

APPENDIX A: LEGISLATION

PUBLIC LAW 100-696 – NOV. 18, 1988

TITLE VII – MISSISSIPPI NATIONAL RIVER AND RECREATION AREA

Subtitle A – Mississippi National River and Recreation Area

FINDINGS AND PURPOSES

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

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

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

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

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

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

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

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

Minnesota Water Historic preservation 16 USC 460zz

(2) To encourage adequate coordination of all governmental programs affecting the land and water resources of the Mississippi River Corridor.

(3) To provide a management framework to assist the State of Minnesota and its units of local government in the development and implementation of integrated resource management programs for the Mississippi River Corridor in order to assure orderly public and private development in the area consistent with findings of this subtitle.

ESTABLISHMENT OF NATIONAL RIVER AND RECREATION AREA

16 USC
460zz-1.

Sec. 702. (a) ESTABLISHMENT. - There is hereby established the Mississippi National River and Recreation Area (hereinafter in this title referred to as the "Area") which shall consist of the State designated Mississippi Critical Area encompassing that portion of the

Public
information.
District of
Columbia

Mississippi River and adjacent lands generally within the Saint Paul-Minneapolis Metropolitan Area, as depicted on the map entitled Mississippi National River and Recreation Area numbered MI-NRA/80,000 and dated April 1987. The map shall be on file and available for public inspection in the offices of the Metropolitan Council of the Twin Cities Area in Saint Paul, Minnesota.

Federal
Register,
publication

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

MISSISSIPPI RIVER COORDINATING COMMISSION

16 USC
460zz-2.

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

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

(b) TERMS.—(1) Except as provided in paragraphs (2) and (3), members (other than ex officio members) shall be appointed from terms of three years.

(2) Of the members first appointed—

(A) Under paragraph (4) of subsection (a):

(i) One shall be appointed for a term of one year.

(ii) One shall be appointed for a term of two years.

(B) Under paragraphs (7) and (8) of subsection (a), one shall be appointed for a term of one year.

(C) Under paragraph (11) of subsection (a):

(i) One shall be appointed for a term of one year.

(ii) One shall be appointed for a term of two years.

(iii) One shall be appointed for a term of four years.

(3) Any member appointed to fill a vacancy occurring before the expiration of the term for which his predecessor was appointed shall be appointed only for the remainder of such term. A member

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

(j) DEVELOPMENT OF PLAN. —

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

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

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

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

(1) The adequacy of public participation.

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

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

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

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

recommendations he may have, to the Secretary who shall approve or disapprove the revision within 60 days.

(l) INTERIM PROGRAM. — Prior to the adoption of the Commission's plan, the Secretary and the Commission shall monitor all land and water use activities within the Area to ensure that said activities are in keeping with the purposes of this subtitle, and shall advise and cooperate with the appropriate Federal, State, and local governmental entities to minimize adverse impacts on the values for which the Area is established.

(m) COMMISSION REVIEW. — The Commission shall assist the Secretary and the Governor of Minnesota in reviewing and monitoring the implementation of the plan by Federal, State, and local governmental agencies having jurisdiction in the Area. The Commission may, after providing, for public comment and subject to the review and approval, as set forth in subsection (k), modify said plan, if the Commission determines that such modifications is necessary to further the purposes of this subtitle.

(n) TERMINATION OF COMMISSION. — The Commission shall terminate on the date 10 years after the enactment of this subtitle. Following termination of the Commission the State is authorized to establish a State Commission which shall exercise the functions and authorities described in subsection (m). The Secretary of the Interior and the Secretary of the Army are authorized and directed to participate as members of such State Commission.

FEDERAL LANDS AND DEVELOPMENTS

16 USC
460zz-3.

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

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

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

(b) FEDERAL AGENCY ACTIVITIES. —

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

(2) NAVIGATION. —

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

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

ADMINISTRATION

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

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

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

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

Gifts and property.

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

(d) REVIEW OF LOCAL PLANS. —

Contracts. State and local governments.

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

relevant local plans, laws and ordinances to determine whether they substantially conform to the plan approved pursuant to section 7088. Additionally the Secretary shall in consultation with the State and its political subdivisions determine the adequacy of enforcement of such plans, laws, and ordinances, including the review of building permits and zoning variances granted by local governments, and amendments to local laws and ordinances. The Secretary shall enter into agreements with the State or its political subdivision to provide, on behalf of the Secretary, professional services necessary for the review of such local plans, laws and ordinances, and of amendments thereto and variances therefrom, and for the monitoring or the enforcement thereof by the local governments having jurisdiction over any areas to which the management plan applies.

(2) PURPOSE. — The purpose of review under paragraph (1) shall be to determine the degree to which actions by local governments are compatible with the purposes of this title.

Following the approval of the plan under section 703 and after a reasonable period of time has elapsed, upon a finding by the Secretary that such plans, laws and ordinances are nonexistent, are otherwise not in conformance with the plan or are not being enforced in a manner consistent with the plan, and if the Secretary determines that there is no feasible alternative available to prevent uses which would be substantially incompatible with the plan, the Secretary may exercise the authority available to him under the provisions of paragraph (3).

(3) ENFORCEMENT. — In those section of the Area where local plans, laws and ordinances, or amendments thereto or variances therefrom are found by the Secretary not to be in conformance with the plan approved pursuant to section 703, or are not being enforced in a manner consistent with the plan, the Secretary shall notify the local government authority concerned. The Secretary may withhold from the local government authority concerned or, require reimbursement of, (A) Federal funds made available for implementation of the plan, or (B) any grant under section 706(a) if the local plan, law, ordinance, amendment, or variance is not modified to conform with the plan and enforced in such manner as will carry out the purposes of this subtitle. If that State has not initiated, within a 60-day period, such judicial or other action as necessary to ensure conformity with the plan and if noncompliance with the plan or failure to enforce the plan continues after the end of such 60-day period, the Secretary may

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

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

STATE AND LOCAL ASSISTANCE AND JURISDICTION

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

16 USC 460zz-5.

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

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

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

AUTHORIZATION OF APPROPRIATIONS

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

16 USC 460zz-6.

Subtitle B-Tri-Rivers Management

TRI-RIVERS MANAGEMENT BOARD

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

16 USC 460zz-11.

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

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

APPENDIX B: GEOGRAPHIC INFORMATION SYSTEM

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

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

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

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

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

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

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

THE MISSISSIPPI NATIONAL RIVER AND RECREATION AREA GEOGRAPHIC INFORMATION SYSTEM DATABASE

General Resource Information

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

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

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

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

Hydrology

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

Railroads

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

Elevation (topography)

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

Slope

Source: derived from elevation data

Aspect

Source: derived from elevation data

Parks and Recreation

Parks and open space

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

Trails

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

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

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

Land Use

Municipal zoning

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

Critical area districts (approximate)

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

Land cover

Source: processed satellite imagery (date: 1988)

