelling Center and seek funding to assist the development of interpretive media. These centers could actually be linked with associated facilities programmatically.

The associated centers will be facilities such as nature centers, park visitor centers, or museums whose location, mission, and activities match MNRRA goals. The National Park Service can provide some assistance with media design and interpretive programming. In addition, a Mississippi National River and Recreation Area logo and other publicity could help to identify associated sites as part of the Mississippi River story. National Park Service interpretive programs could periodically be offered at these sites.

It is anticipated that the St. Paul and Minneapolis centers will be staffed by the Park Service and other partners year-round, while the other centers will probably only be staffed seasonally. At this time it is not anticipated that NPS interpreters will be stationed on a regular basis at the proposed Fort Snelling center, although some

interpretive programs offered at the center will include NPS personnel. The specifics of this cooperative arrangement have not been finalized and will be further detailed in the interpretive plan for MNRRA and a follow-up cooperative agreement between the National Park Service and the Department of Natural Resources.

Interpretation, Education, and Visitor Services

Partnerships. The Mississippi National River and Recreation Area is a partnership project. There are dozens of organizations, agencies, and individuals who are already providing excellent interpretation and education related to the corridor. The National Park Service will accomplish parts of each visitor experience goal through partnerships with these groups and individuals. NPS programming will be designed so that it does not significantly compete with other public, nonprofit, and private providers of interpretation in the area.

National Park Service staff will maintain an inventory of recreation, visitor services and tourism activities, organizations, and facilities in the corridor and nearby areas. The Park Service will maintain direct and active liaisons with groups, agencies, and individuals providing recreational services. It will participate as appropriate in committees, task groups, and organizations that provide coordination, information sharing, facility planning, and oversight of recreation, visitor services, and tourism services.

The National Park Service will cooperate with other agencies and organizations to provide research and resource management in the corridor. Activities such as needs assessments, priority setting, information sharing, assistance with educational programs (through intern-ships, fellowships, tutorials, mentor programs, etc.), and re-search projects could be accomplished cooperatively.

Interpretation and Education Activities. Interpretation and education programs at the interpretive centers will be planned, designed, delivered, and evaluated by the partnerships of agencies and groups involved in operating the centers, including the National Park Service. Park Service staff will be stationed or give programs at these areas and will supervise NPS interpretation, education, orientation, and visitor services operations. The National Park Service will play a significant role in providing training for interpreters (including volunteers) from other agencies.

The National Park Service will take a lead role in interpretation and education activities at the St. Paul/Harriet Island center. All interpretive themes will be interpreted to some degree at this center. However, as shown in table 1, several major themes will be emphasized at this area because nearby resources enhance the ability to tell certain stories.

These themes will be interpreted through interpretive media (such as interactive computers and models, exhibits, audiovisual programs, and publications), representations of living ecosystems (such as aquariums and wetland terrariums), and personal programs (such as interpretive talks, guided walks, seminars, and environmental and heritage education programs). Many activities will take place around the center and at nearby areas such as Lilydale Park.

Access to the river will be important for recreational, interpretive, and educational activities. The National Park Service could have a boat at the Harriet Island marina for use in environmental education programs. Cooperative interpretive programs could also be done using commercial tour boat operators.

Activities in and around the St. Paul center could include regional, national, and international visitors observing aquariums, playing food web games on a computer, and discovering that the Mississippi really is a living system. Suburban fourth graders could wade into Pickerel Lake in Lilydale Park and discover the aquatic ecology of a bottomland lake; an inner-city high school biology class could study water quality at the Minnesota River confluence on an NPS boat; bird watchers could spot endangered, threatened, and other interesting species without disturbing nesting areas near Pig's Eye; and public workshops in the St. Paul center auditorium could explore complex river issues. All will add to the knowledge and appreciation of the Mississippi River. Additional ideas for interpretive programs at the Harriet Island center are contained in appendix J.

Because the location and functions of the Minneapolis/St. Anthony Falls interpretive center have yet to be finally determined, and several feasibility issues remain, an interim site will be negotiated with cooperators in that area. Activities could be held at several

sites or at one central facility. Components could include an orientation center, which will provide information needed to orient visitors to the attractions in the area, and interpretive services, which could include outdoor wayside exhibits, portable indoor exhibits, audiovisual programs, guided walks, interpretive talks, and heritage education programs with organized groups. The primary theme areas interpreted will be cultural history, stewardship, and forces shaping the river. Tourists and metropolitan residents could take advantage of the existing guided and self-guided tours that explore the historic buildings, foundations, millraces, mills, tunnels, locks, and dams of the St. Anthony Falls area.

At the new visitor center proposed by the Department of Natural Resources at Fort Snelling State Park, themes on Native American cultures and the interdependence of all living things will be emphasized. The confluence of the Mississippi and Minnesota has special significance to Native Americans. The National Park Service will be available to cooperate with state park staff in developing interpretive media and presenting interpretive and educational programs and events.

MISSISSIPPI NATIONAL RIVER AND RECREATION AREA INTERPRETIVE FACILITIES

Location	Minneapolis	St. Paul	Anoka Area	Hastings Area	Fort Snelling Sta Park
Potential lead agency	City or state historical society	National Park Service	Anoka County/Hennepin Park District	To be determined	Minnesota DNR
Potential partner role	City leads rehabilitation, construction; maintenance of facility; state provides lead for historic interpretation; NPS provides assistance in construction funding; staffing and exhibits; possible joint venture with museum or other party	City provides land and adjacent site improvements such as road and trail connections and bridge access; NPS provides facility construction, maintenance, staff, and exhibits; possible joint venture with major museum or other attraction	Anoka County or Hennepin Parks has lead; NPS provides some staff and exhibit design assistance	To be determined	Minnesota DNR leads construction, maintenance, and operation of center. N provides assistance in planning interpretive media, funding its production, and cooperates in interpretive programming.
Nearby amenities	"Mississippi Mile"; historic resources, Stone Arch bridge, linear park system; walking tours, lock and dam, Great River Road	"Cultural Corridor," Lilydale Park, Harriet Island Park, tour boat, marina trails, river access	Parks, trails, river access, Coon Rapids Dam	Downtown, parks, lock and dam, marina, trails, river access	Confluence of Mississippi and Minnesota rivers, Historic Fort Snelling, trails, picnicking, rive access, MN Valley refu and center, Mall of America
Audience	International, national, regional, local	International, national, regional, local	Regional, local	Regional, local	International, national regional, local

Major themes	-Shaping the river – glacial and human forces – The stories of human life along the Mississippi have unfolded over 12,000 years – MNNRA is a nationally significant resource (cultural emphasis) – We must care for the river – All plants and animals in the corridor are interdependent	– The Mississippi is one of the world's great rivers – Plants, animals and humans in the corridor are interdependent – The corridor protects biological and cultural diversity – We must care for the river – MNNRA is a nationally significant resource (natural emphasis) – As a working river, the river's influence extends far from its shoreline	– All plants and animals in the corridor are interdependent – The stories of human life along the Mississippi have unfolded over 12,000 years – We must care for the river	– The Mississippi is one of the world's great rivers; – We must care for the river – The stories of human life along the Mississippi have unfolded over 12,000 years (river town emphasis)	– The stories of huma life along the Mississi have unfolded over 12,000 years – All plants and anima in the corridor are interdependent
Primary functions	Interpret cultural resources, orientation to MNNRA, orientation to NPS, outdoor walking tours, historic preservation, environmental and heritage education	"Big Miss" picture, focus/identify, natural history themes, orientation to MNRRA, experiences, interpretive media, environmental and heritage program	Orientation to MNRRA, environmental and heritage education	Orientation to MNRRA, environmental and heritage education	Orientation to MNRRA interpret Native American theme, environmental, and heritage education

Programs on the natural and cultural history of the MNRRA corridor and watershed originate from the smaller interpretive centers at Hastings and the Coon Rapids Dam Regional Park. Programs will concentrate on the resources around the centers but will deal with the bigger picture as well. Environmental and heritage education programs will serve primarily schools and groups from nearby areas. Orientation to the Mississippi National River and Recreation Area and nearby attractions will be available at Hastings and the Coon Rapids Dam Regional Park. Interpretive media will supplement the activities in the interpretive center on the east side of the river at the Coon Rapids Dam Regional Park. Interpretive programs will be offered in and around all five NPS/cooperative center sites.

Interpretive Media. The National Park Service will produce interpretive media for the corridor. The interpretive centers will house exhibits, publications, videotapes, and interactive interpretive devices. Outdoor wayside exhibits will interpret interesting and significant views. Trail signs and brochures will provide self-directed interpretation. Brochures, maps, handbooks, and educational materials will be available at interpretive centers and other outlets, by mail, and through educational programs. Interpretive materials will be sold through a cooperating association (see glossary) or by corridor interpretive partners.

Policies and Actions —

(1) Develop sites to observe and interpret river corridor vistas and river activities, including commercial river transportation.

(2) Provide information about interpretive and recreational activities and sites in the metropolitan area and coordinate and link these with other activities in the region.

APPENDIX G: HEADQUARTERS SPACE NEEDS

DIVISION OF MANAGEMENT AND ADMINISTRATION	
Superintendent	180
Administrative officer	120
Administrative technician	120
Administrative clerk (MRCC)	120
Clerk typist/reception	200
Mail room/files/copier/storage	400
Computer work station	100
Total	1240
DIVISION OF MAINTENANCE	
Facility manager	150
Total	150
DIVISION OF PLANNING AND RESOURCE MANAGEMENT	
Chief	150
Community planner	150
Resource management specialist (natural)	150
Community planner/landscape architect	150
Outdoor recreation planner	120
Resource management specialist (cultural)	120
Grants assistant	120
Planning technician	120
GIS lab	230
Storage/flat file storage/plan library	350

Computer work station	150
Total	2040
DIVISION OF INTERPRETATION AND VISITOR SERVICES	
Chief	150
Environmental education specialist	120
Park ranger (volunteer development)	120
Project work space (volunteers)	400
Scheduling office	150
Computer work station	150
Library	100
Photographic collection	100
Audio visual storage	100
Total	1390
OTHER	
Cooperating association office	120
Cooperating association storage	100
Maintenance work room	120
Maintenance storage	100
Project room/recycling center	250
Employee restrooms/showers/lockers	450
Kitchen/break room	300
Conference room	400
General storage	120
Total	1960
TOTAL HEADQUARTERS SPACE	**6780**

APPENDIX H: PREVIOUS EFFORTS TO ADDRESS REGULATORY ISSUES

The Metropolitan Rivers Corridor Study Committee (MRCSC) was created by an act of Congress to make policy recommendations for managing recreational, fish and wildlife, historic, natural, scientific, scenic, and cultural values of the Mississippi, Minnesota, and St. Croix rivers in the Twin City Metropolitan Area. The committee produced a body of documents that were precursors to the final report recommending the creation of the Mississippi National River and Recreation Area. Inventory, July 19, 1984, lists 15 federal agencies, three interstate bodies, six agencies of the state of Minnesota, and one regional body with regulatory, permitting, or planning authority over land or water use in the Mississippi National River and Recreation Area.

Another inventory of agencies and a description of their authorities can be found in Programs, Policies and Legal Authorities Affecting the Use of Land in Minnesota, published in May 1975 by the Minnesota State Planning Agency. This document describes an additional set of state level agencies — the soil and water conservation districts. Since the publication of the report, these conservation districts, along with the watershed districts under the purview of the Minnesota Water Resources Board, now are overseen by one body — the Board of Water and Soil Resources.

The MRCSC study cites several previous reports that addressed or made recommendations on the regulatory structure. Though the following recommendations focus on regulation of the commercial navigation industry, they can be applied as foundations for other regulatory activities as well.

The Mid-America Ports Study, by the U.S. Department of Commerce, recommends the creation of a single body to manage and promote orderly development and multigovernmental planning for multimodal transportation needs.

A Study of the Upper Mississippi River, by the Great River Environmental Action Team (GREAT I), developed comprehensive river management strategies using an interagency team.

The Comprehensive Master Plan for the Management of the Upper Mississippi River System, by the Upper Mississippi River Basin Commission, presents two options — an interagency committee for joint permit reviews and the creation of a new nonprofit corporation to provide centralized coordination for river system management. The Mississippi National River and Recreation Area Commission was created in 1988. The MNRRA legislation directs the commission to assist the secretary of the interior and governor of Minnesota in reviewing and monitoring implementation of the plan by other federal, state, and local agencies. It also authorizes the commission to recommend modifications to the plan. Unless state legislation is passed increasing the authority of the commission, it has only the power to advise on permits and land use decisions.

APPENDIX I: PERMITTING AND REGULATORY AUTHORITIES

The following table presents a partial inventory of regulatory responsibilities in the corridor. The table only summarizes the permits needed for development. For example, solid waste disposal on non-NPS lands might involve an actual operating landfill or the site of a demolished structure. A permit to discharge into the river might involve effluent from a wastewater treatment plant or material dredged from the river bottom in order to construct a permanent dock. The table's primary purpose is to illustrate the many agencies and levels involved in river corridor regulation. As coordinating efforts proceed, this table might serve as the foundation upon which to build a more complete inventory

INVENTORY OF REGULATORY PERMITS FOR ACTIVITIES CONDUCTED IN THE MNRRA CORRIDOR	
AGENCY	**Permits or Other Direct Regulatory Authority/Responsibility**
FEDERAL AGENCIES	
Advisory Council on Historic Preservation	Provides comments to federal agencies on federally funded or permitted activities affecting historic resources under section 106 of the National Historic Preservation Act.
U.S. Army Corps of Engineers	The Corps of Engineers regulates work that could affect navigable waters, which are those bodies of water that have historically been used for commercial navigation. The agency issues permits for the placement of structures, dredging, and filling in navigable waters under section 10, Rivers and Harbors Act,, 1899. They also regulate the discharge of dredged or other fill into all waters of the U.S. under section 404, Clean Water Act. No section 404 permit may be issued by the Corps of Engineers without a section 401 certification from the Minnesota Pollution Control Agency that the discharge of dredged or fill material will not violate state water quality standards.
National Park Service	The National Park Service was given the responsibility to work with the Mississippi River Coordinating Commission to create a comprehensive management plan for land and water use measures for the Mississippi National River and Recreation Area. Actual management or enforcement responsibilities are addressed in the plan. The MNRRA act mandates that the National Park Service review all federally funded or permitted activities in the corridor. The Park Service has no regulatory authority.
Federal Aviation Administration	The Federal Aviation Administration controls air traffic and regulates airport operations.
U.S. Coast Guard	The U.S. Coast Guard maintains the river channel buoy system and enforces safety standards,, laws,, and equipment vessels,, barges,, and floating plants. They enforce some pollution control laws,, set bridge height standards,, and inspect barges and recreational and commercial vessels.
U.S. Fish and Wildlife Service (USFWS)	The Fish and Wildlife Coordination Act of 1934 mandates all federal agencies to consult with the Fish and Wildlife Service on permit and license applications. Section 7 of the Endangered Species Act mandates all federal agencies to consult with the Fish and Wildlife Service to ensure that actions do not jeopardize endangered species. The Fish and Wildlife Service is a significant player in MNRRA regulatory activities.
DEPARTMENT OF ENERGY	
Federal Energy	The Federal Energy Regulatory Commission has jurisdiction over all nonfederal hydroelectric power

Regulatory Commission	facilities that are located on or use water from a navigable stream, produce power that affects interstate or foreign commerce, are located on federal land, or use water impounded by a federal dam. The commission must issue a license before any such facility could be built.
Environmental Protection Agency	The Environmental Protection Agency establishes standards for water quality management, drinking water safety, solid and hazardous waste disposal, toxic substance management, air quality control, and general environmental quality review. Most enforcement is delegated to the states, although the agency retains oversight and could reassert its authority if it determines a state is not doing an adequate job. The agency may veto a 404 permit, and it may exercise the lead federal role for certain cases. In Minnesota the primary enforcement role for water quality is filled by the Minnesota Pollution Control Agency.
STATE AGENCIES	
Environmental Quality Board	The Environmental Quality Board designates the routes for pipelines and transmission lines in the state and issues permits for their construction. The agency also determines power plant sites and issues certificates of site compatibility. Any state critical areas (the Mississippi River Corridor is the only active one) are recommended by the board. The agency writes standards for local critical area plans and reviews and approves all plans or amendments for compliance with the standards.
Minnesota Department of Agriculture	The Department of Agriculture enforces laws designed to protect the public health and enhance the environment. It adopts and enforces rules to clarify laws and to prevent fraud and deception in manufacture and distribution of foods, animal feeds, fertilizers, pesticides, and seeds. The department is the only state agency that speaks for and promotes the development of agriculture and agriculturally related industries in the state. It is the lead agency in soil and water conservation programs and other programs designed to protect agricultural land. The department administers several laws that prevent surface and groundwater pollution from agricultural practices, such as pesticide application.
Department of Natural Resources	The department has responsibility for issuing permits for many activities. These include any appropriation of surface or underground water, mining activities, and underground gas or liquid storage. The department issues licenses for utilities to cross state land or water. Most broadly, a permit is required for any activity that changes the course, current, or cross section of state waters, which includes filling,, excavating,, or placement of structures, including dams. The department establishes standards for shoreline protection through its regulations that must be adopted by local governments. The agency must approve local floodplain ordinances, which are mandated by state law, and also establishes zoning standards along state-designated wild and scenic rivers. The department also investigates fish kills and assesses damages from polluters.

