

THE COMPREHENSIVE MANAGEMENT PLAN

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 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 an 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 MNRRRA 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 natural-looking 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 interpositional 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 through 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 become 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 through 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 intermodal 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 MNRRRA 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 MNRRRA 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 MNRRRA 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 fleet 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 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, 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 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 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.