Land use

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

Utilities

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

Cultural Resources

Cultural resources

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

Natural Resources

Threatened and endangered species

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

Special plant communities

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

100-yr. floodplain

Source: FEMA Federal Insurance Rate maps (date and original scale vary)

Wetlands

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

Barge-Related Facilities

Nine-foot navigable channel

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

Barge terminal and service areas

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

Barge fleeting areas

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

APPENDIX C: SAMPLE DESIGN GUIDELINES

INTRODUCTION

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

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

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

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

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

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

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

RESOURCES

General Concepts

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

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

Shoreline Area

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

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

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

Vegetation

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

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

Bluffs

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

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

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

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

SITE DEVELOPMENT DETAILS

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

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

Preservation Areas

The following are areas of minimal disturbance:

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

Parking

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

Accessory Parking

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

Erosion Control

Erosion and sedimentation should be minimized by:

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

ARCHITECTURAL GUIDELINES

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

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

BRIDGES, POWERLINES, AND ROADS

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

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

TIPS FOR HOMEOWNERS

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

Bluffs

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

Vegetation

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

Runoff

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

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

Lots

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

APPENDIX D: WORKGROUPS

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

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

Business and Industry

3M

American Iron and Supply

Burlington Northern Railroad

Capitol Barge Service

Cargo Carriers, Inc.

Dakota Barge Service

Ford Motor Company

J.L. Shiely Company

John Gorman, Inc.

Northern States Power

R.E.D. Marine Service

River Fleets

Riverway Company

Soo Line Railroad

Upper Mississippi Waterway Association

Upper River Services

Willie's Hidden Harbor Marina

University of Minnesota (Departments)

Architecture

Bell Museum of Natural History

Forest Resources

Landscape Architecture

Plant Biology

Recreation, Parks, and Leisure Studies

Tourism Center

Wildlife

State Government

Department of Natural Resources
Department of Trade and Economic Development
Department of Transportation
Minnesota Army/Air National Guard
Minnesota Historical Society
Minnesota House of Representatives
Pollution Control Agency

Local/County/Regional governments

Anoka County
City of Anoka
City of Brooklyn Park
City of Cottage Grove
City of Fridley
City of Hastings
City of Inver Grove Heights
City of Minneapolis
City of South St. Paul
City of St. Paul
Dakota County
Metropolitan Council
Metropolitan Waste Control Commission
Minneapolis Park and Recreation Board
Minneapolis Community Development Agency
Minnesota–Wisconsin Boundary Area Commission
Ramsey County
Suburban Hennepin Regional Park District
Washington County

Federal Government

U.S. Army Corps of Engineers
U.S. Coast Guard
U.S. Fish and Wildlife Service

Other Organizations

Center for Urban and Regional Affairs
Hastings Historic Preservation Commission

Mankato State University–Dept. of Recreation
Minnesota Indian Affairs Council
North Metro Convention and Visitors Bureau
River Environmental Action Project
Science Museum of Minnesota
St. Anthony Falls Heritage Board
St. Paul Downtown Development Council
Upper Midwest Museum of Trans.
Upper Mississippi River Basin Association

APPENDIX E: NINE-FOOT NAVIGATION CHANNEL MAINTENANCE ACTIVITIES

Congress authorized the 9-foot navigation channel project with the Rivers and Harbors Act (RHA) of 1930, which extended from the mouth of the Missouri River to Minneapolis, Minnesota. The Rivers and Harbors Act of 1937 extended the northern reach to mile 857.6. The St. Paul Harbor and small boat harbor were authorized by River and Harbors Committee Doc. 44, 64th Cong. 1st session and by House Doc. 547, 76th Cong., 3rd session, respectively. The Hastings Harbor was authorized by House Doc. 559, 79th Cong., 2nd session. A 4-foot navigation channel was authorized on the Minnesota River up to mile 25.6 by the Rivers and Harbors Act of 1892 and a 9-foot channel up to mile 14.7 with the Rivers and Harbors Act of 1958.

Channel maintenance plans designating placement sites and operating procedures have been made through coordination with the River Resources Forum, and any maintenance dredging required is coordinated with the interagency On-Site Inspection Team (OSIT). In the metropolitan area, the team includes members from the cities of St. Paul and Minneapolis as well as the usual state and federal agencies.

Dredging and dredged material placement is conducted in accordance with section 404(b)(1) guidelines of the Clean Water Act and National Environmental Policy Act. The Corps of Engineers has a general permit and memorandum of understanding (MOU) with the Minnesota Department of Natural Resources to cover all previously designated permanent and temporary placement sites. Separate permits are required for those sites not previously designated and where placement of material is below the ordinary high watermark as outlined in the memorandum. The state could also require a separate permit if they determine that placement at a site could result in significant adverse impacts. The Corps of Engineers has a 5-year state disposal system permit with the Minnesota Pollution Control Agency allowing the construction and operation of disposal facilities on the Mississippi, Minnesota, and St. Croix rivers. The permit established procedures for approval of projects and outlines coordination that must take place between agencies. Certification is

required for any placement operations in the state where either material or effluent must be discharged below the ordinary high watermark. Dredged material placement permits are received from the landowners of the placement sites used and permits are also required in accordance with the city of Minneapolis noise ordinance.

The city of Minneapolis is the local sponsor for the Upper St. Anthony Falls Pool navigation project and provides the land necessary for dredged material placement. An agreement with the city also designates placement site responsibilities in pool 1. The city of St. Paul is the local sponsor of the St. Paul small boat harbor and provides land necessary for dredged material placement. The Lower Minnesota River Watershed District is the local sponsor for the 9-foot channel on the Minnesota River and has dredged material site placement responsibilities.

Dredging is accomplished by the hydraulic dredges William A. Thompson and Dubuque and by mechanical methods including the Corps of Engineers derrick barge Hauser and Wade and similar contractor-owned dredging equipment. Most work above the St. Paul barge terminal is accomplished by mechanical methods due to placement site restrictions. The exception is that the Dubuque might be used to dredge at the turning basin at the head of navigation.

In the reach described above, there are nine permanent (P) and four temporary (T) placement sites in the following locations: USAF Pool 9 865.6RM(P); Pool 1 — 853.2LM(P), 851.3-LM(T), and 849.5RM(ST); Pool 2 — 840.4RM(P), 836.8-RM(P), 824.1-LM(P), 823.8-RM(T), 822.8-RM(P), 821.3LM(T), 820.5-LM(P); Pool 3 — 815-RM(P). There are also several sites on the Minnesota River that are within the MNRRRA boundary.

Sediment contamination and effects on water quality from dredging operations are concerns due to the influence of the metropolitan area and the sediment characteristics. The sediment tends to be finer grained, which bonds more easily with contaminants. The Corps of Engineers conducts periodic sediment sampling and analysis of historic dredging locations to document the sediment quality. A 404(b)(1) evaluation is prepared for any dredging with an effluent return or when dredged material is placed below the

ordinary high water mark. The evaluations are reviewed by state and federal agencies.