Minnesota Pollution Control Agency	The pollution control agency has responsibility for ensuring compliance with state and federal standards for all discharges into the air, land, or water. It exercises its regulatory authorities through an extensive list of permits as well as review processes. Air quality is protected through general air quality permits (for point source emissions), indirect source permits (e.g. parking ramps), and open burning permits. Waste disposal is regulated through solid waste facility permits as well as through permits for hazardous waste regulating storage, disposal, and treatment. Before any activity could proceed that could result in discharge into navigable waters of the state, the agency must issue a section 401 permit. Other permits include above-ground storage of liquids, a certificate of exemption for PCB users, animal feedlots, the discharge of municipal and industrial waste into state waters, a river dredging certificate, and a state disposal system permit for sanitary sewer systems. The National Pollutant Discharge Elimination System permit for any point source that discharges into waters of the U.S. is a federal permit, authority for which has been delegated to the agency. The agency also establishes standards for noise emissions and for general air quality.
Board of Water and Soil Resources	This board approves the establishment of special local tax districts,, called watershed districts, which have regulatory authority over water management. Minnesota State Historic Preservation Office, The State Historic Preservation Office is responsible for preserving historic sites through nomination to the National Register of Historic Places. The office also comments on federally funded or permitted activities under section 106 of the National Historic Preservation Act. The State Historic Preservation Office is housed at the Minnesota Historical Society.
REGIONAL AGENCIES	
Metropolitan Council	The Metropolitan Council was created by the state legislature to do long-range planning for the seven-county metropolitan area. The council reviews projects for consistency with its development guide for regional systems (such as highways, transit, airports, sewers, and parks) and could require changes in local comprehensive plans. A number of commissions have been created to formulate and implement policies for these systems. Particularly relevant to lands in the Mississippi National River and Recreation Area are the Metropolitan Airports Commission, Metropolitan Parks and Open Space Commission, and the Metropolitan Waste Control Commission. The Metropolitan Airports Commission has broad authority over airports in the metropolitan area. It controls the international airport that abuts the Mississippi National River and Recreation Area near the confluence of the Minnesota River. Holman Field on the downtown St. Paul riverfront is

	also subject to MAC authorities over flight patterns and airport management. Through the Metropolitan Council, the airports commission is required to promulgate aircraft noise zones based on appropriate noise levels for each land use. Local governments are then required to incorporate these standards into local controls. This is the only instance where Metropolitan Council land use measures must be adopted by other bodies. The Parks and Open Space Commission has no regulatory powers. The Metropolitan Waste Control Commission is not a regulatory agency. However, the commission owns all the major municipal waste treatment systems and approximately 470 miles of the sewage collection system in the corridor and,, through review, approval,, and funding of local sewer management plans, serves in some ways as a de facto regulatory body.
Counties, Cities and Townships	There are 21 cities and 4 townships in the 5 Minnesota counties that encompass the MNRRA corridor. Local governments have broad planning and regulatory control over development in the corridor. Each of these political entities have regulatory power over land and water use through a variety of departments, agencies, commissions, etc. Minnesota state law gives these local governments primary authority over land use regulation. Local governments are often responsible for enforcement of standards written by state and county level agencies or the state legislature.

APPENDIX J: INTERPRETIVE CONCEPT AND COST ESTIMATE FOR HARRIET ISLAND CENTER

PRELIMINARY PROGRAM FOR INTERPRETIVE MEDIA AND ACTIVITIES

General Functions

The Harriet Island center in St. Paul will be designed to provide interpretation, education, orientation, and visitor services.

Specific Functions

- provide focus and identity for the Mississippi National River and Recreation Area and the National Park Service
- provide comprehensive interpretation of selected themes
- orient visitors to resources and recreational opportunities throughout the corridor and nearby areas
- provide information and orientation to other units of the national park system
- provide a staging area for public and environmental education programs
- interpret complex stories through interpretive media and a variety of personal programs
- provide security and environmental controls for displaying original objects
- provide books and other educational products for sale

- Visitor Experience Goals

- Visitors to the Harriet Island interpretive center will have the opportunity to:

- appreciate the importance, scope, significance, value, beauty, and grandeur of the Mississippi River
- learn about recreational opportunities in and around the MNRRA corridor
- learn specific and current information about the status and health of corridor resources
- learn information and stories related to interpretive themes
- find experiences and opportunities that relate to visitor interests and backgrounds

- learn to help protect and enhance the natural and cultural values of the MNRRA corridor

Interpretive Themes

All interpretive themes will be interpreted to some degree at this center. However, certain themes will be emphasized because resources nearby enhance the ability to tell certain stories. See the plan text for a complete list of these themes and an identification of which ones will be emphasized at Harriet Island.

Audience

The Harriet Island Center will serve many audiences:

neighborhood residents
downtown office workers
metropolitan area residents
out-of-state tourists and visitors
international visitors
school groups
community groups
recreationists (cyclists, hikers, boaters, etc.)
families, individuals, peer groups
first-time visitors
return visitors
volunteers
seminar, workshop, or junior ranger program participants
people waiting for the excursion boat

INTERPRETIVE CENTER CONCEPT

The location of this center in a major metropolitan area emphasizes the importance of return visitation. Media and program planning will take this into account, and provide changing experiences in addition to more traditional approaches. The location also means that potential visitors will have many other choices of how to spend their leisure time. For this center to accomplish its goals, there must be sufficient critical mass, and it must be enough of an attraction to be appealing to potential visitors and corridor users. It should also be a comfortable place and encourage return visits.

The side of the center facing the river will have an expanse of windows. Visitors will be able to see the Mississippi River, the St. Paul downtown skyline, and Harriet Island park. Since ambient light can threaten archival materials such as paper and textiles and can fade graphics, sensitive materials will be kept away from windows, and treatments such as ultraviolet-reducing film on windows will be considered. Since this is a northern exposure, and the exhibits will not be rich in artifacts, accommodation between views and artifact conservation should not be too difficult. The center will have several areas for visitors.

There will be additional space in the building for restrooms, utilities, and circulation that will bring the total interpretive center portion to about 12,000 square feet. There will be about 7,000 square feet of administrative offices housing the MNRRA headquarters staff, bringing the total size of the building to about 19,000 square feet. All space estimates are preliminary and subject to refinement during building design.

Lobby

The area indicated for the lobby (1,500 square feet) will include a vestibule, information counter, seating, and an orientation area. There will be sufficient space to accommodate the arrival of bus loads of up to 60 people at one time.
The identity of the center and of the Mississippi National River and Recreation Area will be established immediately inside the building. The orientation area will inform visitors about recreational resources in and around the MNRRA corridor, and to visitor services such as food and lodging. Most of the space will be devoted to recreational opportunities; visitor services information could be handled with a brochure rack, computer, and/or a notebook with compiled listings.

Exhibits

Exhibits will be multi-sensory, many will be interactive or participatory, and they will offer enjoyable experiences to diverse audiences. In part because of the urban setting and clientele, the experiences will be more interactive, experiential, and, perhaps, contemporary than exhibits found in many national park service visitor centers. There will be computers, live fish, video, and virtual

reality experiences. There will be experiences that appeal to teenagers and children, to inner-city residents, and to ethnic minorities who may have had little experience with national parks. Not everything will be interactive; there will be opportunities for more passive, intellectual, and contemplative experiences as well. Many visitors will find themselves unable or unwilling to take in everything in one visit, thus encouraging return visits. Temporary exhibits will also provide new attractions to metropolitan residents. Alcoves will help focus activities for educational groups and will feature specialized videotapes.

Visitors will find the exhibit area organized into three general spaces:

(1) People and the River — stories, issues, and experiences dealing with human interaction with the upper Mississippi; the working river and the recreation river; the river as scenic, recreational, historical, cultural, natural, economic, and scientific resource

(2) Ecological Communities of the Upper Mississippi — aquatic and associated ecosystems of the Mississippi will be represented; pool, riffle, and benthic communities, wetlands, tributary streams, lakes, urban river, farmland river, and recreational river

(3) Welcome to the National Park System — how, where, when, and why to visit national parks; trip planning assistance; Mississippi National River and Recreation Area is one of over 350 national park areas; how to use but not abuse our parks

The first two areas could be developed in partnership with other organizations. Commercial and recreational organizations could assist with the development of media exploring human interaction with the river. The expertise of an organization like the Minnesota Zoo or the Science Museum of Minnesota will be sought for developing and operating the ecology wing.

Specific exhibit and other media recommendations will be developed later in the interpretive plan, which will be prepared following approval of the comprehensive management plan. In general, however, the following approaches could be used to

provide enjoyable and educational experiences and are offered as examples.

(1) People and the River

Visitors will explore the many ways people interact with the river, how they benefit by it, how they change it, and how they take care of it.

The economic story, "the working river," will be a major emphasis. Visitors will be able to learn how the river provides transportation, energy, cooling, and waste disposal for millions. They will consider the costs and the benefits of the many ways people work the river. Recreation is the other major use of the river. A significant interpretive objective of this center will be to help visitors enjoy safe and low-impact recreational activities in and around the Mississippi National River and Recreation Area. Exhibits could give visitors updated information on resource conditions, direct visitors to desired areas, inform them of behaviors that are unsafe or damaging, encourage involvement in new activities, and recommend further information.

Using virtual reality technology, visitors with computerized video headsets could steer a tugboat hauling barges to St. Paul, paddle a canoe exploring the Pig's Eye nature preserve, or pilot a motorboat through a lock and safely past a sailboat. They will learn the different requirements of the many craft that ply the river and how to use them safely and without harmful impacts.

Through interactive video, visitors could decide transportation policies, weighing options, and costs and benefits of moving commodities and other goods. The game could offer several levels, thus appealing to children and adults, and offering more to do in future visits.

Another interactive video program could let visitors explore issues of pollution control, energy use, waste disposal, land use, and other environmental issues that involve multiple objectives and interests. Activities such as this will help educate residents and river users to become more effectively involved in finding solutions to common problems.

Contemporary issues of human use of the river could be considered using updated displays of newspaper articles, television news segments, and books. Visitors will see multiple perspectives, better understand the relevance to their lives, and pay more attention at home to river-related issues.

Anything spilled, flushed, poured, deposited, or thrown away in a river's watershed can affect the river. The Mississippi's watershed covers two-thirds of the lower 48 states. Visitors should learn this basic relationship. One could start with a computer program that takes visitors' zip codes or home countries and places them in the watersheds of the Rum River, the Zumbro, the Mississippi or the Ganges. A model could illustrate to young visitors the dynamics of a typical watershed.

The diversity of MNRRA activities and changes over time could be interpreted with photographs, paintings, sketches, poetry and other literature, and music.

Visitors will have access to additional experiences and more in-depth information in the library, bookstore, other institutions, and the MNRRA corridor. The availability of these supplementary experiences could be announced through the display of library and sales publications and description of other interpretive sites and locations to be visited. Staff and documents will also be available for further discussions.

(2) Ecological Communities of the Upper Mississippi

Visitors will discover aquatic and associated ecosystems of the Mississippi, see many of the plants and animals that live there and learn of their interrelationships, and find out how biological diversity could be restored and maintained.

The aquatic wildlife of the Mississippi National River and Recreation Area are mostly inaccessible. Even anglers catch only the top of the food chains. This center will provide access to and understanding of riverine and riparian communities and encourage stewardship. Ecosystem-based tanks could show the larger residents of aquatic communities: the fish, reptiles, amphibians, mollusks, crustaceans, and plants. Microscopes will reveal the smaller residents ranging from insects and worms to single-celled creatures. Interpretation

will emphasize ecological relationships more than the natural history of isolated organisms.

Associated communities such as bottomland forests, marshes, swamps, creeks, and ponds could be introduced in a similar fashion. Live animals will include only those that could be kept in aquariums or terrariums. The lives of river-dependent residents such as raccoons, muskrats, herons, and kingfishers could come alive with photographs and video.

Using computers, visitors could explore population dynamics, balancing different parameters (such as food, habitat, pollution, predation) in trying to maintain or create biological diversity in the Mississippi.

Visitors will have access to current scientific research on ecological systems of the upper Mississippi, concentrating especially on the MNRRA corridor but including related areas as well. This could be provided through a variety of media and programs. Changeable exhibit modules could present up-to-date research with photographs, text, and video. An alcove with a lab table, tanks, counters, and benches could host a variety of talks and demonstrations by staff and docents. Library resources will give visitors and students the opportunity for research.

(3) Welcome to the National Park System

The location of the Mississippi National River and Recreation Area in a metropolitan area offers an opportunity to reach out to populations that have had little previous access to national park areas and values. For metropolitan residents and out-of-state tourists, this center could offer needed services that will make visits to national parks more frequent, enjoyable and beneficial, and more respectful.

In 1986 a National Park Service task force developed recommendations to create a series of urban gateways that will help make national parks accessible to everyone. This center is an opportunity to bring about that vision.

Urban partnership areas such as the Mississippi National River and Recreation Area are a new concept to many. Visitors will learn why

MNRRA is part of the national park system and will learn about the similarities and differences among areas such as MNRRA, Yellowstone, and Voyageurs national parks.

Attracted by powerful photography and videography of park resources and experiences, visitors (especially those unfamiliar with the national park system) could learn more about key issues and information.

Basic trip planning assistance will be available in person, through the use of interactive computer programs and by telephone. The reference center will provide additional materials that could be used for planning trips to other NPS areas.

Temporary Exhibits

Rotating, traveling, or temporary exhibits will be an important service in the center, especially for encouraging return visits. This space will also be available for programs, workshops, and other activities.