APPENDIX F: NATIONAL PARK SERVICE STAFFING NEEDS

Following are table showing existing and proposed NPS staff for the Mississippi National River and Recreation Area, with a description of their primary duties. It is subject to refinement based on the results of follow-up implementing plans. This is a long-range staffing concept that will take many years to implement. Support staff for the Mississippi River Coordinating Commission are included in these positions. Other than one administrative clerk, these duties are spread among several existing and proposed staff members.

STAFFING REQUIREMENTS (INCLUDES EXISTING STAFF) SUMMARY

MNRRRA Totals	Salary (1994 dollars) [1]	Benefits (est. 30%)	Staff Support (est. 25%) [2]	FTE	Total Staff Costs
All Divisions	\$993,983	\$298,201	\$248,491	33.8	\$1,540,678

1. All salary figures are based on step-3 for the full performance level
2. Support includes required equipment, travel, training, and other miscellaneous items

DIVISION OF MANAGEMENT AND ADMINISTRATION

Position	Grade	Salary (1994 dollars) [1]	Benefits (est. 30%)	Staff Support (est. 25%) [2]	FTE
<i>Existing Authorized Staff</i>					
Superintendent	GM-13	\$52,693	\$15,808	\$13,173	1.0
Administrative manager	GS-05/06	22,479	6,744	5,620	1.0
Administrative clerk	GS-04	18,025	5,408	4,506	1.0
<i>Additions to Staff</i>					
Administrative officer	GS-07/09	\$30,557	\$9,173	\$7,644	1.0
Clerk typist (MRCC)	GS-04	9,013	2,704	2,253	0.5
Secretary	GS-06	22,479	6,744	5,620	1.0
DIVISION TOTALS		\$155,246	\$46,581	\$38,816	5.5

1. All salary figures are based on step-3 for the full performance level.
2. Support includes required equipment, travel, training, and other miscellaneous items.

DIVISION OF PLANNING AND RESOURCE MANAGEMENT					
Position	Grade	Salary (1994 dollars) [1]	Benefits (est. 30%)	Staff Support (est. 25%) [2]	FTE
<i>Existing Authorized Staff</i>					
Division chief, outdoor recreation planner	GS-12	\$44,312	\$13,294	\$11,078	1.0
Resource management specialist [3]	GS-05/06	22,479	6,744	5,620	1.0
Outdoor Recreation Planner	GS-09/11	36,973	11,091	9,243	1.0
<i>Additions to Staff</i>					
Cultural resources specialist	GS-09	\$30,577	\$9,173	\$7,644	1.0
Resource management specialist	GS-09	30,577	\$9,173	\$7,644	1.0
Outdoor recreation planner (grants)	GS-07	24,980	7,494	6,245	1.0
Resource management technician	GS-05	20,166	6,050	5,041	1.0
Planning technician	GS-05/06	22,479	6,744	5,620	1.0
DIVISION TOTALS		\$247,037	\$74,110	\$61,758	8.0
<p>1. All salary figures are based on step-3 for the full performance level.</p> <p>2. Support includes required equipment, travel, training, and other miscellaneous items.</p> <p>3. Position is classified as cartographic technician GS-07/09. The position will be reclassified and responsibilities modified accordingly.</p>					

DIVISION OF INTERPRETATION AND VISITOR SERVICES					
Position	Grade	Salary (1994 dollars) [1]	Benefits (est. 30%)	Staff Support (est. 25%) [2]	FTE
<i>Existing Authorized Staff</i>					
Division chief, park ranger	GS-12 [3]	\$44,312	\$13,294	\$11,078	1.0
<i>Additions to Staff</i>					
Environmental education specialist	GS-11	\$36,973	\$11,091	\$9,243	1.0
Heritage education specialist	GS-11	36,973	11,091	9,243	1.0
Interpretive spec. (volunteer development)	GS-09	30,577	9,173	7,644	1.0
Interpretive specialist (media)	GS-09	30,577	9,173	7,644	1.0
Interpretive specialist (native cultures)	GS-09	30,577	9,173	7,644	1.0
Interpretive spec. (neighborhood outreach)	GS-09	30,577	9,173	7,644	1.0
Interpretive spec. (special populations)	GS-09	30,577	9,173	7,644	1.0
Interpretive specialist (special events)	GS-09	30,577	9,173	7,644	1.0
Clerk typist (scheduling)	GS-05	20,166	6,050	5,041	1.0
Park interpreter	GS-05/7/9	122,308	36,692	30,576	4.0
Park interpreter (temporary guides)	GS-05	80,664	9,635	8,029	4.0
DIVISION TOTALS		\$524,858	\$157,457	\$131,209	18.0
<p>1. All salary figures are based on step-3 for the full performance level.</p> <p>2. Support includes required equipment, travel, training, and other miscellaneous items.</p> <p>3. Position will receive a one-grade increase over the existing level. Salary noted is for the higher grade level</p>					

DIVISION OF MAINTENANCE					
Position	Grade	Salary (1994 dollars) [1]	Benefits (est. 30%)	Staff Support (es t. 25%) [2]	FTE
<i>Additions to Staff</i>					
Division chief, facility manager	GS-09	30,577	9,173	7,644	1.0
Maintenance worker	WG-07	29,072	8,722	7,268	1.0
Laborer WG-03	WG-03	7,213	2,164	1,803	0.3
DIVISION TOTALS		\$66,842	\$20,053	\$16,711	2.3
1. All salary figures are based on step-3 for the full performance level. 2. Support includes required equipment, travel, training, and other miscellaneous items.					

Interpretation, Education, and Visitor Services

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

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

The National Park Service will play a significant role in interpreting corridor resources and providing visitor services. The Park Service will construct one interpretive center/headquarters, cooperate with partners to develop others, assist in staffing and programming at some, conduct interpretation and education programs at several places throughout the corridor, and design and produce interpretive media. While the Park Service will have a lead role in coordinating

interpretive planning, much good work is already being done in the corridor and partnerships will play a significant role in providing and coordinating visitor services and interpretation. These actions will be designed to achieve the visitor experience goals, interpretive themes, and program objectives described below. Following are the major concepts for interpretation of corridor resources. A more detailed interpretive action plan will be prepared to implement the comprehensive plan. This will provide additional details on interpretive themes, corridor interpretive facilities, specify media and estimate their costs, and detail interpretive program needs. It will be developed in cooperation with all the key interpretive agencies and organizations in the corridor.