Audiovisual Arts

In the auditorium there will be an introductory film that presents the significance and grandeur of the Mississippi River and defines the concept of the Mississippi National River and Recreation Area. This will be the primary vehicle for interpreting theme 1: the Mississippi is one of the world's great rivers. The river and watershed will be treated as an entire system. It will also enable visitors to understand the MNRRA's place in our system of protected areas, and it will encourage respectful use of corridor resources and associated areas.

Because there is already an Omnimax theater and other large format presentations in the area, consideration should be given to a 35mm film format with surround sound. This format will help tell the big story and will enhance the ability of the center to effectively communicate the important messages.

There will be short video programs available for visitors. These will be on a variety of subjects relating to MNRRA themes. Some will be produced commercially or by the news media; others will be

specially produced to show in this center and elsewhere. These will be shown in the video alcove and elsewhere in the exhibit area. Generally, seating will be available unless the program lasts less than two minutes.

The video alcove will provide seating for about 40 people. Programs could be automatically scheduled as well as hosting special programs such as those for school groups. This area will give the operators increased flexibility, keep the auditorium free for the introductory program, and allow much greater access to the many excellent and relevant video programs already available.

Audiovisual programs could be developed through partnerships with other organizations.

Auditorium

This will be designed as a theater, with good acoustics, a partially sloping floor (with flat areas for wheelchairs), and fixed seating for about 100 people. Consideration will be given during facility design to making this facility suitable for theatrical productions.

Reference Center

This space will offer a wide range of materials pertaining to the Mississippi National River and Recreation Area, the entire Mississippi River and its watershed, riverine and riparian ecology, urban parks, and the national park system. The emphasis will be on providing these materials in digital format to facilitate access by computer from remote locations. These materials could be offered in partnership with existing library services in the Twin Cities area.

Classrooms

Two classes of 60-70 people will be able to meet in this area for environmental education programs. The space could function as one large area or be divided in half. Facilities will maximize flexibility and include laboratory tables, sinks, aquariums and terrariums, storage, and movable seating. Groups will be likely to spend part of their visit in these rooms and the rest in the exhibit area, auditorium, video alcove, on a boat on the river, and outdoors.

Bookstore

A cooperating association bookstore will offer publications, videotapes, postcards, and other theme-related and educational items for sale about the Mississippi River, MNRRA, and other NPS areas. Contiguous storage will be provided.

OUTDOOR INTERPRETIVE AND RECREATION EXPERIENCES

For many people a visit to the interpretive center will be part of a recreational package that could include a hike, bike ride, boat ride, picnic, or driving tour. Trails from the center will lead to Harriet Island park, the riverfront (including excursion boat, promenade, and marina), and pedestrian/bike trails to Lilydale Park.

At Harriet Island park there will be several points where a view or a place is significant, interesting, theme-related, and accessible, and wayside exhibits might be installed. Interpretation and environmental education programs will be conducted on and along the river. The National Park Service will have a boat for environmental education programs. It will be moored at the Harriet Island marina and will be used in aquatic ecology programs for schools and other scheduled groups.

At Lilydale Park, which is currently being planned and developed by St. Paul Parks and Recreation, there will be an important visitor experience. Harriet Island visitors could walk, jog, bicycle, roller blade or drive to Lilydale. There they will find opportunities for more hiking, jogging, etc., plus fishing, canoeing, nature and geology study, interpretation and environmental education programs, old home sites, and picnicking.

Plans are currently in place to develop a hiking/biking trail west of Lilydale, eventually reaching the Minnesota Zoo and connecting with several other trails. Harriet Island will be part of a metropolitan system of trails that will complement the NPS interpretive center.

COST ESTIMATE

Following is a cost estimate for the Harriet Island facility. Development and interpretive media costs cannot be estimated in great detail at this time. Estimates provided below are "class C,"

which means they are based on general size assumptions and the cost of constructing similar facilities in the Midwest. They should be considered rough, preliminary estimates subject to change during additional planning and design. These cost estimates were prepared by an NPS estimator (based on the cost of similar facilities in the Midwest, using 1993 cost data) to comply with NPS guidelines for preparing general plans. Facility estimates include construction costs, project supervision, and contingencies. The Mississippi River Coordinating Commission neither agrees nor disagrees with these estimates.

Audiovisual media design, equipment, and production costs are not included in these figures.

The facility development costs will break out approximately as follows:

Area	**Development Cost**
Visitor center space (12,,000 sf)	$3,773,000
Headquarters space (7,,000 sf)	1,421,000
Furnishings	377,000
Interpretive exhibits	1,500,000
Landscape development/site preparation	1,039,000
Utility connections	14,000
Parking (100 cars)	223,000
Subtotal	**$8,347,000**
Site surveys/design costs	$1,600,000
Harriet Island Total	**$9,947,000**

GLOSSARY

Access — a way of approaching, entering, or using an area; river access includes boat ramps and canoe launches.

Adverse effect — an effect that diminishes the values that establish the area's national significance, impairs the structure and functioning of resources and ecosystems, impairs the quality of the visitor experience, or any combination of these.

Alternative — a possible course of action, one of several different ways to achieve an objective or vision (the term is used to describe options).

Attraction/attractor — Attractors are environments or activities that serve to bring additional tourists to the area. At-tractions are environments or activities that are used by lo-cal residents and individuals who have come to the region for other reasons (including a desire to see other attractors).

Balance — to weigh by comparing; to estimate the relative weight or importance of different factors or resources and proportion properly the parts or elements in a planning or decision-making process. This does not mean that there are winners and losers in the process; but rather, that all elements are considered before plans are developed or decisions are made.

Barge fleeting area — a parking or staging area for barges awaiting loading, unloading, or transport.

Bluff — a topographic feature such as a hill, cliff, or embankment with steep slopes (exceeding 18%) rising above the river corridor floodplain (see related but different definition for steep slopes).

Bluff Impact Area — a 40-foot-wide area adjacent to the bluff line that is subject to preservation stipulations.

Bluff Preservation Area — includes the bluff face, bluff impact area, and bluff setback area.

Bluff setback area — a 60-foot-wide area that is subject to development limitations. This area in combination with the bluff

impact area creates a 100-foot setback for buildings from the bluff line.

Bluff face — that portion of the steep slope exceeding 18% between the river bottomland and the bluff line where development is strongly discouraged (see related but different definition for steep slopes).

Bluff line (top of the bluff) — the transition point between the steep bluff face and more level terrain at the top of a bluff.

Buffer — a method of minimizing the impact of adjacent activities by the use of setbacks, vegetation screening, and other means.

Cluster — locating similar facilities together rather than spreading them out over the landscape. This land planning approach saves open space.

Commercial development (or use) — the creation or placement of buildings or facilities for business purposes, principally for the sale, lease, rental, or trade of products, goods, or services.

Commercial navigation — use of the river for hauling cargo into and out of the area, or between points in the corridor. Most commercial navigation is represented by the barge towing industry.

Comprehensive management plan — a general plan that sets forth a vision, management concepts and policies, and participant roles in the context of regional plans and trends for conservation, land use, recreation, transportation, economic development, and other identified issues.

Cooperating associations — nonprofit organizations formed to assist national parks with the publication and sale of items associated with park areas. Associations often offer donations for park purchases and scholarships for park-related study.

Consistent land use — land use activities that are consistent with the land use concepts and location policies contained in this plan.

Corridor — a long, relatively narrow area that is centered on a linear feature, such as a river. In this document "corridor" is

normally used to define that area contained within the Mississippi National River and Recreation Area boundary.

Critical habitat — habitat that is important to the survival of a species.

Critical mass — In this document critical mass is used to describe the grouping together of visitor facilities to achieve a minimum desired level of activity. It is the combination of visitor experience necessary to create a major attraction that provides high-quality interpretive services to the visitor.

Cultural resources — significant for their cultural association and integrity. They include archeological resources, cultural landscapes, historic buildings and structures, museum objects and archival materials, and ethnographic resources. This includes (but is not limited to) historic resources described in the National Historic Preservation Act, which are "any prehistoric or historic district, site, building, structure, or object included on, or eligible for inclusion on the national register, including artifacts, records, and material remains related to such a property or resource."

Design guidelines — recommendations for development of buildings and sites relating to scale, form, materials, color, and texture. They often deal with aesthetic issues and blending new development into the surroundings (see appendix C).

Economic development activities — activities carried out primarily by local governments and chambers of commerce to attract new business and industry to an area to create jobs and increase tax revenues.

Economic resources — include existing facilities, land uses, and activities that benefit the local, regional, national, and international economy, such as (1) residential, commercial, agricultural, and industrial property, equipment, and services, (2) public facilities used for economic purposes such as locks and dams, roads, bridges, municipal water systems, municipal waste water treatment plants, municipal power generating and transmission facilities, boat launching facilities and other infrastructure, (3) jobs and their associated payrolls, and (4) the value of commodity shipments into and out of the area, including the economic value of river

navigation services to the local, regional, national, and international economy. This is an interim definition for comprehensive planning purposes only. A more thorough, updated definition will be developed during resource management planning after the comprehensive plan is complete.

Endangered and threatened species — are those plants and animals that are listed by the U.S. Fish and Wildlife Service and offered protection under the Endangered Species Act. There are also state-listed species that are protected under state law.

Environmental education — Activities with organized groups (schools, scouts, community groups, etc.) or seminar participants that are designed to develop understanding, appreciation, and caring for the natural environment.

Floodplain — an area of land adjacent to a water body subject to periodic inundation. The 100-year floodplain is an area where the probability of being inundated is once in a 100 years. The 100-year floodplain is frequently used by federal, state, and local agencies for floodplain management purposes. In this document the floodplain refers to the 100-year event unless otherwise noted.

GIS — geographic information system, a computerized system for storing, analyzing, and displaying geographically oriented data, such as vegetation, topography, roads, historic sites, and land use (see appendix B for a description of the MNRRA GIS database).

Heritage education — Activities with organized groups (schools, scouts, community groups, etc.) or seminar participants that are designed to develop understand-ing, appreciation and caring for our historic and prehistoric heritage and for the manmade or built environ-ment.

Historic resources — historic resources are defined in the National Historic Preservation Act as "any prehistoric or historic district, site, building, structure, or object included on, or eligible for inclusion on the national register, including artifacts, records, and material remains related to such a property or resource."

Inconsistent land use — land use activities that do not conform with the location concepts and policies contained in this plan.

Industrial development (or use) — the creation or placement of buildings or facilities for the production, manufacture, warehousing, storage, or transfer of goods, products, commodities, or for resource extraction purposes.

Integrate — make into a whole; unify; or join together. All elements of an integrated plan or integrated effort to resolve an issue are analyzed and factored together to make better decisions.

Integrated Pest Management — the coordinated use of pest and environmental information with available pest control methods to prevent unacceptable levels of pest damage by the most economical means and with the least possible hazard to people, property, and the environment.

Interpretation — educational activities designed to reveal meanings and relationships through the use of presentations, original objects, by firsthand experience, and by graphic illustrations. Activities or media designed to help people understand, appreciate, and care for the natural and cultural environment. The similarities among interpretation and environmental education and heritage education are far more numerous than the differences. In this plan, interpretation refers to activities and products for the general public. Educational activities and products could be designed with the same objectives but are intended for specific groups and those who sign up for workshops or seminars. Interpretation also deals more with the immediate environment (that which one could see, hear, smell, touch or imagine), while educational activities could take participants farther afield.

Interpretive media — Visual, auditory, and textual products (such as exhibits, films, videos, books, pamphlets) designed to provide interpretation and education.

Law enforcement — The act of ensuring that laws or regulations are followed, including rules for management of visitor use and resource protection.

Location policies — policies that affect where activities should be sited in the landscape. They generally define desirable and undesirable land uses for a given area.

Major land use — a land use that (1) has region wide significance, (2) will cause significant adverse impacts on the river corridor, or (3) will set a precedent committing land use in the area to significant new directions.

Monitoring — a program established to track the condition of a resource over time or evaluate the effectiveness of implementation of plan elements.

Natural area — an area that visually exhibits primarily nonhuman created qualities, such as an urban forest or wetland. In this case natural does not mean pristine or without any influence by humans.

Natural resources — assets or values related to the natural world, such as plants, animals, water, air, soils, geologic features, fossils, scenic vistas, etc. Natural resources are those elements of the environment not created by humans.

Natural river — a stream of water flowing in a natural channel characterized by a variety of aquatic species (including native fish), adjacent wildlife habitats, wetlands, and floodplains where biophysical systems have not been severely disturbed (or have been substantially restored) by humans.

Non-point source pollution — pollution from a broad area resulting from activities such as agriculture (pesticides, fertilizer, etc.) or urban activities (oil, salt, etc.).

Open/enclosed landscape — unimpeded views or spatial enclosure from vegetation and landforms in the landscape.

Open space — includes public and private land that is retained as primarily undeveloped. This could include lands devoted to active or passive recreational use or lands retained for visual or natural resource protection purposes.

Ordinary high water level — a more precise way to designate the shoreline based on seasonal fluctuations in water level. It is defined

as the boundary between upland areas and the public waters and wetlands in the state of Minnesota shoreland management program. It is commonly the point where the natural vegetation changes from predominantly aquatic to terrestrial. For watercourses, the ordinary high water level is the elevation of the top of the bank of the channel. For reservoirs and flowages, it is the operating elevation of the normal summer pool.

Oversight — periodic review of a program's effectiveness or the success of plan implementation to determine if objectives are being met. Reviews could take place monthly, quarterly, annually, or even less often based on the need.

Permits — government authorization to proceed with an activity.

Point-source pollution — pollution coming from a single source, such as a sewage treatment plant discharge.

Pollution — that which violates, or is likely to violate, any environmental quality standard, limitation, rule, order, license, or permit of any instrumentality, agency, or political subdivision or that which materially adversely affects or is likely to materially adversely affect the environment.

Purpose — simple statement of the reason that a unit of the national park system was created. These statements are broad goals generally derived from the enabling legislation or legislative history. They are used to guide development of more detailed visions and management plans for an area.

Recreational resources — those elements of the environment that are used by humans for outdoor recreation purposes. They include natural and manmade features such as rivers, lakes, parks, trails, etc.

Residential development (or use) — creation or placement of buildings or facilities for residential (living) purposes.

Resource — something of value to be preserved, protected, and enhanced. The Mississippi National River and Recreation Area act lists nationally significant historical, recreational, scenic, cultural, natural, economic, and scientific resources. It is typical for

Congress in establishing a new area to include in the enabling legislation a long list of overlapping resource categories, such as the one found in the MNRRA act. The National Park Service normally defines resources in two broad categories (natural and cultural) for management purposes. This plan includes a third broad management category, economic resources, to ensure that all items listed in the MNRRA act are addressed.

Resource management — the art or manner of treating, directing, or handling resources.

Riverfront area — includes the floodplain or a 300-foot-wide area (whichever is greater) adjacent to the shoreline where certain types of land uses are encouraged — activities that relate to the river, require a river location, or enhance the river corridor. This area is consistent with the state shoreland management zone in the MNRRA corridor.

Riverine system — includes the river channel and all associated wetlands and deepwater habitats (non-upland areas).

Sensitive natural areas — include shorelines, floodplains, wetlands, endangered or threatened species habitat, steep slopes, and bluff lines.

Setback — minimum horizontal distance that buildings, structures, or activities are positioned back from a natural or manmade feature, such as a shoreline, bluff line, road, or property line.

Shoreline — the line marking the edge between a water body and the land, including backwaters attached to the main stream. This will normally be the same as the ordinary high water level along the river.

Shoreline area — a 40-foot-wide area along the shoreline where a natural appearance is encouraged (except in downtown areas and historic districts).

Shoreline setback area — a 60-foot-wide area subject to development restriction that together with the shoreline area creates a 100-foot total setback for buildings in the riverfront area.

Site development policies — those policies that affect a development after it has been located in the landscape. These are normally more detailed than location policies and deal with specific issues such as setbacks. They provide a basis for even more specific design guidelines.

Socioeconomic conditions — combination of social an economic elements of the environment.

Steep slopes — are defined in this plan as slopes over 12% (or more than a 12-foot vertical rise for every 100 feet of horizontal distance) where development is not recommended (see related but different definitions for bluff and bluff face).

Stewardship — care of resources to preserve and protect them for future generations.

Sustainable development (or use) — a shared commitment to orderly economic development and use, along with an understanding and respect for the capabilities and limitations of the environment to support growth and economic activity over time. Sustainability means managing resources in a manner that meets the needs of present generations without compromising the ability of future generations to meet theirs. Sustainable developments do not adversely affect people living elsewhere (near or far) and allow all elements of the community to flourish.

Swimmable and Fishable — a term commonly used to describe a goal contained in the Federal Clean Water Act that specifies ". . . wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish and wildlife, and provides for recreation in and on the water. . ."

Tier 1 — Achieving the first level of MNRRA plan compliance. Under tier 1 the Metropolitan Council and Department of Natural Resources will work with corridor communities to more effectively implement existing state and regional land use planning and management requirements.

Tier 2 — Achieving the second level of MNRRA plan compliance. Under tier 2, corridor communities will adopt and implement the requirements that exceed existing state and regional land use

management requirements and substantially conform to the land use, resource protection, and open space concepts and policies in the MNRRA plan.

Tourism — all activities related to the leisure use of the river corridor by individuals from outside the immediate area.

Urban uses — land uses that have an urban or suburban character, such as commercial areas, industrial facilities, developed parkland, institutional uses, and residential subdivisions (including low-density housing areas), regardless of their location. This includes almost all land uses in the corridor. Exceptions are agricultural lands and vacant parcels.

Variance — an exception made to a land use regulation to accommodate special situations. A variance process is included in most local zoning and subdivision ordinances to ensure that they are reasonable. In Minnesota "variance" is defined by state statute.

Vision — simple statement of agreement indicating what an area should be in the future; delineates broad objectives for the corridor that normally lead to more detailed planning alternatives, concepts, policies, and management strategies, and that generally guide more specific decisions where unusual conditions exist.

Visitor activity zones — areas managed to provide for certain types of recreational activities.

Watershed — the land area that drains into a river.

Wetland — a surface water area classified by the U.S. Fish and Wildlife Service as a wetland. They include swamps, marshes, bogs, river overflows, sloughs, potholes, wet meadows, etc., where the ground is permanently wet or wet during significant periods of the year, providing habitat for water-loving or water-tolerant flora and fauna.

Working river — a river that includes natural and manmade features used for utilitarian purposes. The Mississippi has been extensively used for over 200 years for navigation, municipal and industrial water supply, hydropower, waste disposal, commercial and industrial development, and intermodal transportation

connections. The commercial navigation industry is the best example of an activity that defines the Mississippi as a working river.

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INTRODUCTION
AMENDMENT
(June 20, 1996)

As the Comprehensive Management Plan (CMP) for the Mississippi National River and Recreation Area (MNRRA) was being finalized in 1994, the Science Museum of Minnesota (SMM) announced its intention to build a new museum on the river in St. Paul. In response, the Mississippi River Coordinating Commission (MRCC) asked the staff of MNRRA to examine the relationship between a proposed National Park Service (NPS) Interpretive Center on Harriet Island in St. Paul and the new Science Museum that would be a neighbor.

In the last 18 months, as plans developed for the new Science Museum, staff from MNRRA and the SMM have worked with the City of St. Paul, other organizations, and the public to determine the educational role of MNRRA in St. Paul, and the relationship with its two major partners, the SMM and the City of St. Paul. This amendment is the product of those efforts. It changes the concept for a NPS Interpretive Center/Administrative Headquarters in St. Paul that was described in the MNRRA CMP.

KEY CHANGES
to the CMP in this amendment:

1. A partnership is forged between the NPS and the SMM. Instead of building a NPS Interpretive Center/Administrative Headquarters on Harriet Island in St. Paul, the partners will work together to achieve the following:

- Develop a 2,000 net square foot *Mississippi River National Center* located within the new Science Museum to be built on a river bluff in downtown St. Paul. Open to the public without charge, the *National Center* will serve people interested in finding out about the Mississippi River and its watershed. It will also provide information on all of the 369 units of the National Park System, including the Mississippi National River and Recreation Area.
- Develop a 5,000 net square foot *Mississippi River Exhibition Gallery*, located within the fee area of the new Science Museum, to interpret the Mississippi River Watershed with an emphasis on the area defined by the confluence of the Minnesota, the Mississippi, and the St. Croix rivers. An additional 1,000 square feet of outdoor exhibits will be located near the new Science Museum and accessible without charge.
- Develop a 6,700 net square foot *Mississippi River Education Center* located on Harriet Island within Harriet Island/Lilydale Regional Park that will support MNRRA, the SMM, St. Paul Parks and Recreation, and other organizations in their delivery of river-related and environmental programming to groups of school children, families, and adults.
- Enter into partnership with the City of St. Paul to plan, raise funds for, and develop expanded outdoor exhibits, classrooms, and programs on both sides of the Mississippi River. The outdoor exhibits will be located in River Park and at the Kellogg Boulevard River Overlook near the new Science Museum on the east side of the river, and in Harriet Island/Lilydale Regional Park on the west side of the river. Outdoor programs and classrooms will extend upstream as far as Crosby Farm-Hidden Falls Park.

Administrative headquarters for MNRRA will remain in leased space.

2. The one-time. National Park Service construction cost for this partnership is less than one half of the cost of building the Harriet Island Interpretive Center as proposed in the CMP.

These construction cost estimates are shown below as 1996 dollars that will need to be adjusted for inflation.

Develop the *Mississippi River National Center* (Opens December 37. 1999)	
Construction	$393,734
Design	43,311
Contingency	39,373
NPS contract administration	19,687
Audio/visual equipment	75,000
Total	$571,105
Develop the *Mississippi River Exhibition Gallery* (Opens December 31, 1999)	
Construction and Design	$1,200,000
Develop the *Mississippi River Education Center* (Opens Spring, 2000)	
Net Construction	$1,651,000
Furniture, fixtures, equip	125,000
Landscape development	350,000
Utility connections	35,000
Parking	80,000
Design	246,510
Contingency	224,100
Survey, soil testing, etc	40,000
Sub Total	$2,751,610
NPS contract	
Administration	112,050
Audio/visual presentation	50,000
Audio/visual equipment	80,000
Total Construction costs	$2,993,660
Grand Total Construction Costs	**$4,764,765**

3. Educational staffing will increase slightly to serve an additional one million visitors that are expected to visit the *Mississippi National Center. Education Center*, and *Exhibition Gallery.* The Educational and Visitor Services staffing table that follows replaces the Division of Interpretation and Visitor Services staffing table on page 93 in the CMP.

Staffing of the *Mississippi River Education Center* would be provided by MNRRA, SMM, and other partners. MNRBA would staff the basic operation and administration of the center, approximately 1/2 of the programming, and would staff the center when open on weekends and during other heavy use periods for drop-in visitation. The SMM would provide staff for about 1/4 of the programming. St. Paul Parks and other partners would provide staff for the other 1/4 of the programming. Staffing for the *Mississippi River National Center* would be provided by the NPS and its cooperating association. Staffing for the *Mississippi River Exhibition Gallery* would be provided by the SMM.

4. The other recurring annual operational costs that are shown below in 1996 dollars that will need to be adjusted for inflation.

Lease of space for *Mississippi River National Center*	$56,000
Annual change, updating, and maintenance of the *Mississippi River Exhibition Gallery* exhibits	$50,000
Maintenance of the *Mississippi River Education Center*	$92,000
Total for operational costs other than staffing	$198,000

5. The Proposed Development (page 54) and Preliminary Partner Responsibilities (page 56) sections of the CMP will remain as shown with the Mississippi River Education Center substituted for the interpretive center/administrative headquarters, except as specified below:

- location of particular program areas within the building will be determined by future design work.

- Use of water as a unifying element in the building, and a plaza with a water feature will be determined by future design work.
- Parking will be provided for approximately 50 cars with provision for bus loading and parking. Large expanses of asphalt will be avoided. Location and number of lots will be determined by future design work.
- The City of St. Paul will provide docking space on the Harriet Island Park public dock as needed for programs being offered from Mississippi River Education Center. Details and schedules for the docking space will be negotiated.
- Since the partnership with the SMM and the City of St. Paul has been established to provide programming from the Mississippi River Education Center, the NPS will not actively seek a complementary interpretive facility on site or adjacent land. The NPS will continue to work with the City to encourage complementary development in the area of the Education Center.

6. This amendment adopts the details of this partnership as further described in the document attached to this amendment, "Mississippi River Educational Partnership," dated June 12, 1996.

LEGAL COMPLIANCE

NPS staff has determined that no additional environmental impact analysis is necessary as a result of this amendment to the MNRRA CMP. An environmental impact statement was prepared in association with the CMP that complies with requirements of the National Environmental Policy Act (NEPA) and its implementing regulations and guidelines. No additional analysis is needed for the following reasons:

- The Mississippi River Education Center would be constructed on the same footprint as the Harriet Island Interpretive Center described in the CMP. This smaller facility would have similar, but smaller environmental impacts (primarily during construction).
- Environmental impact analysis for construction of the new Science Museum will be conducted under applicable laws before construction begins. No adverse impacts over-and-above those for construction of the building are expected for development of the Mississippi River National Center and the Mississippi River Exhibition Gallery.
- Development of outdoor exhibits and classrooms is not expected to result in significant environmental impacts. If necessary, additional environmental impact analysis of these developments will be conducted when plans and sites become more defined.

The amendment complies with requirements of Section 7 of the Endangered Species Act. Since actions proposed in the amendment are materially similar to those proposed in the CMP, the environmental impact statement's findings that listed species will not be adversely affected remain valid.

The amendment also complies with requirements of Executive Orders 11988 (Floodplains) and 11990 (Wetlands). No National Park Service construction is proposed that would adversely affect floodplain or wetland values.

As a part of preparing this amendment, the NPS consulted with the Minnesota State Historic Preservation Office (SHPO). Based on the consultation, it was agreed that additional SHPO review of outdoor exhibit and outdoor classroom actions will be required after

additional details become available. It was further agreed that additional review would be necessary when more details become available on the design and construction of the Mississippi River Education Center.

Educational and Visitor Services Staffing					
National Park Service Positions	Grade	Salary (1)	Benefits (2)	Support	FTE
Existing Authorized Staff					
Division chief, park ranger	12	$46,905	$14,072	$11,726	1
Interpretive specialist (volunteer development)	9	32,114	9,634	8,029	1
Park Interpreter	5/7/9	16,957	4,817	4,127	.5
Park Interpreter (temporary guides)	5	10,597	3,179	2,649	.5
Additional staff needed to operate the Mississippi River National Center					
Electronic media specialist (4)	11	38,854	11,656	34,714	1
Mississippi River Education Specialist	9	32,114	9,634	8,029	1
National Park Service Education Specialist	9	32,113	9,634	8,029	1
River Educator, temporary	5	42,388	12,716	10,597	2
Coordinator: Partnership, Volunteers, and Scheduling	7	26,251	7,875	6,563	1
Additional staff needed for other cooperative programs and facilities					
Heritage Education Specialist	11	38,854	11,656	9,714	1
Interpretive specialist (neighborhood outreach)	9	32,114	9,634	8,029	1
Interpretive specialist (special populations)	9	32,114	9,634	8,029	1
Park Interpreter	5/7/9	48,171	14,451	12,380	1.5
Park Interpreter (temporary guides)	5	31,791	9,537	7,948	15
Total	N/A	$202,381	$181,769	$605,908	20
GRAND TOTAL NPS STAFFING COST	N/A	N/A	N/A	**$990,058**	N/A

1. For unfilled positions, salary shown at step 3 for full performance using salary levels effective January 1996
2. Benefits approximated at 30% of base salary
3. Support (supplies, materials, training, travel and other expenses) approximated at 25% of salary
4. Includes $25,000/year support costs for hardware and software development and maintenance
5. Contract experts would highlight a different National Park or Mississippi River issue each week

Mississippi River Educational Partnership
Science Museum of Minnesota
Mississippi National River and Recreation Area
June 12, 1996

VISION

To bring together the Science Museum of Minnesota (SMM) and the Mississippi National River and Recreation Area (MNRRA) in a partnership that enhances the power of both to interpret the entire Mississippi River and its watershed, particularly the stretch in the Twin Cities metropolitan area.

The Science Museum of Minnesota brings:

- a great city location;
- a large established general audience;
- a research focus on riverine systems;
- first-quality exhibit development skills;
- a rich array of camps and classes serving schools and families; and
- the ability to raise funds from private sources.

The Mississippi National River and Recreation Area brings:

- a great river-side location near the Lilydale flood plain forest;
- standing connections to interpretive sites along 72 miles of the river plus three other units of the National Park System along the Mississippi (Effigy Mounds National Monument, Jefferson National Expansion Memorial and National Historic Site, Jean Lafitte National Historical Park and Preserve);
- the ability to raise funding from park service sources;
- a potential audience of adults and families interested in natural and cultural history and outdoor recreation; and
- its connection to the National Park Service with its world-wide reputation for quality educational programs & visitor experiences.

The SMM and MNKRA will form a partnership to create for the public a unique facility focusing on the Mississippi River featuring:

1. the only national center dedicated to interpreting the Mississippi River;
2. a one-stop information center for planning trips to places of interest along the Mississippi, to national parks; and to related sites world-wide;
3. a rich and wonderful exhibition gallery on the history, ecology, and economics of the Mississippi River and Watershed;
4. a shared, in-town, riverside, group programming center and trailhead;
5. connections with organizations and individuals throughout the United states that focus on the Mississippi River and its watershed;
6. increased political and financial potential for developing outdoor exhibits and programming
7. along the river (for instance, River Park); and
8. enhanced programming to serve families and other diverse audiences;

PARTNERSHIP

The SMM and MNRRA, part of the National Park Service, will collaborate to:

Develop a 2,000 net square foot Mississippi River National Center located within the new Science Museum to be built on a river bluff in downtown Saint Paul. Open to the public without charge, the Center will serve people interested in finding out about:

- the Mississippi National River and Recreation Area;
- regional and national organizations and programs that interpret the Mississippi River and its watershed;
- ongoing and recently completed scientific and environmental research on the watershed; and
- national parks and selected local, regional, and national public recreation areas;

Develop a 5,000 net square foot Mississippi River Exhibition Gallery located within the fee area of the planned new Science Museum to interpret the Mississippi River Watershed with an emphasis on the area defined by the confluence of the Minnesota, the Mississippi, and the St. Croix rivers. An additional 1000 square feet of exhibits will be outside the new Science Museum and accessible without charge.

Develop a 6,700 net square foot Mississippi River Education Center located on Harriet Island within Harriet Island/Lilydale Regional Park that will support MNRRA, SMM, Saint Paul Parks and Recreation, and other organizations in their delivery of river-related and environmental programming to groups of school children, families, and adults.