Visitor Experience. Experiences that will allow MNRRA visitors to best enjoy and appreciate and learn and benefit from their visit are listed below. Achieving these experiences will involve partnerships, interpretive facilities and media, and interpretive and educational activities designed for all visitors, including those with special needs. Visitors should have the opportunity to:

- understand and learn more about the ecological, cultural, economic, scenic, scientific, educational, and recreational values of the river corridor
- directly experience the river by boat, canoe, or tour boat, or from the shore
- feel safe while using corridor areas
- experience the corridor without conflict with other visitors or private landowners
- view plants and animals living on, next to, and underneath the water
- view the cultural resources in the corridor
- see activities that represent the working river
- gain important and interesting information about the corridor as described by the interpretive themes identified below
- demonstrate their caring about the river (e.g., volunteer opportunities, public involvement, friends groups, donations)
- understand how their lives affect and are affected by the river
- understand corridor management issues and identify how they can help solve problems

- find activities and experiences that meet diverse interests, skill levels, abilities, learning styles, ages, and ethnic backgrounds
- appreciate the 72-mile Twin Cities portion of the Mississippi River in context with its source in northern Minnesota, relationships to other metropolitan area rivers, and its relationship to the entire Mississippi as a regional, national, and international resource

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

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

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

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

The presence of Native Americans along the Mississippi, from the retreat of the glaciers to the present, has left a legacy of

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

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

Early contact between Europeans and Native Americans on the Mississippi was focused around the fur trade. With the establishment of Fort Snelling and its Indian Agency in 1819, the United States began an attempt to regulate fur trade in this area and extend its influence with the Native American people. Through treaties negotiated beginning in 1837, the United States purchased Dakota and Ojibwa lands along the Mississippi.

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

Following the Civil War, with expansion of railroads east and west, life in the river towns changed. Settlement expanded away from the river but maintained important connections to the river cities. Trees cut in northern Minnesota were floated down the Mississippi to sawmills in Minneapolis, mills that provided lumber to build towns across the western prairies. As the

northwest developed, people and goods flowed through the river cities; economies expanded to meet new needs for warehousing, commerce, and service.

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

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

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

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

To protect and enhance the Mississippi, the issues that affect it must continually be discussed. Current issues of interest to the

public include wetland protection, water quality, trail development, public access, barge fleetings, 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 CD-ROM). Intended audiences will include area residents, national and international visitors, and national and international tourism organizations. Orientation services will be available at five interpretation centers, unattended kiosks, bulletin boards, wayside exhibits, and through outreach programs, including access to digital information. Orientation will include information about other units of the national park system.

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

Coordination — The National Park Service, in partnership with other groups and agencies, will provide coordination and a forum for issues relating to visitor use and resource management of the corridor. With the variety of interpretive services, education related to the river, recreation, visitor services, tourism, research, and resource management services in the corridor, there is a need for better coordination. For interpretation and 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,
- nonprofit corporations, and other private organizations throughout the corridor and nearby areas
- provide information and orientation to other units of the national park system

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

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

A major interpretive facility needs "critical mass" to be successful. Interpretive facilities in an large urban area should be approached somewhat differently than in a remote area. There are many

attractions competing for people's leisure time in the Twin Cities area, such as the Science Museum of Minnesota, the Minnesota Zoo, the Minnesota Historical Society, the Childrens' Museum, the Walker Art Center, several interpretive centers, and innumerable shopping malls, parks, lakes, jogging trails, and other recreational facilities. To accomplish their functions, the two central interpretive centers for the corridor will require sufficient critical mass to attract visitors.

For purposes of this document, critical mass is defined as including the combination of experiences that make an interpretive center a good choice for a family Saturday afternoon, for an elementary school field trip, for a stop on an afternoon boating trip, as a place to bring the out-of-town visitors, the kids, or the media, or just as a place for an individual to pass time.

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

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

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

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

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

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

It is anticipated that the St. Paul and Minneapolis centers will be staffed by the Park Service and other partners year-round, while the other centers will probably only be staffed seasonally. At this time it is not anticipated that NPS interpreters will be stationed on a regular basis at the proposed Fort Snelling center, although some

interpretive programs offered at the center will include NPS personnel. The specifics of this cooperative arrangement have not been finalized and will be further detailed in the interpretive plan for MNRRA and a follow-up cooperative agreement between the National Park Service and the Department of Natural Resources.

Interpretation, Education, and Visitor Services

Partnerships. The Mississippi National River and Recreation Area is a partnership project. There are dozens of organizations, agencies, and individuals who are already providing excellent interpretation and education related to the corridor. The National Park Service will accomplish parts of each visitor experience goal through partnerships with these groups and individuals. NPS programming will be designed so that it does not significantly compete with other public, nonprofit, and private providers of interpretation in the area.

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

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

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

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

These themes will be interpreted through interpretive media (such as interactive computers and models, exhibits, audiovisual programs, and publications), representations of living ecosystems (such as aquariums and wetland terrariums), and personal programs (such as interpretive talks, guided walks, seminars, and environmental and heritage education programs). Many activities will take place around the center and at nearby areas such as Lilydale Park.

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

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

Because the location and functions of the Minneapolis/St. Anthony Falls interpretive center have yet to be finally determined, and several feasibility issues remain, an interim site will be negotiated with cooperators in that area. Activities could be held at several

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

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

MISSISSIPPI NATIONAL RIVER AND RECREATION AREA INTERPRETIVE FACILITIES

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

Major themes	<ul style="list-style-type: none"> - Shaping the river – glacial and human forces - The stories of human life along the Mississippi have unfolded over 12,000 years - MNNRA is a nationally significant resource (cultural emphasis) - We must care for the river - All plants and animals in the corridor are interdependent 	<ul style="list-style-type: none"> - The Mississippi is one of the world's great rivers - Plants, animals and humans in the corridor are interdependent - The corridor protects biological and cultural diversity - We must care for the river - MNNRA is a nationally significant resource (natural emphasis) - As a working river, the river's influence extends far from its shoreline 	<ul style="list-style-type: none"> - All plants and animals in the corridor are interdependent - The stories of human life along the Mississippi have unfolded over 12,000 years - We must care for the river 	<ul style="list-style-type: none"> - The Mississippi is one of the world's great rivers; - We must care for the river - The stories of human life along the Mississippi have unfolded over 12,000 years (river town emphasis) 	<ul style="list-style-type: none"> - The stories of human life along the Mississippi have unfolded over 12,000 years - All plants and animals in the corridor are interdependent
Primary functions	Interpret cultural resources, orientation to MNNRA, orientation to NPS, outdoor walking tours, historic preservation, environmental and heritage education	"Big Miss" picture, focus/identify, natural history themes, orientation to MNNRA, experiences, interpretive media, environmental and heritage program	Orientation to MNNRA, environmental and heritage education	Orientation to MNNRA, environmental and heritage education	Orientation to MNNRA interpret Native American theme, environmental, and heritage education

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

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

Policies and Actions —

- (1) Develop sites to observe and interpret river corridor vistas and river activities, including commercial river transportation.
- (2) Provide information about interpretive and recreational activities and sites in the metropolitan area and coordinate and link these with other activities in the region.

APPENDIX G: HEADQUARTERS SPACE NEEDS

DIVISION OF MANAGEMENT AND ADMINISTRATION	
Superintendent	180
Administrative officer	120
Administrative technician	120
Administrative clerk (MRCC)	120
Clerk typist/reception	200
Mail room/files/copier/storage	400
Computer work station	100
Total	1240
DIVISION OF MAINTENANCE	
Facility manager	150
Total	150
DIVISION OF PLANNING AND RESOURCE MANAGEMENT	
Chief	150
Community planner	150
Resource management specialist (natural)	150
Community planner/landscape architect	150
Outdoor recreation planner	120
Resource management specialist (cultural)	120
Grants assistant	120
Planning technician	120
GIS lab	230
Storage/flat file storage/plan library	350

Computer work station	150
Total	2040
DIVISION OF INTERPRETATION AND VISITOR SERVICES	
Chief	150
Environmental education specialist	120
Park ranger (volunteer development)	120
Project work space (volunteers)	400
Scheduling office	150
Computer work station	150
Library	100
Photographic collection	100
Audio visual storage	100
Total	1390
OTHER	
Cooperating association office	120
Cooperating association storage	100
Maintenance work room	120
Maintenance storage	100
Project room/recycling center	250
Employee restrooms/showers/lockers	450
Kitchen/break room	300
Conference room	400
General storage	120
Total	1960
TOTAL HEADQUARTERS SPACE	6780

APPENDIX H: PREVIOUS EFFORTS TO ADDRESS REGULATORY ISSUES

The Metropolitan Rivers Corridor Study Committee (MRCSC) was created by an act of Congress to make policy recommendations for managing recreational, fish and wildlife, historic, natural, scientific, scenic, and cultural values of the Mississippi, Minnesota, and St. Croix rivers in the Twin City Metropolitan Area. The committee produced a body of documents that were precursors to the final report recommending the creation of the Mississippi National River and Recreation Area. Inventory, July 19, 1984, lists 15 federal agencies, three interstate bodies, six agencies of the state of Minnesota, and one regional body with regulatory, permitting, or planning authority over land or water use in the Mississippi National River and Recreation Area.

Another inventory of agencies and a description of their authorities can be found in Programs, Policies and Legal Authorities Affecting the Use of Land in Minnesota, published in May 1975 by the Minnesota State Planning Agency. This document describes an additional set of state level agencies — the soil and water conservation districts. Since the publication of the report, these conservation districts, along with the watershed districts under the purview of the Minnesota Water Resources Board, now are overseen by one body — the Board of Water and Soil Resources.

The MRCSC study cites several previous reports that addressed or made recommendations on the regulatory structure. Though the following recommendations focus on regulation of the commercial navigation industry, they can be applied as foundations for other regulatory activities as well.

The Mid-America Ports Study, by the U.S. Department of Commerce, recommends the creation of a single body to manage and promote orderly development and multigovernmental planning for multimodal transportation needs.

A Study of the Upper Mississippi River, by the Great River Environmental Action Team (GREAT I), developed comprehensive river management strategies using an interagency team.

The Comprehensive Master Plan for the Management of the Upper Mississippi River System, by the Upper Mississippi River Basin Commission, presents two options — an interagency committee for joint permit reviews and the creation of a new nonprofit corporation to provide centralized coordination for river system management. The Mississippi National River and Recreation Area Commission was created in 1988. The MNRRA legislation directs the commission to assist the secretary of the interior and governor of Minnesota in reviewing and monitoring implementation of the plan by other federal, state, and local agencies. It also authorizes the commission to recommend modifications to the plan. Unless state legislation is passed increasing the authority of the commission, it has only the power to advise on permits and land use decisions.

APPENDIX I: PERMITTING AND REGULATORY AUTHORITIES

The following table presents a partial inventory of regulatory responsibilities in the corridor. The table only summarizes the permits needed for development. For example, solid waste disposal on non-NPS lands might involve an actual operating landfill or the site of a demolished structure. A permit to discharge into the river might involve effluent from a wastewater treatment plant or material dredged from the river bottom in order to construct a permanent dock. The table's primary purpose is to illustrate the many agencies and levels involved in river corridor regulation. As coordinating efforts proceed, this table might serve as the foundation upon which to build a more complete inventory

INVENTORY OF REGULATORY PERMITS FOR ACTIVITIES CONDUCTED IN THE MNRRA CORRIDOR	
AGENCY	Permits or Other Direct Regulatory Authority/Responsibility
FEDERAL AGENCIES	
Advisory Council on Historic Preservation	Provides comments to federal agencies on federally funded or permitted activities affecting historic resources under section 106 of the National Historic Preservation Act.
U.S. Army Corps of Engineers	The Corps of Engineers regulates work that could affect navigable waters, which are those bodies of water that have historically been used for commercial navigation. The agency issues permits for the placement of structures, dredging, and filling in navigable waters under section 10, Rivers and Harbors Act,, 1899. They also regulate the discharge of dredged or other fill into all waters of the U.S. under section 404, Clean Water Act. No section 404 permit may be issued by the Corps of Engineers without a section 401 certification from the Minnesota Pollution Control Agency that the discharge of dredged or fill material will not violate state water quality standards.
National Park Service	The National Park Service was given the responsibility to work with the Mississippi River Coordinating Commission to create a comprehensive management plan for land and water use measures for the Mississippi National River and Recreation Area. Actual management or enforcement responsibilities are addressed in the plan. The MNRRA act mandates that the National Park Service review all federally funded or permitted activities in the corridor. The Park Service has no regulatory authority.
Federal Aviation Administration	The Federal Aviation Administration controls air traffic and regulates airport operations.
U.S. Coast Guard	The U.S. Coast Guard maintains the river channel buoy system and enforces safety standards,, laws,, and equipment vessels,, barges,, and floating plants. They enforce some pollution control laws,, set bridge height standards,, and inspect barges and recreational and commercial vessels.
U.S. Fish and Wildlife Service (USFWS)	The Fish and Wildlife Coordination Act of 1934 mandates all federal agencies to consult with the Fish and Wildlife Service on permit and license applications. Section 7 of the Endangered Species Act mandates all federal agencies to consult with the Fish and Wildlife Service to ensure that actions do not jeopardize endangered species. The Fish and Wildlife Service is a significant player in MNRRA regulatory activities.
DEPARTMENT OF ENERGY	
Federal Energy	The Federal Energy Regulatory Commission has jurisdiction over all nonfederal hydroelectric power