Enter into partnership with the City of St. Paul to plan, to raise funds for, and to develop expanded outdoor exhibits, classrooms, and programs on both sides of the Mississippi River, focusing on River Park and the Kellogg Boulevard River Overlook near the new SMM building on the east side and on Harriet Island/Lilydale Regional Park on the West Side.

Mississippi River National Center

Located on the lobby of the new Science Museum, the Mississippi River National Center, operated by the National Park Ser/ice and identified by its arrowhead logo, will provide a unique introduction and starling point for visitors interested in learning about and exploring the Mississippi River. The National Center will feature a wide range of experiences and materials that cover the entire river and its watershed, especially highlighting the section of the river flowing through the Twin Cities metropolitan area that was designated in 1988 as the Mississippi National River and Recreation Area. Most information and materials will be provided free of charge, books, maps, software, and other park- and river-related materials will be offered for sale.

Along with information about MNRRA, visitors will be able to collect materials and to learn about all 369 units of the National Park System. This unique opportunity will be offered nowhere else in the world! Uniformed National Park Rangers will assist visitors as they use the National Center. The latest technology will provide access to an incredible wealth of information about these resources.

Visitors will be able to choose from these resources within the National Center to gather information about the Mississippi River and National Parks.

Orientation This will be the starting point for visitors who want to learn about the Mississippi River. The range of experiences inside the Science Museum — the Mississippi River Exhibition Gallery, special programs and performances, and the National Center itself— will be promoted. Also highlighted will be an orientation to MNRRA and educational experiences about the river. Models will show the three rivers in the metro area and the entire Mississippi River watershed. Interactive stations will provide information about Mississippi River attractions and programs and about National Park areas. Educational experiences will be highlighted.

Trip Planning A full range of materials will provide information for those planning a trip through the watershed, to one or several units of the National Park System, or to other areas with a similar focus

world-wide. Visitors will be able to send an electronic inquiry to hundreds of sources of information. National Park Rangers will help visitors gather the resources they need to plan exciting adventures. Students can collect resources in this area to prepare reports on the Mississippi River and National Parks.

Take-home Materials Books will reveal the many aspects of the Mississippi and the diversity of the National Park System. Maps will guide the adventurer by foot, automobile, or watercraft. Videos and software will bring possibilities to life. Brochures from National Park areas, attractions, and river towns will provide site-specific details. Many of these materials will be provided free of charge, others will be available for purchase.

Guest Appearances Each week, the spotlight shines on a different river attraction, educational program, park, or resource. Experts on the subject give programs in the National Center, the Mississippi River Exhibition Gallery, or elsewhere in the museum. Associated with these programs are special exhibits, audiovisual presentations, and collections of resource materials. This area will tap expertise from across the country and, occasionally, from elsewhere in the world.

Twenty-first Century Library This resource area will focus on providing access to information about current river and park issues using the best technology available. It will highlight information for citizens wishing to become involved in caring for the river. Much of this information will also be placed on the World Wide Web. Students will be able to collect specific, up-to-the-minute data for in-depth study of the Mississippi and National Park System sites. They will also be able to communicate electronically with professionals managing these resources.

Resource Science Update This area will highlight current river and park research and provide a listing of opportunities for youth and adult science learning.

In summary, the Mississippi River National Center will be a dynamic place that provides up-to-date information using technology designed to serve the individual needs of visitors. As compared to more traditional National Park Service visitor centers, the Center will provide a more integrated, service-oriented approach. Up to date

information technology will serve visitors' individual needs. Each visit to the Center will be an immersion in the sights and sounds of the magnificent Mississippi River and our cherished National Parks.

Mississippi River Exhibition Gallery

It is easy to rely on superlatives to describe the Mississippi River. It is such a long, large, wide, deep river! But impressive statistics can just as readily obscure as illuminate the river that is the heart of the North American continent. The Mississippi River is an amazing mix of complexities and subtleties.

The Mississippi River is both an ancient and a young river. It has changed enormously over long lengths of geologic time, but change has never been so dramatic nor so abrupt as over the past 150 years. It has been a locus for human settlements and a conduit for human commerce for at least 12,000 years and now is part of a vast commercial network of global proportions. Reflecting its vast and varied watershed, it is home to a wealth of biological diversity and fecundity which presently suffers from the actions of the highly industrialized society that has greatly altered both the river and its basin.

The Mississippi River Exhibition Gallery is an exhibition designed to provide visitors with an intimate appreciation of this waterway. The subject matter is the whole river, but it will focus most on the Upper Mississippi River (above St Louis) and especially on the stretch of river directly outside the windows of the Gallery and within the Twin Cities metropolitan area. The exhibition will take advantage of its location between two major tributaries of the Upper Mississippi (the Minnesota and St Croix Rivers) to explore the concept of watersheds. Visitors will not only learn about the Mississippi River, but also use the river to explore the scientific techniques we use to study rivers everywhere.

A river seems a magic thing. A magic, moving, living part of the very earth itself —for it is from the soil, both from its depth and from its surface, that a river has its beginning.

Laura Gilpin, The Rio Grande. 1949.

Exhibition Location and Character The exhibition will be located in the 5,000 net square foot gallery that forms the entrance to the fee area of the new Science Museum. This gallery connects to a large outdoor terrace that overlooks the river and river valley. An additional 1000 net square feet of exhibits will be located in free

areas such as on the Kellogg Boulevard River Overlook and within River Park, a new public area located on the river bank in front of the new Science Museum.

The exhibition is planned to combine a high percentage of interactive components (that encourage visitors to learn actively through demonstration of phenomena and testing theories) within a rich environment of objects, photographs, and human stories. Over the ten-year lifespan of the exhibition, MNRRA and the SMM will implement regular changes to keep the exhibition content current with ongoing research on the Mississippi River and to provide new experiences for returning visitors.

Project Mission The Mississippi River Exhibition Gallery will connect visitors to the Mississippi River through the telling of its stories and through the use of the river to explore the science of rivers and watersheds. Through the integration of these two approaches, visitors will come to appreciate how people shape the river and how the river influences people's lives.

Project Themes The Gallery will address two overarching questions — "What is the Mississippi River?" and "What is the future of the Mississippi River? The first question will explore the many intricate and intermingled physical and human attributes that collectively constitute the Mississippi River. The second question will build on the insights derived from the first in an effort to define some of the trends, both positive and negative, that are likely to shape the character of the river for years to come. Key concepts and questions will expand on the project themes. They will be used to identify and delineate the particular exhibit components and programs that will comprise the Mississippi River Exhibition Gallery.

What *Is The Mississippi River?* Where Did the River Come From? How long has the Mississippi River existed? What were the geologic processes that brought it and its watershed about? How do Native Americans explain the origins and existence of the river? How has the river changed from pre-glacial to glacial to post-glacial times? Will there always be a Mississippi River?

- The Mississippi River and its watershed is a complex, changing, physical and biological system.

- The Mississippi River has been and continues to be a catalyst for human economic, social, and cultural activity.

Peoples of the Great River Archaeologists have found evidence of human occupancy along the Mississippi River going back at least 12,000 years. What is it about the Mississippi that has made it an attraction for human endeavors since people first set foot in North America? From Cahokia of 1100 AD to Minneapolis/Saint Paul of today, why do major cities tend to be found adjacent to waterways? How did peoples of the past use the Mississippi River and how do these activities contrast and compare to how we use the river today?

Mississippi River in Our Hearts and Minds The Mississippi River is the subject of a remarkable quantity of music, literature, art, and crafts. It is also an international icon. Why is the Mississippi River known around the world? Why does this river exert such a strong effect on the human imagination? What do these outpourings of human creativity reveal about what we think and feel about the river?

The Working River The present-day Mississippi River is a significant locus for human enterprise in the Upper Midwest. From Minneapolis to St Louis, thousands of barge tows every year ply their way along the nine-foot navigation channel. How does the river work as an artery for commerce? How do locks and dams work? What are the "rules of the road" on the Mississippi River? What are the commodities that move up and down the river and why is water the preferred way of transporting such commodities rather than highways, railways, or the air? In what ways does the Mississippi River connect the center of the United States to the rest of the world?

Drinking the River The Mississippi River is central to our lives not only for its commercial role but because for many of us it serves an absolutely vital need — a source of drinking water. Millions of Americans rely on the river for bathing, washing, cooking, drinking, and many other household needs. Keeping the river clean is not just a nice thing for the environment but is essential for the health of all of us who count on this water supply. How is Mississippi River water treated to make it potable?

What are the contamination threats to drinking water? What can be done to ameliorate them?

How Do Rivers Behave? It is easy to think of rivers merely as channels filled with water flowing downhill because of the pull of gravity, conduits that collect water and sediment shed from surrounding lands and then carry them away. In reality, rivers are remarkably complex because they have their own discrete set of physical conditions that vary over both time and space. The quantity of water being carried by a river, its velocity and sediment load, the composition of the river bed and banks, and many other factors influence the behavior of rivers. What are the mechanics of how rivers and their watersheds work? What are the causes of great river floods, what changes do they make in river forms and dynamics, and how does life along the Mississippi change with them?

A Biological Bounty Historical accounts tell of an incredible abundance of fish, mussels, waterfowl, and other animal life. What accounted for this astonishing productivity and diversity of life in the Mississippi River? The river was and continues to be a major route for the passage of animals north and south through the North American continent. Why and how does the river act as such a powerful ecological focal point? What are some of the ways in which the river and its watershed are linked to the ecological processes taking place hundreds and even thousands of miles away?

How Do We Know What We Know? How do we develop scientific understandings of the complex and ever-changing biological and physical interactions that are a river? What are the tools and methodologies applied by scientists to the study of rivers? Using case studies from the Mississippi River and other rivers in Minnesota, what are some of the major scientific investigations currently ongoing and what are some of the big unanswered questions about how rivers behave that are still waiting to be investigated?

What is the Future of the Mississippi River? Can I Eat the Fish? Fishing is a very popular recreational activity along the entire length of the Mississippi River. In many locations, unfortunately, fish consumption advisories have been posted, warning people about

the types and sizes of fish likely to contain elevated levels of contaminants, such as PCBs and mercury. Many of these contaminants are found in the water of the river itself in very small quantities. How can minute amounts of toxic substances become concentrated in the bodies of fish and other aquatic animals? What does this "bioaccumulation" reveal to us about how human contaminants migrate through ecosystems? What can be done to address this problem?

- Humans have become the dominate agent of change for the Mississippi River and its watershed.
- The character of the Mississippi River in the future largely will be the result of human decision making.

The Long Reach of the River In the early 1970s, scientists discovered an area in the Gulf of Mexico with very low concentrations of dissolved oxygen in the water. The Dead Zone (virtually devoid of fish, shrimp, and other aquatic life), has in recent summers covered over 6,000 square miles, an area 1.5 times the size of the nine-county Twin Cities metropolitan area. Scientific research indicates that the Dead Zone is the result of an ecological chain reaction set in motion by excessive nutrients spilling into the Gulf from the Mississippi River, the majority of which enter the river in the Upper Midwest. How are the health of the Mississippi River and the Gulf of Mexico dependent on one another? What is the role of the Upper Midwest in helping to address an environmental problem over 1,000 miles away?

Is the River Dying? Year by year, scientists are noting a steady decline in the biological diversity and productivity of the river, especially along portions of the Upper Mississippi River. Are these natural fluctuations or is the river ecosystem in danger of collapse because of human alterations of the river and its watershed? How significant are these changes to the continued ability of the river to sustain its complex ecosystem and maintain those qualities that make the river so appealing to people? What does it mean to say that the river is dying? Can a river really die?

What is the Future of the Mississippi? Humans are the most significant agent of change on the globe, and this is no less true in the watershed of the Mississippi River. The Mississippi River of the future will be a river largely shaped by human activity, either

inadvertently or by design. What kind of river do we want? The river is home to otters and eagles and is an international superhighway for agricultural commodities. How do we reconcile the diversity of visions for the river? How is society's ever-increasing scientific knowledge and technological prowess shaping the ways in which we envision the river's future?

Mississippi River Education Center

Located within Harriet Island/Lilydale Regional Park, the *Mississippi River Education Center* will offer a robust and varied collection of educational programs about the Mississippi River. Programs will be designed to combine indoor, structured learning with experiences on the river or in the many outdoor classrooms to be found in and around the park. The *Education Center* will include a water lab, wet room for water-oriented programming, computer stations, multipurpose program rooms, multipurpose auditorium, a multipurpose room for river-related community meetings and drop-in visitors, rest rooms, and storage and staff space. The *Education Center* will have access to docking space on the river.

The primary audiences of the *Education Center* will be schools and other organized groups. Programs will also be offered for youth and for the general public. Most programs will be offered by reservation only. The *Education Center* will be open to the general public on a drop-in basis during special events and during park high-use periods.

The *Education Center* will be built and operated by MNRRA. A professional staff of National Park Service educators will provide programming at the Center. The SMM will provide registration and booking services. The SMM and Saint Paul Parks and Recreation will be major programming partners. Other possible partners include commercial boat operators, educational institutions, and not-for-profit neighborhood groups. Programs will be offered individually by these groups or by two or more in partnership. The programs offered will all be educational programs relating to the Mississippi River and MNRRA's interpretive themes. Many programs will charge a fee, others will not. Another major use of the center will be for community meetings, workshops, conferences, and seminars related to the river.

Programs at the *Education Center* are generally aimed at combining indoor instruction with use of "classrooms" located outdoors along the river and in the parks. Since the focus is on the river, almost all of these programs will originate in the open water season between April and November. To enhance its identity as a site for *Mississippi River E*ducation, the *Education Center* should be connected to the greatest extent possible by proximity and line-of-sight with the

river. MNRRA education staff will be housed within the *Mississippi River Education Center* but the Administrative headquarters for MNRRA will continue in leased space.

Listed below are sample programs that could be offered at the *Education Center*.

Guided Programs on the Mississippi River Participants in these programs would explore different aspects of the river. Trips ranging from one hour to day-long would begin with orientation and instruction in the *Education Center* followed by on-river experiences from the Harriet Island/Lilydale Regional Park Dock. Transportation would be provided by commercial boat operators and other private boat owners.

Program hosts: MNRRA, SMH & other partners.

Guided Programs to Lilydale an urban wilderness At the *Education Center*, these programs would start with orientation and indoor instruction. They would then move to outdoor classrooms at the quarry, flood plain forest, and reclaimed residential area.

Program hosts: MNRRA, Saint Paul Parks, & other partners.

Mississippi River Science These two hour boat trips offer hands-on-learning experiences that will foster in student participants a sense of awareness of river ecosystems and connection with the river environment. Through interactive learning stations, students organized into cooperative groups will learn first hand about the geological origins of the Mississippi River, learn to identify the principal riverine ecosystems and some of the plants and animals that live in them, monitor the river's health, and learn about current issues related to the river and its watersheds and what we can do about them. Structured learning experiences in the *Education Center* complement the time on the river. For grades 4-8.

Program hosts: MNRRA, SMM, commercial boat operator, & other partners.

National Parks Educational Sampler A few of the best education programs from 369 National Park Areas would be offered at the *Education Center*. These programs would be related to the MNRRA

themes and would change yearly. This would offer participants a chance to learn about other National Park areas.

Program host: MNRRA.

Eye on the Mississippi The *Education Center* would be a staging area for this program that is connected to exhibits in the Mississippi River Gallery. Volunteers would take daily research trips on the river. The *Education Center* would be used as a place to process data collected, prepare samples, and store equipment.

Program host: SMM.

Urban Park Interpretation Program Urban students, particularly culturally diverse populations, have not traditionally had the opportunity to participate in environmental education, classes, and field trips. In this program, urban high school students would be trained to provide park-based environmental instruction for elementary school students in this park and in other parks in Saint Paul and Minneapolis. Besides receiving direct training on environmental issues, the high school students would be exposed to a variety of natural resource, horticulture, zoological, and other related professions often under represented within culturally diverse populations. Working with these professionals, students will participate actively in resource management and restoration programs within Harriet Island/Lilydale Regional Park and the other parks.

Program host: Saint Paul Parks.

Summer Science Day Camps One-week summer camps would be held at the *Education Center* as scheduling permits. Camps would have a strong environmental focus with river ecology and stewardship a principal theme. Each camp would accommodate a maximum of 45 participants who would pay a registration fee.

Program hosts: SMM, MNRRA, Saint Paul Parks, & other partners.

Overnight Mississippi Camp-ins A number of weekend evenings in the summer, fall and spring would be reserved for group or family camp-ins based at the *Education Center*. This fee-based program would focus on hands-on activities that introduce

participants to a broad range of river topics, including riparian and riverine environmental and ecological issues, river stories and music, as well as geology of the river valley.

Program host: SMM & MNNRA.

School Group Tours With over 170,000 school children visiting SMM annually and over 200,000 projected once the new SMM is opened, it is highly probable that a portion of those school groups would be interested in spending up to several hours at the MNRRA education facility for a Mississippi River program. Fees could be charged.

Program host: SMM, MNRRA, & Saint Paul Part.

Teacher Workshop Series An annual series of quarterly one-day workshops for elementary teachers would be offered that cover a wide range of river topics. These would be seasonal workshops that focus on specific themes that have broad application in the K-6 curriculum. This quarter of workshops would serve as a core set offered each year for a limited number of teachers (25-30 per workshop). Along with the workshop, SMM and MNRRA would develop some classroom materials and activities that teachers would incorporate in their ongoing curriculum. These workshops would be developed to stimulate a cadre of trained teachers to use the river as a theme throughout their classroom activities. The workshop series would be a fee-based program.

Program hosts: SMM, MNRRA, Saint Paul Parka, & other partners.

Week-long Science Residencies The Investigators' Club Program at the Science Museum offers academic-day enrichment programs to gifted and talented youth from area schools. Investigators' Club classes are 10 hours long with focused inquiry activities around a specific topic. Classes would be taught by museum teaching staff team teaching with National Park Service educators. A classroom facility on the river would offer a superb opportunity to explore the Mississippi River through laboratory and field exercises — an opportunity not offered in our metro area. A class would address the questions about river health, ecology, the source and impact of pollution, the river and the growth of the city, fish and their ability to thrive in the river. It would provide hands-on training in the use

of equipment techniques, and principles that are fundamental to both freshwater and marine ecology. The Investigators Club would be a fee-based program.

Program hosts: SMM & MNRRA.

Weekend Youth and Family Workshops/Field Trips Each weekend, special family programs would be offered at the *Education Center* that would incorporate the broad range of river topics of interest to the general public. Sample programs include "Fossil Findings for Families," "Mississippi River Tales," and "Ancient Peoples of the Mississippi — An Archaeological Field Trip." These would be fee-based programs.

Program hosts: SMM & MNRRA.

Mississippi River Institute for Teachers This two-week, graduate level, institute would bring together environmental educators, university researchers, and elementary/middle school teachers for a summer institute to explore river-based curricular materials, current environmental/ecological research and issues impacting the Mississippi and other river systems, as well as river studies drawn from literature and the arts. The River Institute would be based at the education facility with field trips to research sites and other educational/laboratory facilities as needed. National funding would be sought for this project.

Program hosts: SMM, MNRRA, SL one or more institutional partners, including Hamline University's Center for Global Environmental Education and the University of St Thomas.

Tri-Rivers Leadership Development Camp This three-week youth camp would enable young people in Minnesota to learn about and develop educational projects focusing on the ecological and environmental issues and concerns regarding the St Croix, the Mississippi, and the Minnesota rivers. The camp would foster increased and active youth stewardship of Minnesota river systems through involving its participants in experiential environmental education activities related to these, three river systems. For three weeks each summer up to 30 high school students from throughout Minnesota (perhaps the region) would camp and learn together in various locations around the state using the three rivers as "outdoor

laboratories." Camp participants would study the natural and current physical conditions of these three water resources and would be trained in water monitoring techniques. Rural and urban site visits to industries (agriculture, business, and recreation) that are dependent upon and influence each of the three watersheds would also be at the core of the daily programming. The camp would use the *Mississippi River Education Center* for its base and would spend approximately one of the three weeks around or at the *Education Center*. The camp would be developed and offered initially through a grant, but would be structured to become a self-supporting camp.

Program hosts: SMH, MNRRA, & other partners.

Riverboat Rendezvous This summer event aims to reveal the economics and lifestyle of river commerce. Towboats, barges, paddle wheelers, and other boats would converge on Harriet Island/Lilydale Regional Park. The public would get a chance to meet and talk with pilots and deckhands during a visit. Many of the boats would be open for a tour, exhibits would link the boat to the economy of the river. Programs of river music, skills, and stories would be provided. The *Education Center* would be open to the public with special exhibits and programs.

Program hosts: MNRRA, SMM, Saint Paul Parks, commercial boat operators, & other partners and sponsors.

Summer River Fest Each summer SMM and MNRRA would plan and host a major river festival that would span both sides of the Mississippi. The Celebration Plaza at the riverfront museum would be one performing stage with the *Education Center* offering a variety of drop-in mini classes, lectures, demonstrations, and exhibits.

Program hosts: SMM, MNRRA, City of Saint Paul, & other partners and sponsors.

Outdoor Exhibits and Programs

MNRRA and the SMM will join with the City of Saint Paul to plan and to raise funds over the next ten years for the development of expanded outdoor exhibits, outdoor classrooms, and outdoor programs about the Mississippi River and the Mississippi Watershed for pedestrians and park users. The exhibits will be concentrated in three areas: on the Kellogg Boulevard River Overlook near the new Science Museum, within River Park the parcel of land lying between the relocated Shepherd Road and the Mississippi River stretching from Head House down river and to the South of the Science Museum, and within Harriet Island/Lilydale Regional Park. The outdoor classrooms will be concentrated within Crosby Farm-Hidden Falls Park and Harriet Island/Lilydale Regional Park. The outdoor programs will be concentrated within River Park and within Harriet Island/Lilydale Regional Park.

Kellogg Boulevard River Overlook Exhibits located off Kellogg Boulevard near the new Science Museum will orient pedestrians to the river scene they see spread out before them and introduce them to some of the natural and human activity going on there. For instance, a three-dimensional map of the river valley might be used to help users identify both landforms and landmarks. An illustration might show the site when the channel of the great River Warren covered much of the land between the river bluffs. A large windmill/weather vane might identify prevailing wind patterns in the river valley and along the bluffs.

River Park Occupying a large wedge-shaped piece of land bounded by the relocated Shepard Road and the bank of the Mississippi, River Park is the terminus of a public causeway leading from the city center, linked by bicycle and walking paths to Crosby Farm-Hidden Falls Park and Minneapolis upstream and Pigs Eye Lake and the metro waste water treatment plant downstream.

The goal of River Park will be to provide linkages, new connections between the City of Saint Paul and the river that is its reason for existence. These linkages will connect the historical industries that lined the rivers edge and the neighborhoods that grew up around them. They will also connect park visitors and the full meaning of the place that they are exploring.

River Park will bring visitors almost to the point of getting their feet wet in the river, a series of scale maps and relief's might help visitors see that they are standing on the river's flood plain, on America's middle coast, on a northern bank of a river that unites Minnesota to the Gulf of Mexico, on a vast watershed that drains more than half of the land mass of the United States. An armillary sphere (a kind of celestial sun dial) could help them understand that they stand at 45° North, exactly midway between the equator and the north pole, almost twice as far north as the spot where the sun pauses at the summer solstice and begins its journey south again. Interpretive gardens of native wetland, flood plain, prairie, and savannah species could help them see that they are part of an extended and varied web of life nourished by the river.

Head House is an historic structure on the river bank that once weighed grain stored in a great array of elevators and discharged it into waiting barges. Head House could be renovated as a site for visitor experiments on the physics and biology of the river and presentations on the site's industrial history. The tower could become a high vantage point for Saint Paul visitors to observe the sweep of the river's course, the high bluffs that marked the edges of the prehistoric River Warren, and the commercial traffic that still moves along the river.

Harriet Island/Lilydale Regional Park and Crosby Farm Regional Park The regional parks on both sides of the Mississippi River in Saint Paul offer an exceedingly rich environment for the exploration of river dynamics, river ecology, and the ecology of the flood plain. They are full of natural outdoor "classrooms" in which groups may meet for investigation, study, and discussion. They are linked with a network of walking, hiking, and bicycle trails to important physical reminders of Saint Paul's past and present — from the Lilydale brick yard to the NSP High Bridge electricity plant to Pigs Eye sewage plant. They provide opportunities to learn through recreation and to enjoy a near wilderness within an urban setting.

Saint Paul Parks, MNRRA, and the SMM will collaborate in developing exhibits and support facilities that help interpret this wealth. A series of trailhead kiosks can point out environmental features to be found on local walks. Markers can help interpret both the industrial archaeology along the river and the artifacts of current commerce. Supporting infrastructure can be developed to

make the outdoor classrooms easier to use and more accessible to all visitors. And care can be taken to preserve the wildness of the natural environment while helping the curious experience its nature.

MNRRA COSTS AND ATTENDANCE

The table below summarizes estimated NPS construction, staffing, operating costs, and attendance for the Mississippi River Educational Partnership. These are rough estimates developed by the NPS that will need to be revised after additional design work is completed. The attendance estimates for the Mississippi River Education Center were made by comparing it to similar facilities in the Twin Cities and in other NPS areas. Attendance estimates for the Mississippi River National Center and for the Mississippi River Exhibition Galley were provided by the SMM based on past attendance at SMM.

Cost* and Attendance of MNRRA components of the partnership with the SMM					
Component	Size in net square feet	Construction Cost	Operating Cost/year	Staffing cost/year	Estimated Attendance /year
Mississippi River National Center	2,000	$571,105	$56,000	$275,479	300,000- 400,000
Mississippi River Exhibition Gallery exhibits	3,000	$1,200,000	$50,000	0	1,000,000
Mississippi River Education Center	6,700	$2,993,660	$92,000	$266,617	28,000-40,000
Totals	11,700	$4,764,765	$198,000	$542,096	1,328,000- 1,440,000
Grand Totals MNRRA Cost		$4,764,765	$740,096		
*All costs are in 1996 figures and will need to be adjusted for inflation.					

A Walk through the Mississippi River Exhibition Gallery

The face of the water, in time, became a wonderful book—a book that was a dead language to the uneducated passenger, but which told its mind to me without reserve, delivering its most cherished secrets as clearly as if it leered them with a voice. And it was not a book to be read once and thrown aside, for it had a new story to tell every day.

Mark Twain. *Life on the Mississippi.* 1883.

The brief description below is intended to provide a sense of the experiences that you, the visitor, might enjoy while wandering through the indoor portion of the future *Mississippi River Exhibition Gallery*. This hypothetical walk-through is not meant to describe the specific components that will appear in the exhibit because these will change as planning for the hall advances. It is rather to provide an impression of the rich mix of learning opportunities that the new gallery will provide its estimated 1,000,000 annual visitors.

After visiting the *Mississippi River National Center*, you decide to learn more about the river by exploring the nearby *Mississippi River Exhibition Gallery*. As you walk toward the Gallery, you notice that this 5,000 net square foot hall holds the unique position of being the only exhibition space on the main floor of the new museum. This gallery dedicated to the Mississippi River is the first exhibit experience museum visitors have. At the entrance to the Gallery, you notice that its prime location is further enhanced by walls of windows on three sides that offer outstanding panoramic views of the Mississippi River as it winds past downtown Saint Paul. You take a moment to peruse a quick introduction that helps you grasp the overall organizing concepts of the hall before entering.

Upon entering the Gallery you are drawn to a large mask reminiscent of a Mardi Gras float. Stepping closer, you realize that it is a mask created to embody the "strong brown river god" from a T.S. Eliot poem. Near the poem is a large scroll. It is a recreated portion of Henry Lewis' continuous 1840 panoramic painting of the river from Fort Snelling to New Orleans. You turn a handle that allows you to scroll through the painting and then notice a video monitor to the side of the panorama. The video is a documentation of a revisiting of some of the sites that Lewis painted with a team of

artists and scientists. Around this area are exhibit pieces the team created showing how selected sites along the river have changed in the 150 years since Lewis did his painting.

You next enter the pilothouse of a tug. Peering through the pilothouse window, you take your best shot at piloting your full tow of barges utilizing virtual reality techniques. Watch out for that bridge! Next to the pilothouse is a large capstan and rope used to tie up barges. Large piles of grain, fertilizer and other products help tell the story of the huge role commerce plays on Mississippi River.

Near the pilothouse is the large lock and dam model where you and others get to do more role playing. Someone needs to pilot the barge, someone must steer the houseboat, and of course someone has to operate the lock and dam. Do you all know enough about river navigation to ensure safe and swift movement of boat traffic up and down the river?

Also around the pilothouse are other boats. An old birch bark canoe helps tell the story of the archaeological sites along the Upper Mississippi and what we have come to know about the people who lived in this area as long 12,000 years ago. You rummage through the beaver pelts and other items in the belly of a voyageur canoe and ponder the role of the river in the fur trade that first brought Europeans to this part of the country. A portion of a keelboat helps tell the story of European migration and displacement of native peoples in this part of the country.

You see a large crowd gathering over at the River Lab and stroll over. A volunteer river monitor has just arrived from her morning survey of the Mississippi River in downtown Saint Paul in the Sums lab boat, The River Eye., She begins to set out the things she collected: A sample of beaver musk – she asks how many knew that beavers swim the river here in downtown Saint Paul? Video footage of a Great Blue Heron flying overhead – how many are aware of the large heron rookery only two miles away? A water sample from a storm sewer outflow – how many realize what happens to the water that runs down their streets after a rain? People crowd in to touch, smell, and see all that she has to offer.

At another lab window, you try your hand at purifying Mississippi River water. Taking a fresh sample of river water, you pass it

through various filters and mix in appropriate chemicals. The end product is a cup of clear water for you to drink. Is it safe to drink? What contaminants are easy for conventional water treatment to remove, which are more difficult? You take a sip as you contemplate all the millions of people that depend on this river for all of their household water needs.

After your encounter with the River Lab, you decide to discover more about the forces that shaped the Mississippi River. In particular, you are intrigued by a computer simulation that allows you to move freely back and forth through the past 10,000 years in Saint Paul to see how the river channel has responded to changing geologic and climatic forces. Then you roll up your sleeves and try your hands at shaping a river in a stream table. Increase or decrease the flow of water, raise or lower the slope of the topography, install and/or remove dams and levees - under what circumstances do rivers meander, what are flood plains, where is the fastest water in a river channel?

Near the stream table is an incredibly detailed large satellite image of the watershed of the Upper Mississippi River. With the aid of an associated computer program, you get an opportunity to really grapple with the concept of what is a watershed. With the click of a mouse, you can fly over the entire watershed and visit particular points of interest. You can make it rain over a portion of the watershed and watch the water run off the land and begin its journey downstream. You realize that even though you live on land all your actions eventually have an effect on the river.