Regulatory Commission	facilities that are located on or use water from a navigable stream, produce power that affects interstate or foreign commerce, are located on federal land, or use water impounded by a federal dam. The commission must issue a license before any such facility could be built.
Environmental Protection Agency	The Environmental Protection Agency establishes standards for water quality management, drinking water safety, solid and hazardous waste disposal, toxic substance management, air quality control, and general environmental quality review. Most enforcement is delegated to the states, although the agency retains oversight and could reassert its authority if it determines a state is not doing an adequate job. The agency may veto a 404 permit, and it may exercise the lead federal role for certain cases. In Minnesota the primary enforcement role for water quality is filled by the Minnesota Pollution Control Agency.
STATE AGENCIES	
Environmental Quality Board	The Environmental Quality Board designates the routes for pipelines and transmission lines in the state and issues permits for their construction. The agency also determines power plant sites and issues certificates of site compatibility. Any state critical areas (the Mississippi River Corridor is the only active one) are recommended by the board. The agency writes standards for local critical area plans and reviews and approves all plans or amendments for compliance with the standards.
Minnesota Department of Agriculture	The Department of Agriculture enforces laws designed to protect the public health and enhance the environment. It adopts and enforces rules to clarify laws and to prevent fraud and deception in manufacture and distribution of foods, animal feeds, fertilizers, pesticides, and seeds. The department is the only state agency that speaks for and promotes the development of agriculture and agriculturally related industries in the state. It is the lead agency in soil and water conservation programs and other programs designed to protect agricultural land. The department administers several laws that prevent surface and groundwater pollution from agricultural practices, such as pesticide application.
Department of Natural Resources	The department has responsibility for issuing permits for many activities. These include any appropriation of surface or underground water, mining activities, and underground gas or liquid storage. The department issues licenses for utilities to cross state land or water. Most broadly, a permit is required for any activity that changes the course, current, or cross section of state waters, which includes filling,, excavating,, or placement of structures, including dams. The department establishes standards for shoreline protection through its regulations that must be adopted by local governments. The agency must approve local floodplain ordinances, which are mandated by state law, and also establishes zoning standards along state-designated wild and scenic rivers. The department also investigates fish kills and assesses damages from polluters.

Minnesota Pollution Control Agency	<p>The pollution control agency has responsibility for ensuring compliance with state and federal standards for all discharges into the air, land, or water. It exercises its regulatory authorities through an extensive list of permits as well as review processes.</p> <p>Air quality is protected through general air quality permits (for point source emissions), indirect source permits (e.g. parking ramps), and open burning permits. Waste disposal is regulated through solid waste facility permits as well as through permits for hazardous waste regulating storage, disposal, and treatment. Before any activity could proceed that could result in discharge into navigable waters of the state, the agency must issue a section 401 permit. Other permits include above-ground storage of liquids, a certificate of exemption for PCB users, animal feedlots, the discharge of municipal and industrial waste into state waters, a river dredging certificate, and a state disposal system permit for sanitary sewer systems. The National Pollutant Discharge Elimination System permit for any point source that discharges into waters of the U.S. is a federal permit, authority for which has been delegated to the agency. The agency also establishes standards for noise emissions and for general air quality.</p>
Board of Water and Soil Resources	<p>This board approves the establishment of special local tax districts,, called watershed districts, which have regulatory authority over water management.</p> <p>Minnesota State Historic Preservation Office, The State Historic Preservation Office is responsible for preserving historic sites through nomination to the National Register of Historic Places. The office also comments on federally funded or permitted activities under section 106 of the National Historic Preservation Act. The State Historic Preservation Office is housed at the Minnesota Historical Society.</p>
REGIONAL AGENCIES	
Metropolitan Council	<p>The Metropolitan Council was created by the state legislature to do long-range planning for the seven-county metropolitan area. The council reviews projects for consistency with its development guide for regional systems (such as highways, transit, airports, sewers, and parks) and could require changes in local comprehensive plans. A number of commissions have been created to formulate and implement policies for these systems. Particularly relevant to lands in the Mississippi National River and Recreation Area are the Metropolitan Airports Commission, Metropolitan Parks and Open Space Commission, and the Metropolitan Waste Control Commission. The Metropolitan Airports Commission has broad authority over airports in the metropolitan area. It controls the international airport that abuts the Mississippi National River and Recreation Area near the confluence of the Minnesota River. Holman Field on the downtown St. Paul riverfront is</p>

	<p>also subject to MAC authorities over flight patterns and airport management. Through the Metropolitan Council, the airports commission is required to promulgate aircraft noise zones based on appropriate noise levels for each land use. Local governments are then required to incorporate these standards into local controls. This is the only instance where Metropolitan Council land use measures must be adopted by other bodies.</p> <p>The Parks and Open Space Commission has no regulatory powers. The Metropolitan Waste Control Commission is not a regulatory agency. However, the commission owns all the major municipal waste treatment systems and approximately 470 miles of the sewage collection system in the corridor and,, through review, approval,, and funding of local sewer management plans, serves in some ways as a de facto regulatory body.</p>
<p>Counties, Cities and Townships</p>	<p>There are 21 cities and 4 townships in the 5 Minnesota counties that encompass the MNRRA corridor. Local governments have broad planning and regulatory control over development in the corridor. Each of these political entities have regulatory power over land and water use through a variety of departments, agencies, commissions, etc. Minnesota state law gives these local governments primary authority over land use regulation. Local governments are often responsible for enforcement of standards written by state and county level agencies or the state legislature.</p>

APPENDIX J: INTERPRETIVE CONCEPT AND COST ESTIMATE FOR HARRIET ISLAND CENTER

PRELIMINARY PROGRAM FOR INTERPRETIVE MEDIA AND ACTIVITIES

General Functions

The Harriet Island center in St. Paul will be designed to provide interpretation, education, orientation, and visitor services.

Specific Functions

- provide focus and identity for the Mississippi National River and Recreation Area and the National Park Service
- provide comprehensive interpretation of selected themes
- orient visitors to resources and recreational opportunities throughout the corridor and nearby areas
- provide information and orientation to other units of the national park system
- provide a staging area for public and environmental education programs
- interpret complex stories through interpretive media and a variety of personal programs
- provide security and environmental controls for displaying original objects
- provide books and other educational products for sale

- Visitor Experience Goals

- Visitors to the Harriet Island interpretive center will have the opportunity to:
 - appreciate the importance, scope, significance, value, beauty, and grandeur of the Mississippi River
 - learn about recreational opportunities in and around the MNRRA corridor
 - learn specific and current information about the status and health of corridor resources
 - learn information and stories related to interpretive themes
 - find experiences and opportunities that relate to visitor interests and backgrounds

- learn to help protect and enhance the natural and cultural values of the MNRRA corridor

Interpretive Themes

All interpretive themes will be interpreted to some degree at this center. However, certain themes will be emphasized because resources nearby enhance the ability to tell certain stories. See the plan text for a complete list of these themes and an identification of which ones will be emphasized at Harriet Island.

Audience

The Harriet Island Center will serve many audiences:

- neighborhood residents
- downtown office workers
- metropolitan area residents
- out-of-state tourists and visitors
- international visitors
- school groups
- community groups
- recreationists (cyclists, hikers, boaters, etc.)
- families, individuals, peer groups
- first-time visitors
- return visitors
- volunteers
- seminar, workshop, or junior ranger program participants
- people waiting for the excursion boat

INTERPRETIVE CENTER CONCEPT

The location of this center in a major metropolitan area emphasizes the importance of return visitation. Media and program planning will take this into account, and provide changing experiences in addition to more traditional approaches. The location also means that potential visitors will have many other choices of how to spend their leisure time. For this center to accomplish its goals, there must be sufficient critical mass, and it must be enough of an attraction to be appealing to potential visitors and corridor users. It should also be a comfortable place and encourage return visits.

The side of the center facing the river will have an expanse of windows. Visitors will be able to see the Mississippi River, the St. Paul downtown skyline, and Harriet Island park. Since ambient light can threaten archival materials such as paper and textiles and can fade graphics, sensitive materials will be kept away from windows, and treatments such as ultraviolet-reducing film on windows will be considered. Since this is a northern exposure, and the exhibits will not be rich in artifacts, accommodation between views and artifact conservation should not be too difficult. The center will have several areas for visitors.

There will be additional space in the building for restrooms, utilities, and circulation that will bring the total interpretive center portion to about 12,000 square feet. There will be about 7,000 square feet of administrative offices housing the MNRRA headquarters staff, bringing the total size of the building to about 19,000 square feet. All space estimates are preliminary and subject to refinement during building design.

Lobby

The area indicated for the lobby (1,500 square feet) will include a vestibule, information counter, seating, and an orientation area. There will be sufficient space to accommodate the arrival of bus loads of up to 60 people at one time.

The identity of the center and of the Mississippi National River and Recreation Area will be established immediately inside the building. The orientation area will inform visitors about recreational resources in and around the MNRRA corridor, and to visitor services such as food and lodging. Most of the space will be devoted to recreational opportunities; visitor services information could be handled with a brochure rack, computer, and/or a notebook with compiled listings.

Exhibits

Exhibits will be multi-sensory, many will be interactive or participatory, and they will offer enjoyable experiences to diverse audiences. In part because of the urban setting and clientele, the experiences will be more interactive, experiential, and, perhaps, contemporary than exhibits found in many national park service visitor centers. There will be computers, live fish, video, and virtual

reality experiences. There will be experiences that appeal to teenagers and children, to inner-city residents, and to ethnic minorities who may have had little experience with national parks. Not everything will be interactive; there will be opportunities for more passive, intellectual, and contemplative experiences as well. Many visitors will find themselves unable or unwilling to take in everything in one visit, thus encouraging return visits. Temporary exhibits will also provide new attractions to metropolitan residents. Alcoves will help focus activities for educational groups and will feature specialized videotapes.

Visitors will find the exhibit area organized into three general spaces:

- (1) People and the River — stories, issues, and experiences dealing with human interaction with the upper Mississippi; the working river and the recreation river; the river as scenic, recreational, historical, cultural, natural, economic, and scientific resource
- (2) Ecological Communities of the Upper Mississippi — aquatic and associated ecosystems of the Mississippi will be represented; pool, riffle, and benthic communities, wetlands, tributary streams, lakes, urban river, farmland river, and recreational river
- (3) Welcome to the National Park System — how, where, when, and why to visit national parks; trip planning assistance; Mississippi National River and Recreation Area is one of over 350 national park areas; how to use but not abuse our parks

The first two areas could be developed in partnership with other organizations. Commercial and recreational organizations could assist with the development of media exploring human interaction with the river. The expertise of an organization like the Minnesota Zoo or the Science Museum of Minnesota will be sought for developing and operating the ecology wing.

Specific exhibit and other media recommendations will be developed later in the interpretive plan, which will be prepared following approval of the comprehensive management plan. In general, however, the following approaches could be used to

provide enjoyable and educational experiences and are offered as examples.

(1) People and the River

Visitors will explore the many ways people interact with the river, how they benefit by it, how they change it, and how they take care of it.

The economic story, "the working river," will be a major emphasis. Visitors will be able to learn how the river provides transportation, energy, cooling, and waste disposal for millions. They will consider the costs and the benefits of the many ways people work the river. Recreation is the other major use of the river. A significant interpretive objective of this center will be to help visitors enjoy safe and low-impact recreational activities in and around the Mississippi National River and Recreation Area. Exhibits could give visitors updated information on resource conditions, direct visitors to desired areas, inform them of behaviors that are unsafe or damaging, encourage involvement in new activities, and recommend further information.

Using virtual reality technology, visitors with computerized video headsets could steer a tugboat hauling barges to St. Paul, paddle a canoe exploring the Pig's Eye nature preserve, or pilot a motorboat through a lock and safely past a sailboat. They will learn the different requirements of the many craft that ply the river and how to use them safely and without harmful impacts.

Through interactive video, visitors could decide transportation policies, weighing options, and costs and benefits of moving commodities and other goods. The game could offer several levels, thus appealing to children and adults, and offering more to do in future visits.

Another interactive video program could let visitors explore issues of pollution control, energy use, waste disposal, land use, and other environmental issues that involve multiple objectives and interests. Activities such as this will help educate residents and river users to become more effectively involved in finding solutions to common problems.

Contemporary issues of human use of the river could be considered using updated displays of newspaper articles, television news segments, and books. Visitors will see multiple perspectives, better understand the relevance to their lives, and pay more attention at home to river-related issues.

Anything spilled, flushed, poured, deposited, or thrown away in a river's watershed can affect the river. The Mississippi's watershed covers two-thirds of the lower 48 states. Visitors should learn this basic relationship. One could start with a computer program that takes visitors' zip codes or home countries and places them in the watersheds of the Rum River, the Zumbro, the Mississippi or the Ganges. A model could illustrate to young visitors the dynamics of a typical watershed.

The diversity of MNRRA activities and changes over time could be interpreted with photographs, paintings, sketches, poetry and other literature, and music.

Visitors will have access to additional experiences and more in-depth information in the library, bookstore, other institutions, and the MNRRA corridor. The availability of these supplementary experiences could be announced through the display of library and sales publications and description of other interpretive sites and locations to be visited. Staff and documents will also be available for further discussions.

(2) Ecological Communities of the Upper Mississippi

Visitors will discover aquatic and associated ecosystems of the Mississippi, see many of the plants and animals that live there and learn of their interrelationships, and find out how biological diversity could be restored and maintained.

The aquatic wildlife of the Mississippi National River and Recreation Area are mostly inaccessible. Even anglers catch only the top of the food chains. This center will provide access to and understanding of riverine and riparian communities and encourage stewardship. Ecosystem-based tanks could show the larger residents of aquatic communities: the fish, reptiles, amphibians, mollusks, crustaceans, and plants. Microscopes will reveal the smaller residents ranging from insects and worms to single-celled creatures. Interpretation

will emphasize ecological relationships more than the natural history of isolated organisms.