After the stream, table and watershed map, you realize that hydrology does not need to be inscrutable and actually is fun, but now it is time to discover more about Mississippi River ecology. Along the windows with their panoramic views of the river are several luxuriant grow boxes. One grow box highlights native prairie plants as would have been found on the bluff lands above the river. A series of grow boxes recreate the cyclical life of a river backwater and the importance of varying water levels on the riverine ecology. As you stand over the grow boxes, you wonder what the area outside the windows once looked like and turn your attention to a flip book in front of one of the windows. Maps, old photographs, historical first person accounts allows you to flip through time.

You hear the sound of bird songs and decide to investigate. Nearby under the canopy of a flood plain forest in the spring, you look up and notice songbird species that move up the Mississippi River Valley during their annual northward migration. Around this glen are other stories about animals that rely on the river. An aquarium holds an Atlantic eel and tell the story of how eels migrate all the way up the Mississippi River from their starting point in the distant Sargasso Sea. Another aquarium holds the endangered skipjack herring and reveals why it no longer is found in Minnesota. Tanks of freshwater mussels tell the story of how these unusual creatures are integral to the ecological well-being of the Mississippi River.

You walk over to a nearby wall where a net is filled with enormous fish such as paddle fish, sturgeon, and catfish. You can have your picture taken next to a replica of one of the giants that was pulled from the river. You hear stories from fishers, see historic photos, and read about life histories of these remarkable animals. You are dismayed to discover that certain species and sizes of fish are not recommended for human consumption along many stretches of the river. An exhibit component reveals to you how extremely small concentrations of toxic substances, such as PCBs and mercury, can accumulate as they move through the food chain.

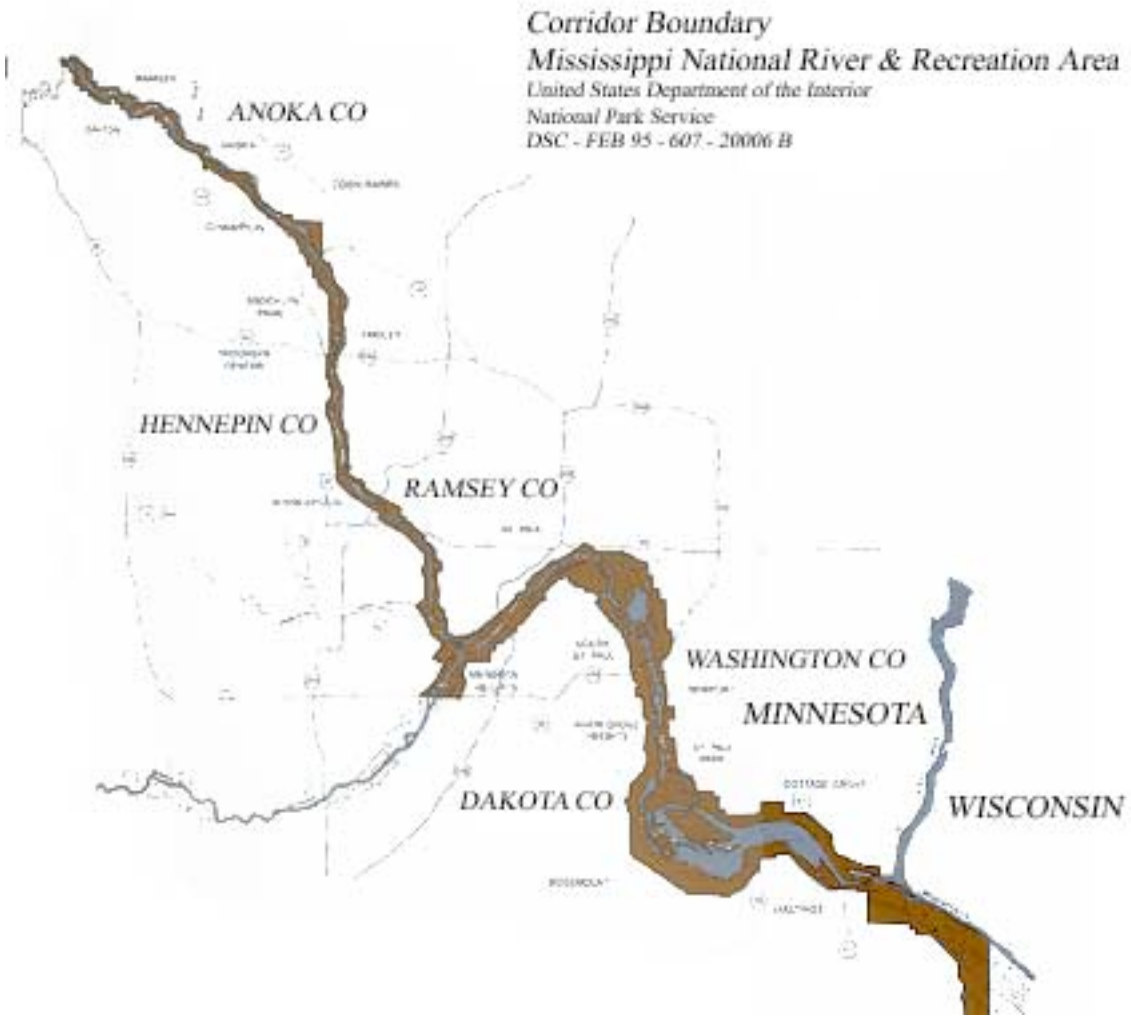
A large wall of water in the shape of a question mark catches your attention. Upon walking over, you discover that this part of the gallery examines the future of the river and poses the question, Is the River Dying? Video clips allow you to see and hear people with varying experiences talking about their points of view on the health of the river. The story of the ecological collapse of the Illinois River is told and parallels are drawn between the Illinois and the Mississippi. Another component allows you to manipulate a simulation model being developed by scientists to help them better understand the complex behavior of the Upper Mississippi River.

You are drawn to a video monitor showing underwater views of the Dead Zone, an area in the Gulf of Mexico virtually devoid of fish, shrimp, and other sea animals because of pollution from the Mississippi river. You are surprised and dismayed to discover that pollutants from the Upper Midwest bear a significant responsibility for this situation. It is amazing that what happens to the river in Minnesota can matter 1,000 miles away in the Gulf of Mexico.

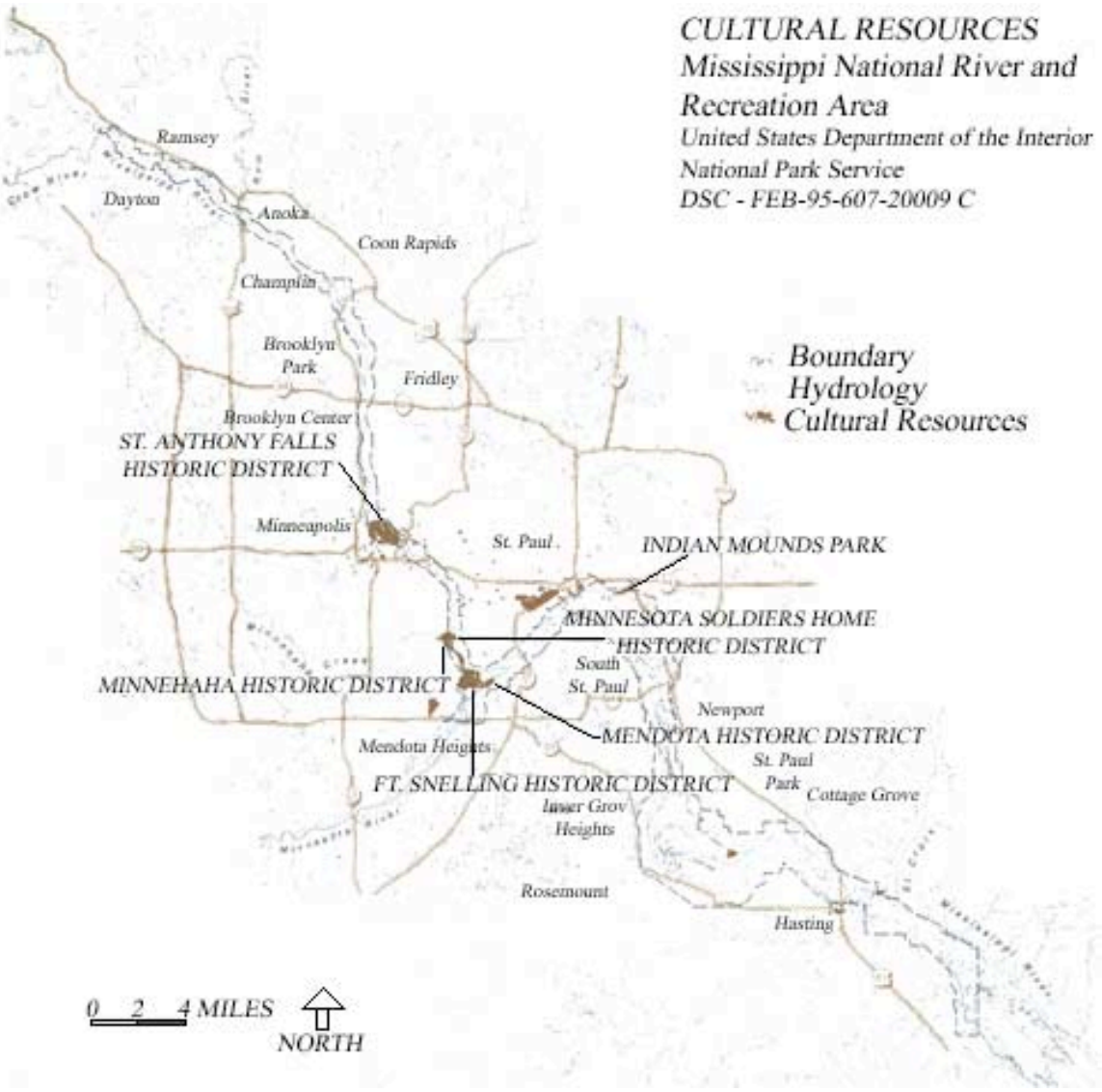
You notice that in a number of places you are encouraged to record your opinions or vote electronically on various issues. It is interesting to compare your thoughts with the range of vies entered by other visitors to the Gallery.

There is still much to see in the Gallery, but the day is beautiful so it is difficult not to want to be outside. You decide to go through the door from the Gallery out onto the 2,000 square-foot plaza immediately adjacent to the hall. The view inside was great but the panorama outside is fantastic. The river in a great ribbon sweeps by in front of you. Telescopes, audio feed from riverboat, radios, and a TV monitor with river traffic information allow you to identify vessels that ply the river, what companies they work for, and what commodities they are carrying. Binoculars, bird books, and other nature guides allow you to observe the birds flying overhead and feeding at nearby stations. You pull a chair up to the railing. You realize that you can learn as much outdoors as in.

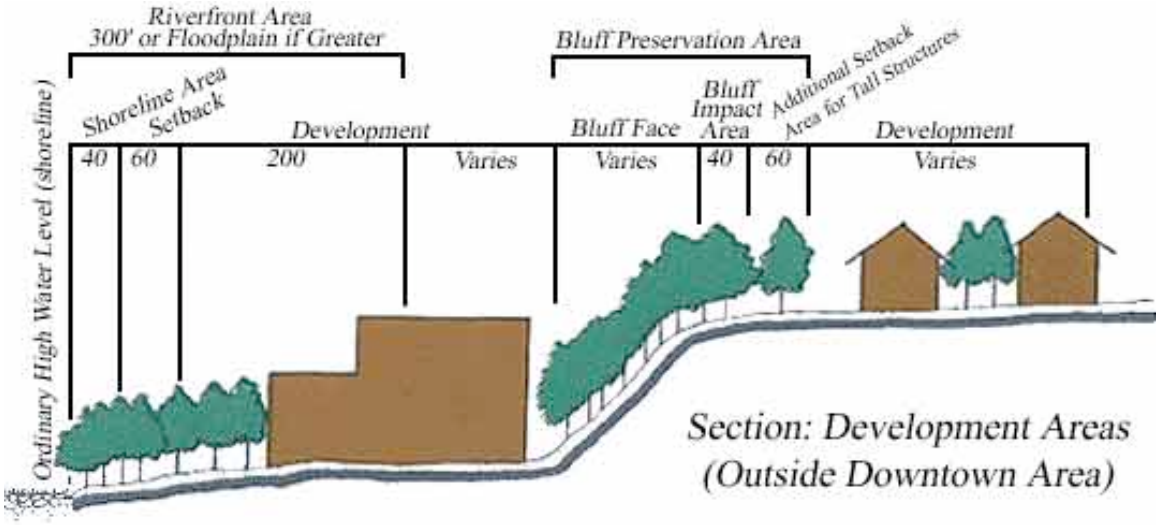
Corridor Boundary



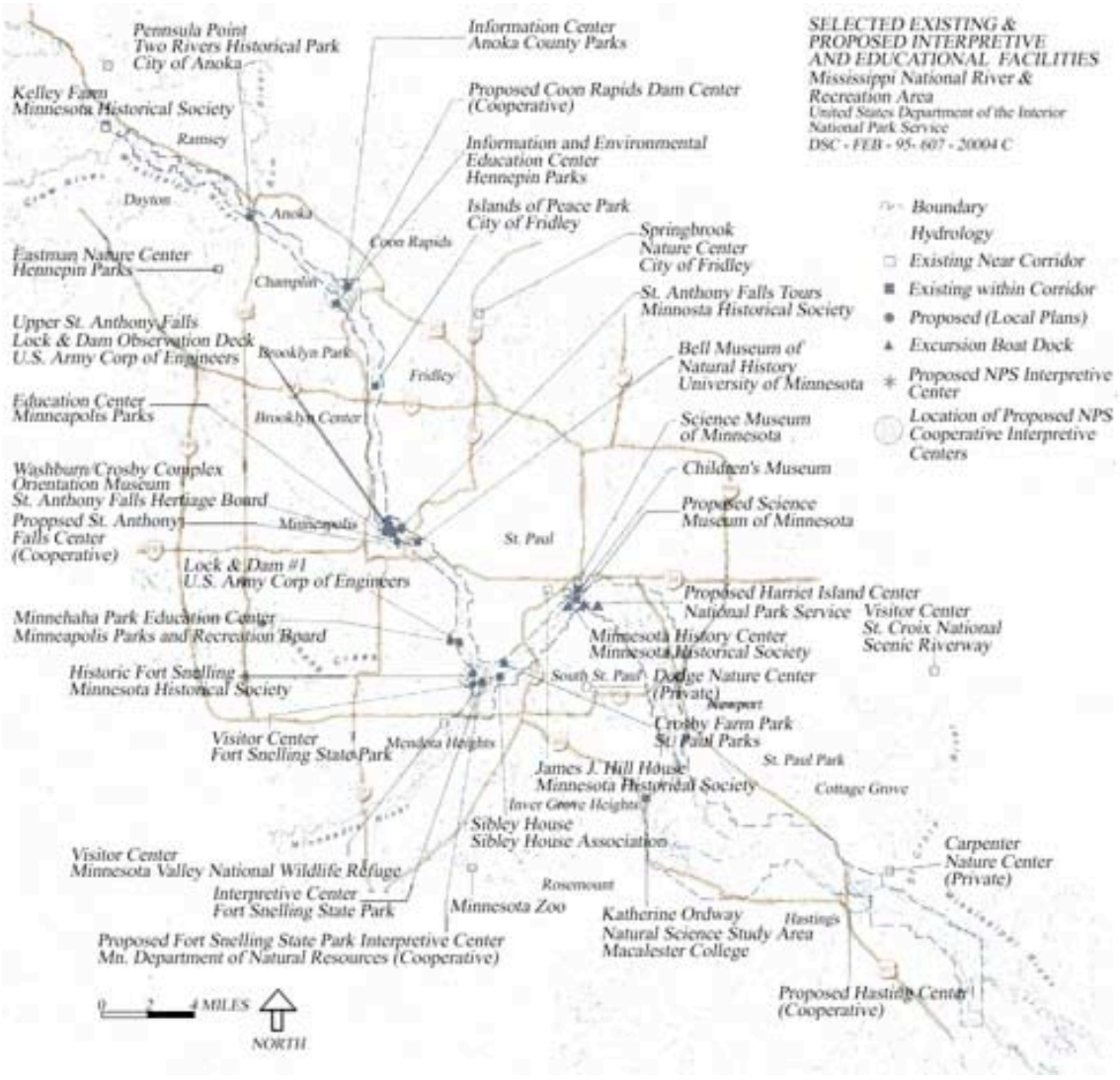
Cultural Resources



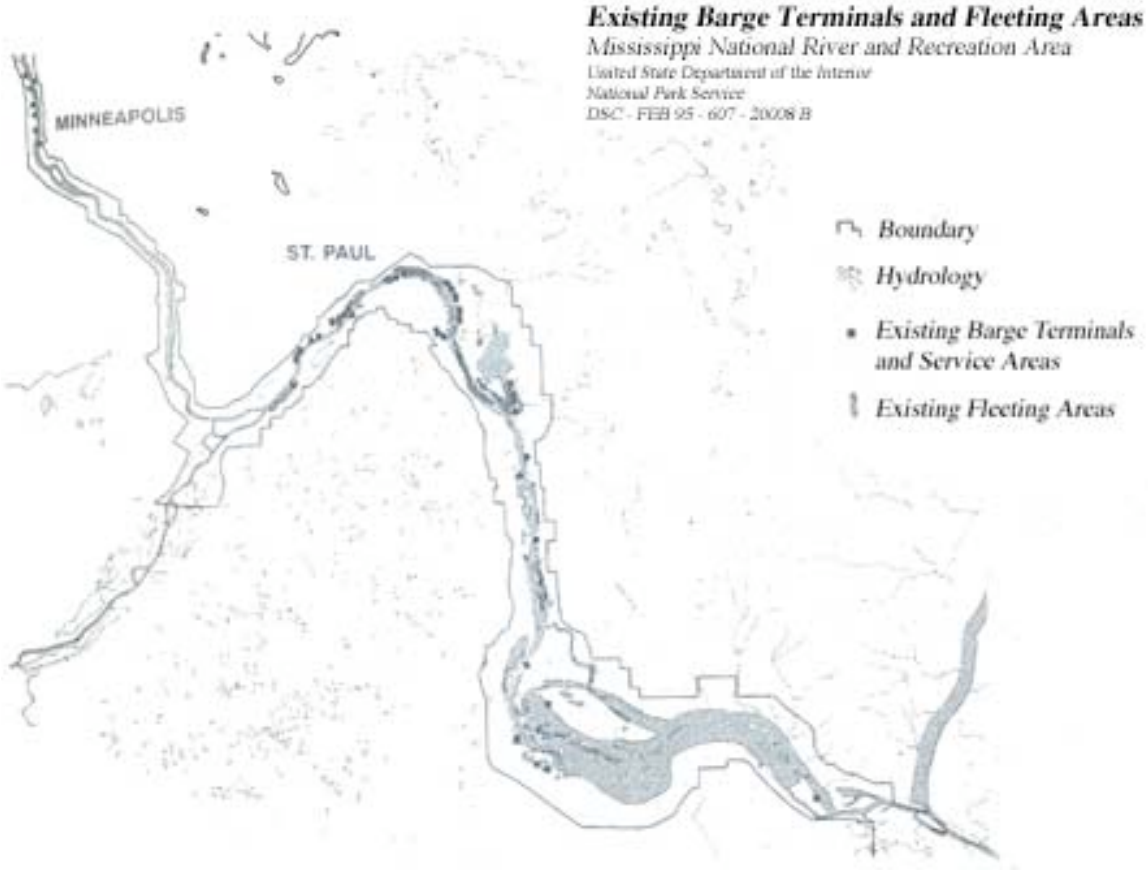
Development Area



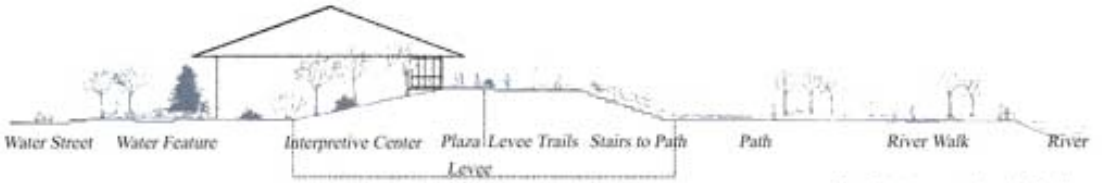
Selected Existing & Proposed Interpretive and Education Facilities



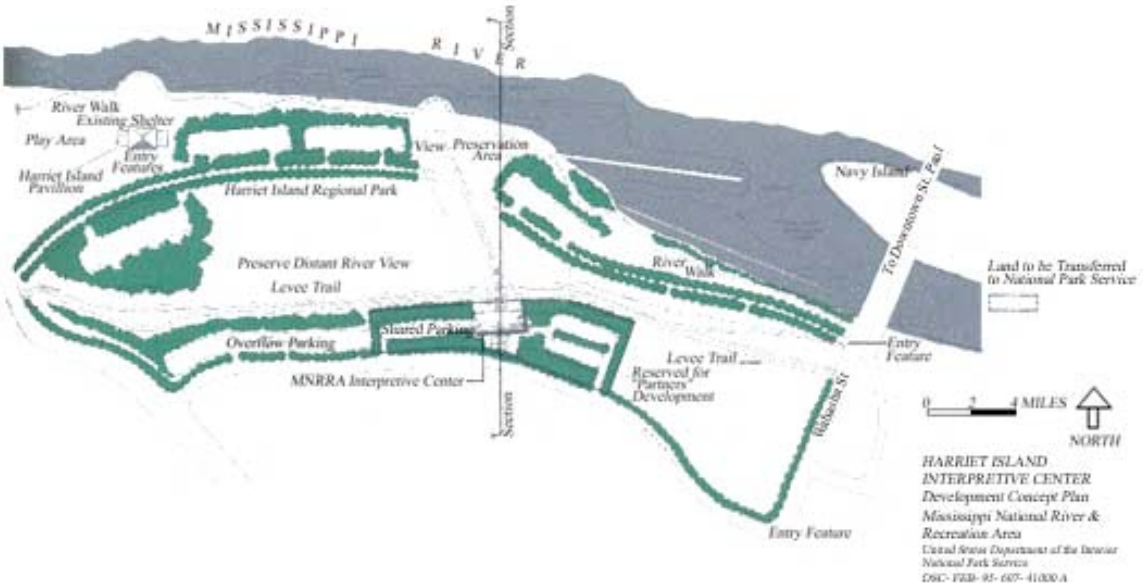
Existing Barge Terminals and Fleeting Areas



Harriet Island Interpretive Center

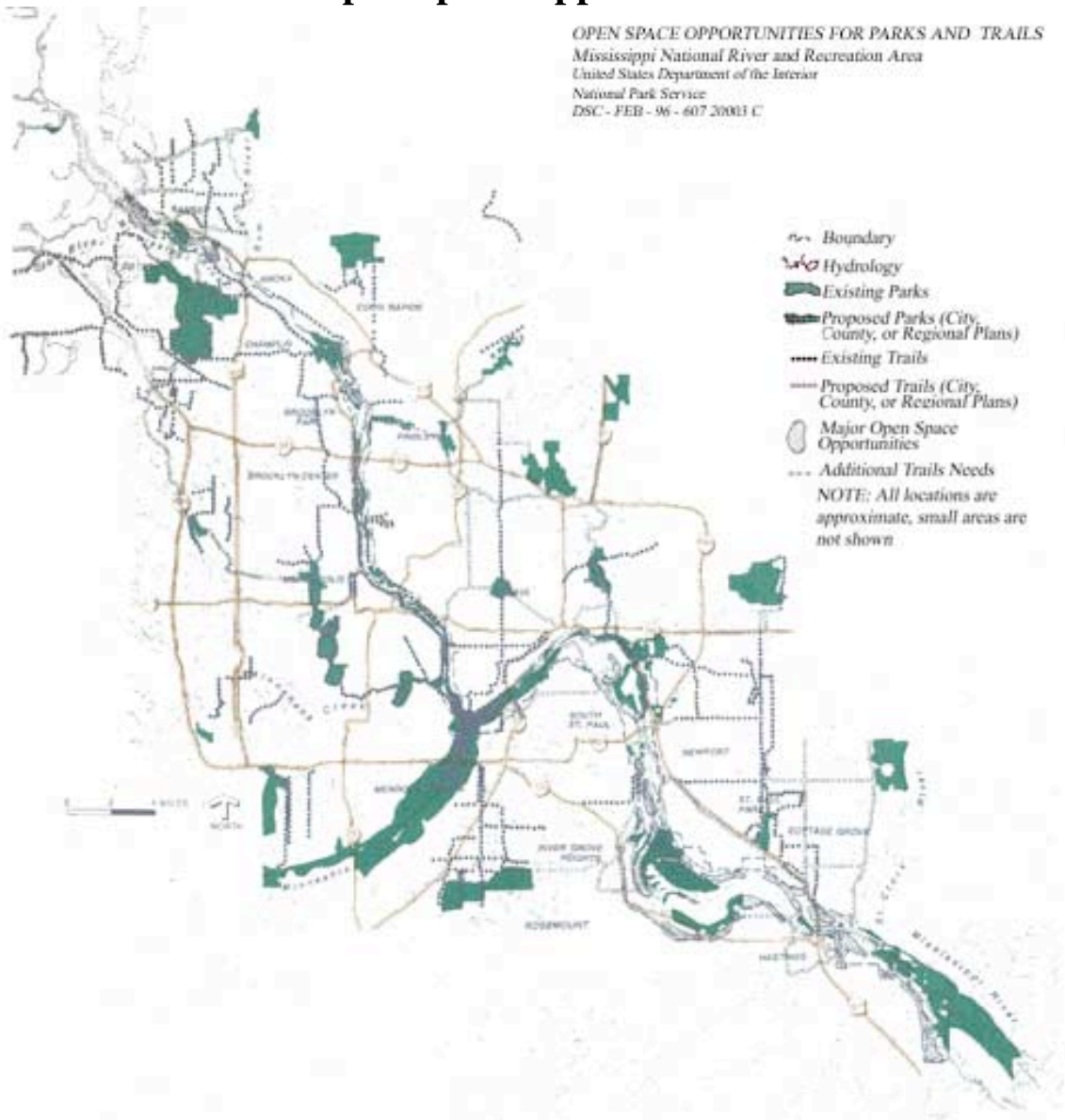


Note: This is a concept drawing. Details, including provisions to ensure full accessibility, will be developed during facility design.



HARRIET ISLAND INTERPRETIVE CENTER
Development Concept Plan
Mississippi National River & Recreation Area
United States Department of the Interior
National Park Service
DSC- FEB- 95- 607- 41000 A

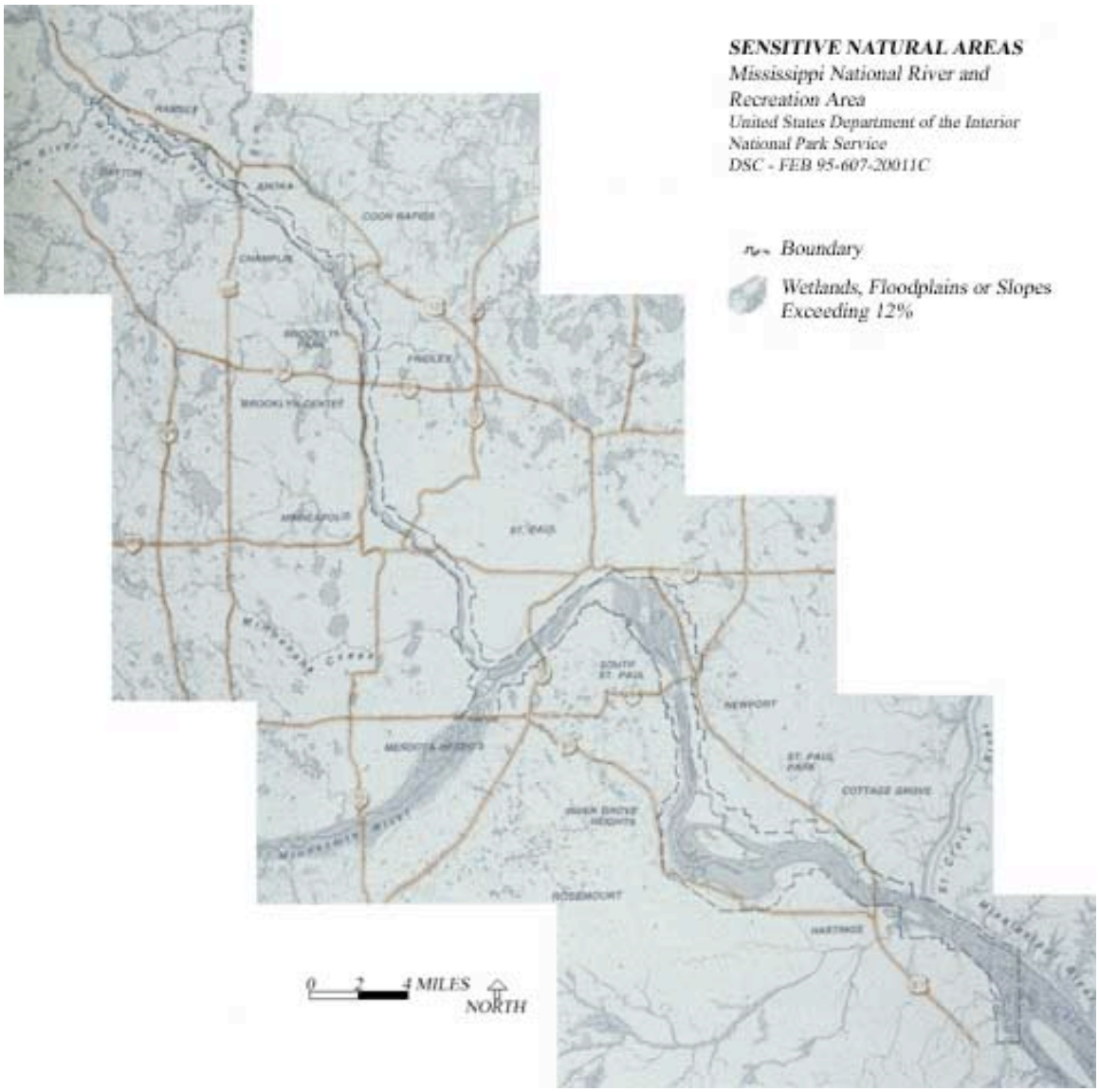
Open Space Opportunities



Region


0 10 20 Miles
North
Mississippi National River and Recreation Area
Wisconsin
Minnesota
Taylors Falls
St. Croix Falls
St. Cloud
Stillwater
Hudson
Minneapolis
St. Paul
Prescott
212
169
Mankato
Minnesota

Sensitive Natural Areas



Trail Routing Concepts