Associated communities such as bottomland forests, marshes, swamps, creeks, and ponds could be introduced in a similar fashion. Live animals will include only those that could be kept in aquariums or terrariums. The lives of river-dependent residents such as raccoons, muskrats, herons, and kingfishers could come alive with photographs and video.

Using computers, visitors could explore population dynamics, balancing different parameters (such as food, habitat, pollution, predation) in trying to maintain or create biological diversity in the Mississippi.

Visitors will have access to current scientific research on ecological systems of the upper Mississippi, concentrating especially on the MNRRRA corridor but including related areas as well. This could be provided through a variety of media and programs. Changeable exhibit modules could present up-to-date research with photographs, text, and video. An alcove with a lab table, tanks, counters, and benches could host a variety of talks and demonstrations by staff and docents. Library resources will give visitors and students the opportunity for research.

(3) Welcome to the National Park System

The location of the Mississippi National River and Recreation Area in a metropolitan area offers an opportunity to reach out to populations that have had little previous access to national park areas and values. For metropolitan residents and out-of-state tourists, this center could offer needed services that will make visits to national parks more frequent, enjoyable and beneficial, and more respectful.

In 1986 a National Park Service task force developed recommendations to create a series of urban gateways that will help make national parks accessible to everyone. This center is an opportunity to bring about that vision.

Urban partnership areas such as the Mississippi National River and Recreation Area are a new concept to many. Visitors will learn why

MNRRRA is part of the national park system and will learn about the similarities and differences among areas such as MNRRRA, Yellowstone, and Voyageurs national parks.

Attracted by powerful photography and videography of park resources and experiences, visitors (especially those unfamiliar with the national park system) could learn more about key issues and information.

Basic trip planning assistance will be available in person, through the use of interactive computer programs and by telephone. The reference center will provide additional materials that could be used for planning trips to other NPS areas.

Temporary Exhibits

Rotating, traveling, or temporary exhibits will be an important service in the center, especially for encouraging return visits. This space will also be available for programs, workshops, and other activities.

Audiovisual Arts

In the auditorium there will be an introductory film that presents the significance and grandeur of the Mississippi River and defines the concept of the Mississippi National River and Recreation Area. This will be the primary vehicle for interpreting theme 1: the Mississippi is one of the world's great rivers. The river and watershed will be treated as an entire system. It will also enable visitors to understand the MNRRRA's place in our system of protected areas, and it will encourage respectful use of corridor resources and associated areas.

Because there is already an Omnimax theater and other large format presentations in the area, consideration should be given to a 35mm film format with surround sound. This format will help tell the big story and will enhance the ability of the center to effectively communicate the important messages.

There will be short video programs available for visitors. These will be on a variety of subjects relating to MNRRRA themes. Some will be produced commercially or by the news media; others will be

specially produced to show in this center and elsewhere. These will be shown in the video alcove and elsewhere in the exhibit area. Generally, seating will be available unless the program lasts less than two minutes.

The video alcove will provide seating for about 40 people. Programs could be automatically scheduled as well as hosting special programs such as those for school groups. This area will give the operators increased flexibility, keep the auditorium free for the introductory program, and allow much greater access to the many excellent and relevant video programs already available.

Audiovisual programs could be developed through partnerships with other organizations.

Auditorium

This will be designed as a theater, with good acoustics, a partially sloping floor (with flat areas for wheelchairs), and fixed seating for about 100 people. Consideration will be given during facility design to making this facility suitable for theatrical productions.

Reference Center

This space will offer a wide range of materials pertaining to the Mississippi National River and Recreation Area, the entire Mississippi River and its watershed, riverine and riparian ecology, urban parks, and the national park system. The emphasis will be on providing these materials in digital format to facilitate access by computer from remote locations. These materials could be offered in partnership with existing library services in the Twin Cities area.

Classrooms

Two classes of 60–70 people will be able to meet in this area for environmental education programs. The space could function as one large area or be divided in half. Facilities will maximize flexibility and include laboratory tables, sinks, aquariums and terrariums, storage, and movable seating. Groups will be likely to spend part of their visit in these rooms and the rest in the exhibit area, auditorium, video alcove, on a boat on the river, and outdoors.

Bookstore

A cooperating association bookstore will offer publications, videotapes, postcards, and other theme-related and educational items for sale about the Mississippi River, MNRRA, and other NPS areas. Contiguous storage will be provided.

OUTDOOR INTERPRETIVE AND RECREATION EXPERIENCES

For many people a visit to the interpretive center will be part of a recreational package that could include a hike, bike ride, boat ride, picnic, or driving tour. Trails from the center will lead to Harriet Island park, the riverfront (including excursion boat, promenade, and marina), and pedestrian/bike trails to Lilydale Park.

At Harriet Island park there will be several points where a view or a place is significant, interesting, theme-related, and accessible, and wayside exhibits might be installed. Interpretation and environmental education programs will be conducted on and along the river. The National Park Service will have a boat for environmental education programs. It will be moored at the Harriet Island marina and will be used in aquatic ecology programs for schools and other scheduled groups.

At Lilydale Park, which is currently being planned and developed by St. Paul Parks and Recreation, there will be an important visitor experience. Harriet Island visitors could walk, jog, bicycle, roller blade or drive to Lilydale. There they will find opportunities for more hiking, jogging, etc., plus fishing, canoeing, nature and geology study, interpretation and environmental education programs, old home sites, and picnicking.

Plans are currently in place to develop a hiking/biking trail west of Lilydale, eventually reaching the Minnesota Zoo and connecting with several other trails. Harriet Island will be part of a metropolitan system of trails that will complement the NPS interpretive center.

COST ESTIMATE

Following is a cost estimate for the Harriet Island facility. Development and interpretive media costs cannot be estimated in great detail at this time. Estimates provided below are "class C,"

which means they are based on general size assumptions and the cost of constructing similar facilities in the Midwest. They should be considered rough, preliminary estimates subject to change during additional planning and design. These cost estimates were prepared by an NPS estimator (based on the cost of similar facilities in the Midwest, using 1993 cost data) to comply with NPS guidelines for preparing general plans. Facility estimates include construction costs, project supervision, and contingencies. The Mississippi River Coordinating Commission neither agrees nor disagrees with these estimates.

Audiovisual media design, equipment, and production costs are not included in these figures.

The facility development costs will break out approximately as follows:

Area	Development Cost
Visitor center space (12,,000 sf)	\$3,773,000
Headquarters space (7,,000 sf)	1,421,000
Furnishings	377,000
Interpretive exhibits	1,500,000
Landscape development/site preparation	1,039,000
Utility connections	14,000
Parking (100 cars)	223,000
Subtotal	\$8,347,000
Site surveys/design costs	\$1,600,000
Harriet Island Total	\$9,947,000